

# Dredging Up A New Idea

Using remote dredging technology for golf course ponds.

BY PATRICK J. GROSS



The hydraulically powered suction-head dredge vacuums sediment from the bottom of the lake and pumps the slurry to the processing area one-half mile away.

From the time a lake is built, it slowly becomes contaminated with debris. Over a number of years, the layer of sediment builds, the lake becomes more shallow, and increasing problems are experienced with algae and water weeds. At this point, many courses face the daunting task of dredging the lake; however, such a project is often very costly, disruptive, and time consuming.

The Canyon Lake Golf Community in Canyon Lake, California, was facing this situation on their 400-acre recreational lake. An analysis of the lake indicated that more than 225,000 cubic yards of sediment needed to be removed to restore the lake. Draining the water and removing the sediment with large earthmoving equipment was not a desirable option due to the expense, disruption, and the extended

time period that such an operation would entail. The general manager of the Canyon Lake Homeowners Association, Paul Johnson, did an internet search to investigate various options for dredging. He came across several references to a remote dredging technique that uses a suction head dredge that would allow them to remove sediment without having to drain the lake, while processing the sediment and debris in a remote location.

The process involves placing a small floating dredge in the lake. A flexible pipe with a hydraulically controlled suction head device is operated across the bottom of the lake to vacuum the sediment and pump it up to three miles away to a processing area on the shore. Processing the sediment involves the following steps:

- Rocks and larger debris are separated through a processing screen.
- Polymers and flocculants are injected into the slurry.
- The treated slurry is pumped into a dewatering bin, which is essentially a large dumpster with a special filter fabric liner in the bottom of the container. For smaller operations, a belt press can be used to remove the water from the sediment.
- Clean drainage water flows out the bottom of the bin and is collected in a storage area and then is pumped back into the lake.
- Once the sediment has dried, it is hauled to a nearby construction site to be used as fill material for a new housing development.

The scope of the Canyon Lake dredging operation was quite large compared to most golf course situations.

The equipment used is capable of processing 200 to 250 cubic yards of sediment per day. This same type of equipment is available in smaller sizes and can be hauled with a pickup truck and small trailer for use in golf course ponds. The equipment can be rented (as was the case at Canyon Lake), or contractors are available to provide this service. The overall cost of processing the material ranges from \$4 to \$7 per cubic yard and does not include hauling or disposing of the sediment, which is the largest expense of the operation.

There are several benefits associated with remote dredging technology, including:

- Less damage to the golf course and areas immediately surrounding the lake.
- The material can be pumped and processed up to three miles away from the dredging site, making it less intrusive to the golf operation.
- The lake remains full at all times.
- A significant increase in overall water storage capacity.

A simple internet search of “pond dredging equipment” will provide several references to this type of equipment and various contractors who can perform the job. In the case of the Canyon Lake Golf Community, state and federal grants were available to help offset the cost of renting the equipment and implementing the project.

In the past, pond dredging was a messy, time-consuming, and disruptive process. This new remote dredging technology is ideally suited for golf courses and is capable of removing the sediment and processing the material offsite without disrupting the golf course.

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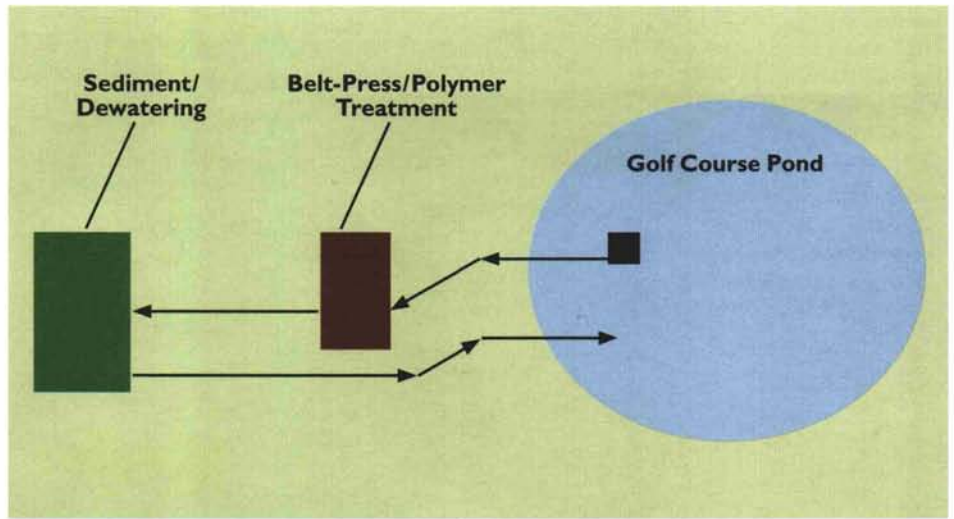


Diagram of the remote dredging process. The sediment from the lake can be pumped up to three miles away to the treatment and dewatering area and the clean water returned to the lake.



After mixing the slurry with a polymer and flocculant, it is pumped to a dewatering bin to separate the sediment from the clean water. From there the clean water drains from the bottom of the dewatering bins and is pumped back to the lake.