



Capitol Region Watershed District

1410 Energy Park Drive, Suite 4 St. Paul, MN 55108

Phone: (651) 644-8888 Fax: (651) 644-8894 www.capitolregionwd.org

Citizen Advisory Committee Meeting Wednesday January 12, 2011 – 7:00 p.m.

CAC Members Present:

David Arbeit, Bill Barton,
Janna Caywood, Steve Duerre,
Michael MacDonald, Ted
McCaslin, Ole Olmanson
Shirley A. Reider, Michelle
Ulrich, Jerome Wagner

Members absent with notice:**Others Present:**

CRWD Manager Mike Thienes
CRWD Manager Mary Texer
CRWD Manager Joe Collins
Mark Doneux, CRWD Staff
Dawn Nelson, CRWD Staff
Dr. Mark Reinsal,
Floating Island International
Gordy Wrobel,
Floating Island International

Pam Massaro, Citizen
Mark Voerding, Citizen
Bruce Kania,
Floating Island International
Jeff Hanson,
Midwest Floating Island
Rob Scarlet,
Midwest Floating Island

Welcome, Announcements, and Updates

Ted McCaslin opened the meeting at 7:05 p.m. with a request for announcements. There were no announcements.

Public Comment – For items not on the Agenda.

There were no public comments.

Approval of Agenda

Mr. McCaslin asked for additions or changes to the Agenda. There were no additions or changes to the Agenda.

CAC 11-01-01 Motion: *To approve the CAC January 12, 2011 agenda as provided.*

Arbeit/Reider

Unanimously approved

Approval of the December 8, 2010 CAC Minutes

Mr. McCaslin asked for additions or changes to the December 8, 2010 CAC Minutes. There were no additions or changes to the Minutes.

CAC 11-01-02 Motion: *To approve the CAC December 8, 2010 CAC Minutes as provided.*

Arbeit/MacDonald

Unanimously approved

Items for Review and Comment Requested by the Board of Managers**Bruce Kania, Floating Island International**

Administrator Doneux said District Board, Staff and Citizen’s Advisory Members met with Floating Island International representatives at the 2010 MAWD Annual Meeting in December. Everyone agreed that they should present to the CAC. Mr. Brian Kania of Floating Island International introduced Dr. Mark Reinsal, Gordy Wrobel, Jeff Hanson and Rob Scarlet who will all participate in the presentation.

Mr. Kania said a BioHaven floating island is an advanced form of Floating Treatment Wetland which "biomimics" natural floating wetland systems invented by Nature. Vegetated with native plants (preferably perennials), it is a beautiful, natural and sustainable eco-system which provides many benefits, from habitat restoration to water cleansing. There are many products in the BioHaven range: BioHaven® floating islands, Leviathan®, BioHaven Living Walkways™, Shadow Islands™ and Elevated Bio Swales™. BioHavens® are protected by 4 US patents, 5 New Zealand patents, one China patent, one Macao patent, and many patents pending. For further details, contact our office. Mr. Kania explained that BioHaven floating islands are a significant new advance in constructed wetland technology, or treatment wetlands. Wetlands are Nature's way to cleanse water. Simply put, they offer surface area and circulation: surface area for the growth of microbes, which are responsible for converting nutrients and other pollutants into biofilm, which then moves through the aquatic food web; circulation for getting the water in contact with these microbes. BioHaven wetlands provide an augmented surface area, which we call a "Concentrated Wetland Effect".

Mr. Kania said BioHaven floating islands are buoyant mats, planted like a garden and launched onto a waterway. They are made from a matrix of fibers which look like a pot-scrub or loofah. The matrix is water filtration material made from 100% recycled plastic, from drink bottles, which use the most inert plastic available. Layers of matrix are bonded together with foam, which also provides buoyancy.

Mr. Kania noted that floating islands can be made in virtually any shape or size. Large islands and Living Walkways are constructed using a modular system, reinforced for extra buoyancy, yet flexible enough to move with the water. Floating islands can be launched into any waterway, be it pond, lake, stream, effluent pond, lagoon, embayment - any waterway will benefit from a floating island, even the ocean. Mr. Kania said they are usually anchored or tethered in place, though they can be left to float around freely.

