Friends of Deep Creek Lake

Promoting stewardship, conservation and restoration in the Deep Creek Lake watershed

779 Chadderton School Rd
Oakland, MD 21550

www.friendsofdcl.org contact@friendsofdcl.org

date: Fall 2011.

To: Policy and Review Board

From: Barbara Beelar, PRB member.

RE: Recommendations on Eurasian Watermilfoil Infestation at Deep Creek Lake.

Enclosed is a packet of information we have compiled covering the presence Eurasian Watermilfoil (EWM) in Deep Creek Lake and the explosive growth observed and documented in 2011.

We urge the Policy and Review Board members to heed the strong recommendations for immediate action to control EWM infestation of lake stakeholders presented in letters recently sent to PRB Chair David Myerberg and DNR Secretary Griffin.

We need an effective, system-wide approach to control EWM which is now found throughout the lake – along the main channel shorelines and deeper waters of coves. Three coves are now clogged with the invasive SAV—Hickory Ridge, Back Bay and Stillwater Coves. Piece meal approaches which private property owners have options or whether to adopt around their docks will not be effective. Why? EWM thrives in waters deeper than those where most of our docks are located. Try to protect the dock area will not work because EWM is brought in by wind and waves from other sections of the lake. In short, the approach to EWM is not the same as the intrusive SAVs which we are more familiar.

We cannot afford to delay implementation of a system-wide control program. The costs are too high, the losses of recreational uses and economic impacts too high.

Citing lessons learned from the Chesapeake Bay, DNR Secretary Griffin emphasized the importance of getting ahead of challenges when they surface

> *" All the better reason to get ahead of the problem as opposed to letting it develop and then have a major price tag which no one seems to be able to fund and a declining lake and declining economy around it. I can assure you that none of us or you want to see this to happen...." Secretary Griffin at State of the Watershed Forum, August 7, 2010.*

Enclosures:

- Memo to PRB on cost of delay need for a system-wide approach.
- Memo responding to the Email Exchange between Myerberg and Michael on 10/12/11
- Copy of letters sent to Myerberg and Griffin from lake stakeholders concerned about EWM infestation and need for control program immediately.
- Eurasian Watermilfoil Sighting at Deep Creek Lake
- Table of properties already impacted by confirmed EWM infestation and tax valuations
- SAV Study Preliminary Results from 2010—goals, findings, sites data and locations
- Overview of Rapid Response Effort action tree from "Rapid Response Planning for Aquatic Invasive Species: A Maryland Example"
- Friends of Deep Creek Lake handout "Eurasian Watermilfoil---The Facts"

Promoting stewardship,
conservation and restoration in the
Deep Creek Lake watershed
779 Chadderton School Rd
Oakland, MD 21550
www.friendsofdcl.org contact@friendsofdcl.org

To: Policy and Review Board
From: Barbara Beelar, Director
RE: Issues relating to Eurasian Watermilfoil infestation in DCL and response.

The questions posed by David Myerberg to Bruce Michael help to draw out useful information from DNR and its approach to existence of EWM throughout the lake.

Two further questions need to be asked and additional information gathered in order to guide PRB in making a recommendation on the EWM infestation.

Question #1: What is the cost of delay?

Delay in implementing EWM controls will
increases costs for control implementation,,
contribute to decline of water quality and recreational use,
jeopardize tourism and tax revenues for the County, and
risk a life threatening event.

The DNR Invasive Species Matrix Team recommends rapid response upon report of an invasive species. The question which the PRB faces: Is the justification for delay sufficient to counters DNR's own recommendations for action?

EWM will not stop, it will continue to expand in our lake. To understand the urgency it is important to comprehend this amazing plant, a dominating species.

EWM was found in Currituck Sound, North Carolina.

In 1964 where 100 acres were infested;

in 1965, 8,000 acres;were infested

in 1973 80,000 acres were infested. [Journal of [Aquatic Plant Management, Volume 20, 1982.[http://www.apms.org/japm/vol20/v20p4.pdf]

The Bay has seen the explosive nature of this plant in the past.

“In the early 1960's, the population exploded in the Bay and almost all the tributaries. By 1970 the [EWM] populations had died back and stabilized . . . possibly due to spread of a virus-like

organism in combination with pollution, grazing, and herbicide and harvesting programs." [http://dnr.maryland.gov/bay/sav/key/eurasian_watermilfoil.asp.]

EWM dominates due to the many ways it propogates.

- v It is a perennial, spreading in the winter by root stolons, like bamboo.
- v It emerges early in the spring, establishing dominance over other SAVs.
- v By June, EWM spreads by "auto-fragmentation", where branches grow small roots, break off and float long distances.
- V EWM is spread by cuttings from boat props and raking.
- v EWM survives out of water for weeks and has been imported into DCL by boats, trailers, live wells and bait buckets from other lakes.

What are the risks and costs of delay?

1.**Drownings.** Deaths from drowning caused by entanglement with EWM have been reported Once entangled, the entrapment is like quick sand, the more the individual struggles, the more they are pulled down into the water**.** See the YouTube report of 23 year old woman who drowned in a Washington State lake.
http://www.youtube.com/watch?v=NMcS79IAXXY&feature=youtube_gdata_player

2. **Threats to swimmers, boaters and skiers and tubers** will need to be addressed with educational materials warning about dangers of entanglement and how to respond if trapped. Such an educational campaign will cost money and staff time. It will be detrimental to the tourism industry and property values of lake owners.

3. **Decline in recreational uses of the lake by property owners and users**.

