SOLITUDE
LAKE MANAGEMENT

Restoring Balance. Enhancing Beauty.

Mechanical Solutions 101

Nuisance Aquatic Vegetation Management & Accumulated Sediment Removal: Harvesting, Hydro-Raking & Dredging

Much like a living organism, lakes and ponds are born, age and change physically over time. Many factors can affect the length of a waterbody's existence, but the lifespan is considered complete when organic matter builds up to the point that the waterbody can no longer retain water. This build-up can be caused by years of aquatic plant and algae growth and die back, plant decomposition and erosion.

While a shallow or filled-in pond usually indicates it's coming to the end of its lifecycle, preventative solutions like harvesting, hydro-raking, and dredging can help reduce signs of aging and give many years of life back to the waterbody. With the complexities of each individual ecosystem and property, how do you know which solution is right for your waterbody?

Harvesting

Year after year, do you find your waterbody covered in nuisance aquatic plants like water chestnut or water hyacinth? If left unmanaged over the course of several seasons, undesirable aquatic plants and weeds may begin to thrive and decompose in larger numbers than your lake or pond can support naturally, choking out native plants, threatening dissolved oxygen levels, and destroying the habitats of fish and other aquatic animals.

Mechanical harvesting is a great management option for any lake or pond suffering from undesirable plant growth, but particularly those that cannot or do not want to utilize aquatic herbicides. This non-chemical strategy helps free up the water column and encourages native plant growth in lakes and ponds of all sizes through the physical removal of nuisance weeds and invasive plant species.

Mechanical harvesters consist of a paddle wheel propelled barge that is equipped with an adjustable sickle-bar cutting head and mesh conveyor system. The design allows these machines to efficiently cut and collect target nuisance aquatic vegetation, and access shallow water areas where problematic plant growth often occurs. A variety of different machines and sizes exist to address large-scale infestations or target less accessible coves and inlets.

Harvesting projects can yield in the range of 8-15 tons of wet vegetation biomass per acre, which is usually deposited along the shoreline or loaded into transport barges to be properly disposed of off site. The removal of plant biomass not only provides immediate relief of problematic aquatic plants, but also addresses the associated nutrients, one of the underlying causes of unbalanced plant production. By removing the biomass, you remove one of the primary internal sources of nutrient loading on that waterbody. It also helps reduce the amount of organic sedimentation that would otherwise occur each year when these plants died back during the winter and sank to the bottom.

Mechanical harvesting is most effective as an aquatic plant control technique when employed for the management of annual seed propagating species. One or two harvests per year are recommended to ensure annual prevention of nuisance aquatic plant species. Over time, a diligent and knowledgeable approach can help significantly limit and even eradicate nuisance plant species by preventing further seeding.