Mr. Kania said LEVIATHAN® is the culmination of BioHaven technology as we know it today. It is a "machine" that puts upwards of 2500 sq ft of BioHaven together with high-volume aerators, which can be configured to process thousands of gallons of water a minute. The surface incorporates "runways" which carry water that's been drawn up from de-oxygenated (or dead) areas of the lake, allowing it to soak up oxygen and be processed by microbial activity, before being returned to the water body. The net effect on the lake is higher concentrations of dissolved oxygen throughout, de-stratification and homogenization of temperature, as well as treatment of common pollutants such as nitrates, phosphates and ammonia. Bringing dead zones back to life is the Leviathan's purpose, and we have demonstrated its abilities at the Shepherd Research Center where we have turned around our 6 acre pond, from being incapable of supporting trout to one that now sustains a healthy population of Yellowstone Cutthroat.

Mr. Kania stated that BioHavens were inspired by Nature, in particular, by the floating peat bogs of Northern Wisconsin, which are associated with clean water and great fishing. Using Nature to cleanse Nature is a form of Biomimetics. Mr. Kania said when you walk on a land-based wetland you expect to get wet feet; it's the same on a floating island. They support plant life and an appropriate numbers of waterfowl, but if you want to sustain human activity you need our alternative, the Living Walkway.

Mr. Kania explained that BioHaven Living Walkways are designed to be weight-bearing and so support all kinds of fun activities, from picnics to fishing, to calm contemplation of nature... and a host of other activities in between. They can be made super-buoyant and water-impervious, and could even support an army tank if designed for it! And because it is basically a wetland with added rigidity, it comes with the same aesthetic and water-quality benefits you get with a BioHaven floating island.

Mr. Kania said BioHavens do five things:

1. They remove pollutants from a waterway, including nitrates, phosphates, ammonia and heavy metals.
2. They provide critical riparian edge habitat - in fact, new land mass for use by all kinds of creatures, from microbes to humans.
3. They sequester carbon and other greenhouse gases.
4. They provide wave mitigation and erosion control.
5. They beautify a waterscape.

Mr. Kania said BioHavens are planted with sod, garden plants or wetland plants and launched onto a water body. There the plants are allowed to grow naturally, and, as they develop, their roots grow through the matrix and into the water below. Over time, a natural eco-system evolves. The model for this is Nature herself - BioHavens "bio-mimic" Nature. We are part of a new branch of science, Biomimicry, or Biomimetics. Mr. Kania said BioHavens, and the plants that grow through them, provide surface area for microbes to thrive. Microbes remove pollutants of all kinds, from the nutrients caused by fertilizer run-off and organic waste, to pharmaceuticals such as estrogen, to heavy metals, such as copper and zinc.

BioHavens are a Concentrated Floating Wetland - the huge surface area of fibers provides many times more surface area than an equivalent stretch of bare wetland. Surface area is the key factor for microbial activity to take place, and microbes (bacteria) are the key to removing contaminants from the water. Plants and their roots are also important, but more for the extra surface area the roots provide than for any nutrient uptake the plants themselves account for.

Mr. Kania explained that BioHavens were invented eight years ago, have been successfully trialed for five years and have been on the market since July 2005. They represent a natural, convenient and cost-effective solution for some of the most intractable and expensive problems on the planet; polishing wastewater and storm water, i.e. removing the last percentage of nutrients which are notoriously difficult to get rid of by any other means; sequestering carbon dioxide and methane from effluent ponds to reduce global warming; wave mitigation and protection of levees in the event of severe storms; extraction of salt; mining nutrient loads from any waterway and reducing algal blooms; restoring wetlands without the need for new land and restoring habitat for endangered species such as the trumpeter swan.

They can be made in any shape and size and offer some fun uses to balance the more serious side; creating walkways, piers, docks, jetties; supporting recreational uses, such as picnic tables, floating stages, gazebos; floating vegetable gardens which never need watering; restoring a natural look and balance to any waterway of any size; and new land mass for human habitation.

Not only are they natural, aesthetic and functional, they are cost-effective, "green" and virtually maintenance free.

The PROMISE OF FLOATING ISLANDS

Mr. Kania said as an inventor he can attest to the fact that one of the very best designers of models from which invention can be inspired is nature. Many natural systems have been in place and working almost seamlessly for millennia. Systems like photosynthesis have been evolving, slowly changing, becoming better and better as billions of diverse experiments testing methods of solar-powered growth continue to happen all around us every day. Almost every life form in existence on this planet represents such an experiment. Evolution screens the test results, and we name it natural selection, or survival of the fittest. And nature is a master at blending systems. If there is such a thing as a simple natural ecosystem, it must happen somewhere other than on this planet! Chemical reactions, symbiotic vector relationships, synchronized, almost

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collaborative life strategies, and above all, competition with and between literally thousands of life forms, all of these are likely to occur in any ecosystem on planet earth.

