

use of news, print and website media.

Laboratory reports indicate that the material is “silt- or clay-like organic sands, with sand comprising 50% and organic material ranging from 1% to 6% of the sediment volume” – material classified for commercial use and likely to be employed in a road or bridge project, Fitzpatrick told me.

**FINALLY...**

Two cutter suction dredgers have been deployed on the work:

- ◆ A Dredging Supply Co built 10in

cutterhead on the main channel, accompanied by an idler barge attached to the dredger’s stern (it increases the cutting area)

- ◆ An 8in cutterhead on creeks around the Pocket.

Turbidity screening was in place and Dickerson Florida was conducting hydrographic scans as DPC went to press, because it’s anticipated that significant quantities of submarine debris will be found. Indeed, the company’s co-project manager, Larry Heimer, told me that he’s preparing

himself for a few surprises: “Sunken boats, refrigerators, washing machines, bicycles and the like are expected – in these types of projects, the unexpected is to be expected!”

Unfazed by the delays, Fitzpatrick remains a firm believer in good old-fashioned principles when it comes to sensitive dredging projects: “I think one of the biggest factors in a project that has several challenges and potential pitfalls is to have patience,” she said.

*More info at [www.manateepocketproject.com](http://www.manateepocketproject.com)*

# Innovation Was The Answer

**Popular boating and fishing destination Lake Cochituate was contaminated by PCBs two decades ago. It’s being cleaned up, but contractor Inner Space Services has had several challenges to combat, as GIRIJA SHETTAR found out...**

Illustrating a type of cleanup project increasingly common across the US, the Massachusetts lake system in Natick – consisting of five linked “ponds” named Fisk, South, Carling, Middle and North that together are around 8km long – is a *Superfund* site as designated by the US Environmental Protection Agency (EPA).

The move comes not a moment too soon for this beauty spot. Contamination occurred in the 1980s when an electrical transformer exploded at a nearby army support centre with the runoff entering the lake through a storm drain. Tests on fish showed dangerously high levels of PCB contamination, but people still eat fish from Cochituate, despite warning signs around the lake.

**HOT SPOTS**

Led by Boston’s **Charter Environmental**, Maine’s **Inner Space Dredging Services** was subcontracted for dredging, treating and dewatering on the \$2.8M project.

Starting in July, dredging’s been restricted to locations closest to the storm drain in an area called Pegan Cove on the South Pond’s southeast corner, where PCB concentrations exceeded 1mg per kilogramme. The aim is to bring the average concentration to well below that figure, said Marco Kaltofen, a civil engineer appointed by the local council to oversee the cleanup for residents.

The contractors deployed a computer-controlled **Ellicott Swinging Dragon 300 SL** with a differential global positioning system, and the capability of piping dredged sediment at a rate of 6m<sup>3</sup> a minute into geotextile dewatering tubes, to remove around 0.3m from the top sediment. A barrier of buoys held up silt screens to prevent the spread of turbidity caused by dredging.

The geotextile bags used for dewatering can reach heights of around 2m and lengths of nearly 100m. They contain flocculant, a substance that coagulates and thus separates contaminated silt from the water. The clean water drains from the bag while the silt is

dried and subsequently taken to a placement site.

“The project threw us a number of challenges,” Inner Space Dredging Services owner Laurie Lee Mason recounted. “There was very little room to build a containment and dewatering area, and there was a high iron content in the slurry mixture that needed to be precipitated out before the decant water could be returned to the lake,” he said.

Nevertheless, solutions were found. “We made most efficient use of the area by using a jersey barrier and double liner system to contain the geotextile tubes as they dewatered. This gave us flexibility in utilising the area. The effluent was then pumped from the containment area sump through a combined treatment/ filtering system.”

And as for problem two: “Traditionally, iron content would be precipitated out with an aeration system within large holding tanks, or with chemicals such as H<sub>2</sub>O<sub>2</sub> [hydrogen peroxide]. But a lack of space for the tanks ruled this out. So we created an aeration system within the dredging line that worked extremely well to keep the iron levels well below the EPA’s requirements for discharged effluent water – so no tanks or H<sub>2</sub>O<sub>2</sub> were required,” Mason concluded.

**FINALLY...**

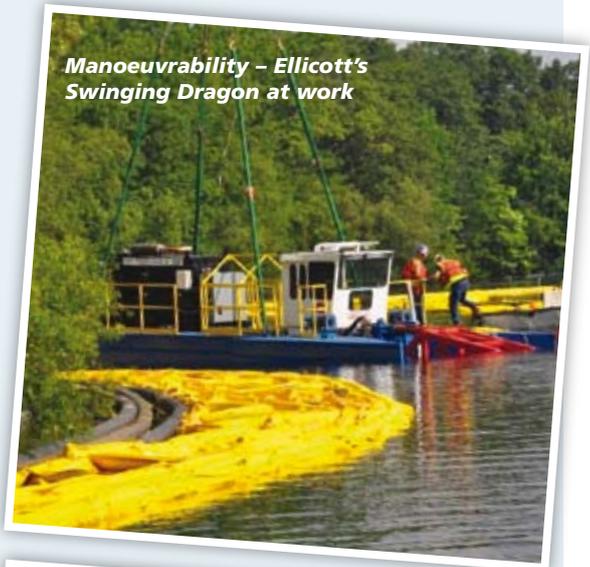
A further innovation emerged in relation to treating the contaminated sediment.

“We introduced a new automated flocculant feed system that has real-time feedback to the dosing system, so flocculant feed was maintained at its most minimal and productive flow. This maximised the flocculant efficiency and prevented over-flocculation and additional expense,” Mason told us.

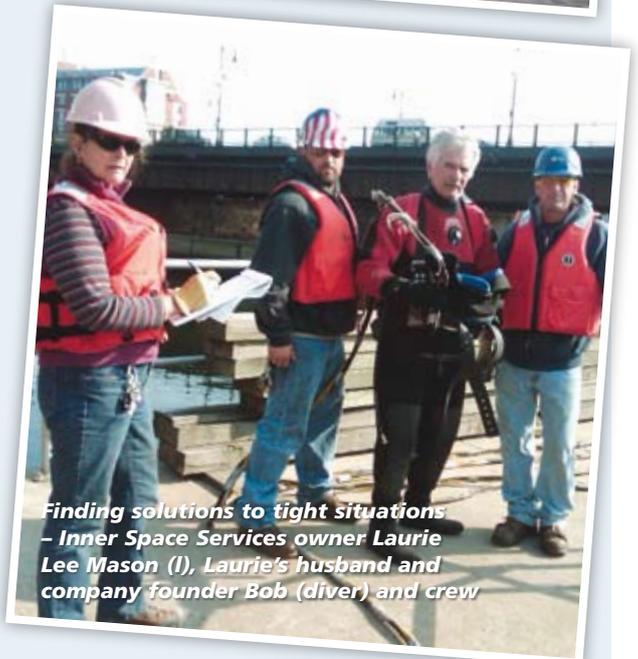
Dredging is now complete. As you

read this, filling of the dewatering tubes should be nearing completion and a start will be made on backfilling with clean sand over the dredged areas that require it.

*More info at [www.innerspacedredging.com](http://www.innerspacedredging.com) + [www.charterenvironmental.com](http://www.charterenvironmental.com)*



*Manoeuvrability – Ellicott’s Swinging Dragon at work*



*Finding solutions to tight situations – Inner Space Services owner Laurie Lee Mason (l), Laurie’s husband and company founder Bob (diver) and crew*