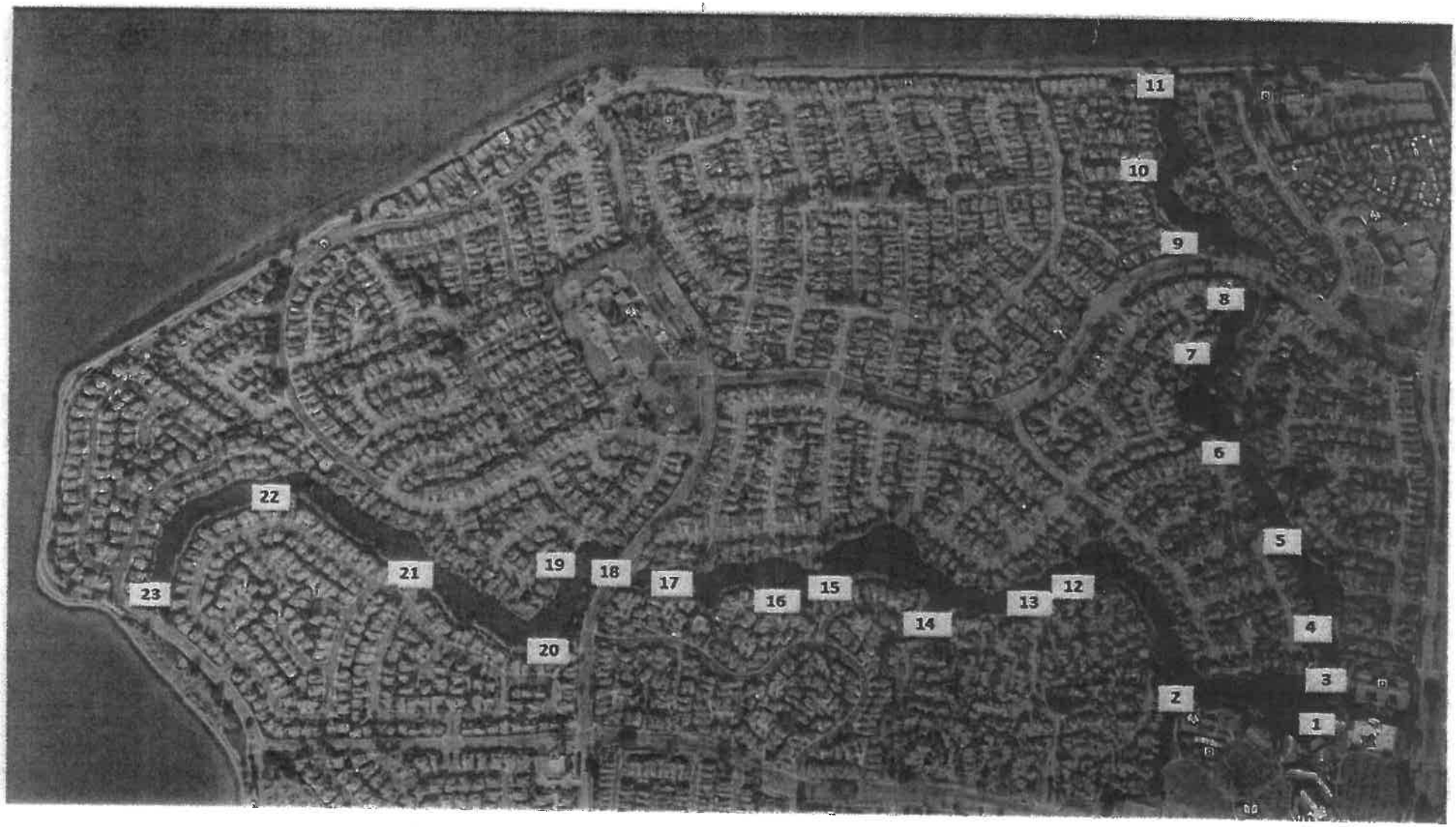

Figure 1: Harbor Bay Isle Lagoon Maintenance Check Points

US HARBORS

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Alameda, CA - Jun 2022

Date		High				Low						
		AM	ft	PM	ft	AM	ft	PM	ft	Rise	Set	Moon
1	Wed	12:55	6.5	3:28	5.1	8:11	-0.6	8:00	3.4	5:47	8:26	
2	Thu	1:29	6.4	4:11	5.1	8:45	-0.5	8:44	3.5	5:46	8:27	
3	Fri	2:07	6.2	4:54	5.0	9:22	-0.4	9:33	3.5	5:46	8:28	
4	Sat	2:50	5.9	5:38	5.1	10:02	-0.3	10:29	3.4	5:46	8:28	
5	Sun	3:38	5.6	6:21	5.1	10:46	-0.1	11:34	3.2	5:46	8:29	
6	Mon	4:36	5.2	7:02	5.3	11:34	0.2			5:45	8:30	
7	Tue	5:45	4.8	7:40	5.6	12:41	2.9	12:24	0.4	5:45	8:30	
8	Wed	7:04	4.6	8:16	6.0	1:44	2.3	1:15	0.8	5:45	8:31	
9	Thu	8:24	4.5	8:51	6.4	2:40	1.6	2:05	1.2	5:45	8:31	
10	Fri	9:40	4.6	9:27	6.8	3:32	0.8	2:54	1.7	5:45	8:32	
11	Sat	10:49	4.8	10:05	7.2	4:20	0.0	3:44	2.1	5:45	8:32	
12	Sun	11:53	5.1	10:46	7.5	5:08	-0.7	4:34	2.5	5:45	8:33	
13	Mon	12:52P	5.3	11:31	7.7	5:56	-1.3	5:26	2.9	5:45	8:33	
14	Tue			1:48	5.5	6:45	-1.7	6:20	3.1	5:45	8:33	
15	Wed	12:19	7.8	2:42	5.6	7:35	-1.9	7:17	3.1	5:45	8:34	
16	Thu	1:10	7.7	3:34	5.7	8:26	-1.8	8:17	3.1	5:45	8:34	
17	Fri	2:04	7.4	4:25	5.8	9:17	-1.6	9:21	3.0	5:45	8:35	
18	Sat	3:01	6.9	5:16	5.9	10:09	-1.2	10:31	2.8	5:45	8:35	
19	Sun	4:04	6.2	6:06	6.0	11:01	-0.7	11:44	2.5	5:45	8:35	
20	Mon	5:14	5.5	6:55	6.2	11:54	-0.1			5:45	8:35	
21	Tue	6:32	5.0	7:41	6.4	12:58	2.0	12:47	0.5	5:46	8:36	
22	Wed	7:53	4.6	8:24	6.6	2:07	1.4	1:39	1.2	5:46	8:36	
23	Thu	9:12	4.5	9:04	6.8	3:09	0.8	2:30	1.8	5:46	8:36	
24	Fri	10:22	4.6	9:42	6.9	4:03	0.3	3:20	2.3	5:46	8:36	
25	Sat	11:23	4.8	10:17	6.9	4:50	-0.1	4:07	2.7	5:47	8:36	
26	Sun	12:17P	5.0	10:51	6.9	5:32	-0.4	4:54	3.1	5:47	8:36	
27	Mon	1:05P	5.2	11:25	6.8	6:10	-0.5	5:38	3.3	5:47	8:36	
28	Tue			1:48	5.3	6:46	-0.6	6:21	3.4	5:48	8:36	
29	Wed	12:00	6.8	2:28	5.3	7:20	-0.6	7:02	3.4	5:48	8:36	
30	Thu	12:36	6.7	3:04	5.3	7:52	-0.6	7:42	3.4	5:49	8:36	