Mr. Kania continued to state that, however, when the level of diversity and complexity reduces, for whatever reason, dramatic change can occur! Human actions are often blamed for reducing biodiversity, and accordingly some argue that we humans are to blame for changes occurring within our ecosystem...and changes like increased level of pollution in our atmosphere and waterways, increased level of greenhouse gasses in our atmosphere, high levels of toxic elements in some of our food, these changes and many others do seem directly attributable to human actions. And yet nature, in its own, quiet way, via countless natural systems, moderates some of our impact. Along the way nature provides us with models that do this, and one of these models are natural, wild, floating islands.

Mr. Kania said wetlands are a remarkably effective way to clean water. Counter-intuitively, the richest of ecosystems offer water that is most lacking in nutrients. Pure water will not have fertilizer or herbicide or pesticide residue in it. While it may have minerals in it, these will be in trace amount volumes. A healthy waterway is one in which many life forms compete for just a few nutrients. This same scenario repeats itself throughout nature. Incredibly diverse tropical rainforests for example, are almost starved of free nitrogen, most of which is tied up, sequestered, in the huge variety of life forms occurring within. Wetlands function like screens that pull some nutrients from water as it filters through. Floating islands function like a screen within a screen. Floating islands themselves and roots suspended from these floating screens, tap nutrients directly from water as it passes. A floating wetland can function like a rainforest, with nutrients being sequestered in huge varieties of life forms all of which combine to make up the diverse environment we associate with wilderness.

Mr. Kania explained that conserving wetlands, especially the particularly effective floating island embodiment of a wetland, is absolutely fundamental. However, restoring such natural designs, or even creating new ones where they have not occurred in the past to correspond with increased human activity, is a particularly strategic method to supplement mechanical water treatment facilities.

The technology exists today to launch naturalized floating islands, and to incorporate floating islands into other structures associated with waterways, including bridges, docks, jetties, levees, even golf greens.

Mr. Kania concluded saying Floating Island Internationals work over the course of the last five years has made many applications for floating islands apparent. Several of these applications are vast in their potential scale.

Ms. Caywood asked if a decision had been taken by CRWD's Board to implement the Floating Island concept on Como Lake. Administrator Doneux said no decisions have been made. Ms. Caywood said she found the concept to be very fascinating, but expressed concern that the Como community be involved in the conversation should CRWD decide to pursue the Floating Island treatment for Como Lake. Manager Thienes said the community certainly would be included in the conversation, that the Board was only just now hearing the proposal from Floating Island International and that, should CRWD decide to explore this idea further, CRWD would hold community meetings that include the public.

CAC 11-01-03 Motion: *Recommend the Board and Staff continue evaluating this as a feasible project for Como Lake.*

Reider/Arbeit

Unanimously approved

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Discussion

2011 Work Plan Review

Administrator Doneux noted that included in the CAC packet is a final 2011 Workplan, Budget and Project List. Administrator Doneux suggested the committee members keep it handy for future meetings because they will be referenced when discussing upcoming projects.

2011 Partner Grant Review

Partner Grant Review – Request for Volunteer

Administrator Doneux said to more closely reflect CRWD Education Plan goals, the Partner Grant program goal was adjusted so Partner Grants fund the development and delivery of programs that increase resident knowledge of water quality issues in order to affect behaviors that decrease stormwater runoff; All grantees are required to track and report general information about the number of program activities and participants. Priority will be given to applicants who propose to also measure program outcomes and/or impacts to residents; meaningful actions taken; knowledge increased and behavior changes committed to or made. Administrator Doneux discussed the submittal process and timeline. Administrator Doneux said the Board adopted the new submittal process and timeline at the January 5, 2011 Board meeting.

Letter to City of Saint Paul – Division of Parks and Recreation

Administrator Doneux said the Board approved the letter to St. Paul Parks & Recreation that they prepare a comprehensive Stormwater Management Plan for Como Park.

Staff and Program Updates

Board of Managers and CAC Observer Update

Manager Thienes reviewed recent Board actions including special reports from staff on Volume Reduction Rule Comparison provided by Mark Doneux and an update of the Stop the Rain Drain Program by Elizabeth Beckman. The Board approved Rain Barrel Program for 2011. The Board awarded the Williams Street Pond Project. Authorized distribution of the 2011 Special Grant Solicitations and the approved the recommendations presented by the grant committee. The Board also approved the Center Street/Rice Street Subwatershed Study Agreement.

Discussion - New & Old Issues

February 9, 2011 Agenda Overview

Shirley Reider will be absent the next meeting.

Adjourn – The meeting adjourned at 9:07 pm by consensus.

Respectfully submitted,

Dawn Nelson