The recent Dredging Study performed by RWSA considers only an aggressive 'all-at-once' approach – the most expensive and environmentally damaging approach.

Small Bites is an alternative that spreads the restorative dredging over a 25-year period while continuously performing maintenance dredging to eliminate new accumulation. It is environmentally superior, much more efficient, and guarantees that in 25 years (when our area may need the capacity) sufficient water is available.

The proposed RWSA ‘all-at-once’ approach costs millions of additional dollars, fails to address the ongoing maintenance required to avoid a repeat of history and does not provide for removing future sediment nor ensures that we have enough water when we need it.

A good dredging program minimizes initial and lifetime costs, environmental impact, and future sedimentation. The most expensive way to dredge is ‘all at once.’ This removes existing sediment in the shortest amount of time, but spends the maximum amount of money to get the job done because:

- a large dewatering site is required.
- large, expensive dredging equipment is utilized.
- large earthworks must be created to form dikes at the dewatering site.
- large amounts of dredged material must be stockpiled for sale or disposal.
- commercially valuable material floods the market, depressing prices.

High costs are borne in a short timeframe, necessitating borrowing and debt service costs.

The current RWSA approach of a one-time aggressive dredging program is projected to cost $34,037,791 to $40,193,511 PLUS the cost of stockpiling the saleable dredged products (possibly $2 million more).

RWSA CHOSE THE MOST EXPENSIVE DREDGING OPTION POSSIBLE

As HDR stated in the 6/30/10 meeting at City Space, they examined only this very expensive alternative because RWSA’s RFP limited their scope of their work to that alternative.

THE ‘SMALL BITES’ ALTERNATIVE

‘Small Bites’ is an alternate approach that combines maintenance dredging (eliminating the annual influx of new sediment) with ‘catching up’ on deferred dredging obligations (dredging the large sediment load that currently exists).

‘Small Bites’ is truly a game-changer because it dramatically reduces costs and eliminates future sedimentation and degradation of the SFRR. ‘Small Bites’ allows us to avoid destroying our primary existing reservoir and preserves a valuable financial and multi-use community resource. Before considering the details of ‘Small Bites,’ we must remember context: we are in this position today not due to local growth or additional water demand (demand has actually fallen 25% over the past 10 years due to installation of low flow toilets, etc.), but because the SFRR has had no maintenance dredging or major upkeep since it was built in 1966. There are now 1,125,810 cubic yards of accumulated sediment due to that neglect and approximately 60,400 cubic yards of new sediment is added each year.

‘Small Bites’ is a far less expensive, more practicable and environmentally friendly alternative than the RWSA ‘all-at-once’ approach. It guarantees the maximum amount of water storage when we need it in the future.

KEY FEATURES OF ‘SMALL BITES’

How long a term are we to consider? For purposes of discussion, let’s consider a generation – 25 years.

<table>
<thead>
<tr>
<th></th>
<th>RWSA ‘All-At-One’</th>
<th>Small Bites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity of sediment to be removed in first year</td>
<td>1,125,810 cubic yards</td>
<td>105,435 cubic yards</td>
</tr>
<tr>
<td>Eliminates new sediment?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Equipment Deployed</td>
<td>Large dredging units, miles of pipes</td>
<td>Small, multiple smaller units, no miles of pipes</td>
</tr>
<tr>
<td>Dredging booms and hoses</td>
<td>Maximum dredging length and longest possible outreach required to achieve large loads quickly</td>
<td>Very flexible and adaptable to unusual weather patterns and local needs</td>
</tr>
<tr>
<td>Reserve Condition in 25 years</td>
<td>Back to where we started – with 25 years of sediment accumulation and in need of dredging</td>
<td>Proactive and at full operating capacity</td>
</tr>
<tr>
<td>Average needed</td>
<td>100 and 50 Acre sites</td>
<td>About 5 acres</td>
</tr>
<tr>
<td>Products</td>
<td>Gross oversupply at one time, which lowers market price (change to pay for dredging) at considerable expense.</td>
<td>Supplement existing market, no stocking and reserve market pricing</td>
</tr>
</tbody>
</table>

1 may need 1-2 years for permitting.

DEWATERING

Dewatering is the most expensive and environmentally damaging part of the dredging process. Aggressive dredging requires a very large amount of sediment to be dewatered in a short timeframe, leading to a massive increase in operational scale, cost, and impact. The RWSA approach requires a large, but relatively flat site and also requires large amounts of clay to be trucked in for construction of drying lagoons. These lagoons partially dry the products to the consistency of peanut butter, but additional drying may be required for some products, leading to multi-step processes and additional cost. Permits are required from 3 or 4 governmental agencies. Reflecting the difficulty and expense related to this large-scale approach, HDR initially looked for 100-acre sites to handle the massive sediment loads of the ‘all-at-once’ approach. But, after not finding enough, they were forced to look for smaller, 50-acre sites. Even those were few, so their final solution was composed of several smaller sites combined. (And that does not include room to stockpile the saleable products – see above – in a suitable environment.)

The ‘Small Bites’ approach requires only a small site (perhaps 5 acres) and standard dewatering presses can be used (similar to those used to dewater sludge at water treatment plants). This approach yields a loose dry product similar to those sold at Lowes in small bags, often without need for further processing. This smaller scale greatly reduces costs, improves the final product available for resale, and minimizes the environmental impact/damage. It is much easier to achieve because there are many more suitable 5-acre sites on the reservoir than 100-acre sites.

VALUE OF REMOVED PRODUCTS

The aggressive RWSA method removes all these products at once. This requires either a large stockpile of products or leaving them in-place and abandoning the opportunity to sell them. Large amounts of stockpiled products will take years (possibly decades) for the market to absorb without collapsing prices. And many stockpiles will have carrying costs because they must remain clean and dry.

Small Bites greatly improves or eliminates this situation. The savings will likely be in the millions of dollars, but this requires a study to confirm.

FLEXIBILITY

The ‘Small Bites’ approach also provides a number of other advantages to the community:

- Fishing access to the reservoir is improved and guaranteed for the long term.
- Hydrilla will be kept under control for the length of the project.
- Rowing and kayaking lanes can be kept open and clear.
- Products to be recovered will sell for higher prices, reducing the cost of the project.
- Smaller dredges can maneuver better around wetlands, docks and bridges and be unobtrusive.
- Launching, moving and setting up smaller equipment is easier.

FINANCIAL BENEFITS

Aggressive Dredging costs so much that RWSA must issue finance bonds to pay for the project. The $40 million of bonds plus debt service on these bonds is approximately $4 million per year.

Initial indications are that ‘Small Bites’ will likely cost about $1 million per year which is substantially below merely the interest cost of the proposed dam/pipeline alternative or dredging ‘all at once.’

When we perform a valid Demand Study that uses actual consumption numbers and a post-dredging Safe Yield Analysis, we will likely find that the Small Bites dredging program supplies enough capacity for 30-50 years.

CONCLUSION

Based upon the restrictions under which they worked, HDR has performed a valuable study. However, those restrictions have cost our community the opportunity to find the best, most cost-effective solution.

It is incumbent upon us to fully examine the option ‘Small Bites’ method. We will probably find that this method costs less, is more environmentally friendly and produces a much better long-term result. Equally important, it respects our natural and community resources and overcomes the tendencies instead of maintaining those resources.

DO NOT DELAY

No additional studies are needed. All information required to issue a Request For Proposals (RFP) is known. Potential bidders are waiting to be asked for their proposals.

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