Sailing is impacted Report of EWM impact on a Minnesota lake. [http://minnesota.publicradio.org/display/web/2010/06/25/weeds-clog-minnesota-lakes-earlier-this-year/]

Recreational Uses are impacted. Hazelhurst property owner wrote Secretary Griffin of decline in swimming, boating, sailing and fishing off the dock in Hazelhurst in 2011.

"We can no longer swim off our docks. Our motorboat propellers become clogged. Our sailboat dagger board drags on the weeds. Casting to fish off the dock has become impossible. " [Maddy MCClintock. letter to Secretary Griffin,10/19/2011]

Reduction in fish and waterfowl habitat and fishing

"Eurasian water-milfoil has less value as a food source for waterfowl than the native plants it replaces (Aiken et al. 1979). And although fish may initially experience a favorable edge effect, the characteristics of Eurasian water-milfoil's overabundant growth negate any short-term benefits it may provide fish in healthy waters. At high densities, its foliage supports a lower abundance and diversity of invertebrates, organisms that serve as fish food (Keast 1984). Dense cover allows high survival rates of young fish, however, larger predator fish lose

foraging space and and are less efficient at obtaining their prey (Lillie and Budd 1992; Engel 1995). Madsen et al. (1995) found growth and vigor of a warm-water fishery reduced by dense Eurasian water-milfoil cover." US Geological Survey, Non-indigenous Species, http://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=237 , also http://plants.ifas.ufl.edu/node/278

4. Water quality decline. "Dense mats of EWM can increase sedimentation by slowing water flow, allowing suspended sediment to settle. They also alter water quality by increasing temperature and pH and decreasing dissolved oxygen beneath the mats.
"[http://aknhp.uaa.alaska.edu/services/AKNHP.cfc?method=downloadDocumentByUsdaCode&documentType=species_bio&usdaCode=MYSP2]

Since EWM is found throughout the lake, delay will have negative impacts on water quality throughout the lake.

5. Threat to public health. The EWM mats slow the water flow, providing for still waters for mosquitoes to grow, particularly a concern in areas with West Nile virus.

6. Increase sediment accumulation. The DNR Sediment Study has found 4 out of the 10 coves studied to be accumulation sediment. Other coves, not included in the study, also are be impacted. There will be an increase the cost of remediation approaches, including dredging as direct result of EWM related sedimentation accumulation.

7. Property values and tax revenues will decline. With decrease in recreational use, property values will decline and successful tax appeals will increase.

There are currently **304 properties with a combined value of $207,694,794,000** in sections of Deep Creek Lake confirmed to be impacted by EWM. Delay will allow for more exponential growth and expansion of additional number of properties directly impacted by EWM.. (See chart compiled by Friends of Deep Creek Lake.)

In British Columbia there was a devaluation of at least 10% on lake front properties where EWM infestations were found.
http://books.google.com/books?hl=en&lr=&id=tDHWhOEhTckC&oi=fnd&pg=PA402&dq=humans+drown+from+Eurasian+Watermilfoil&ots=b4f0uOdrg6&sig=vKJKuPhap

8.Threat to the local economy and tourism. Lessons from a Michigan lake needs to be heeded. Like DCL, they did not have importation controls and there was a delay between identification and implementation of control measures.

> "The local economy of Houghton Lake is dependent on tourism.
>
> Many of the local businesses are strongly dependent on the health of the local economy, rather than economic forces outside of the area.
>
> Water quality in the lake directly affects the health of the tourism industry and thus the health of the overall local economy.
>
> As a whole, residents of the Houghton Lake community were discouraged by the EWM infestation.

Visitors were also discouraged by the lakes condition as a result of the EWM infestation."

The gap between identification and action was 4 years and the delay had devastating impact on the local economy, and tourist related businesses. We can not afford serious negative impacts on the local economy. We must not repeat the Houghton Lake delay.

http://www.sepro.com/documents/Houg_Eco_Impact.pdf.

Question #2. Will DNR propose control approaches appropriate to the lake-system wide impact of the EWM infestation or continue to rely on ad hoc, incremental, property owner initiated initiative.

Currently actions for protection of the lake are taken on an ad hoc basis, initiated and paid for by private property owners. The result can be seen with DCL shoreline protections, which vary from property to property, depending on whether the property owner abutting that section of the buffer strip chose to install protections and methods they chose to use. This result is a crazy quilt of retention approaches .

This ad hoc approach will not work with EWM. Instead a system-wide program must be developed and implemented.

Why? EWM disburses through floating stems and auto-fragmentation. A property down wind of a bed will be impacted by wind and waves carrying the stems. No matter how much effort the property owner puts into their section of the lake, they will be unsuccessful because they can not protect their section of the lake from invasion; they can not open a small area for recreational use around their dock.

Approaches are made more difficult due to the depth which this invasive grows. The major mats are in 10-15 feet of water, not around the docks.

Additional information needed:

1. When was EWM first identified in Deep Creek Lake? Where? By whom?What action was taken to report existence of this invasive SAV?

2. Did DNR or Lake Management consider installation of importation prevention measures for DCL? If so, why were these measures not installed?

Eurasian Water Milfoil Sightings at Deep Creek Lake

EWM Sighting Date	*Sighting By*	*Site Location*
~2007, earlier?	DCL Lake Management Office	EWM seen in various Lake locations
2011	Sample confirmed by DNR	Deep Creek Cove
2011	Sample confirmed by DNR	Penn Cove
2011	Sample confirmed by DNR	Hickory Ridge Cove
2011	Sample confirmed by DNR	Pawn Run Cove
2011	Sample confirmed by DNR	Back Bay Cove.
2011	Sample confirmed by DNR	Pergin Farm, from the small southern the way around to Penn Cove
2011	Sample confirmed by DNR	Griffin Drive-- western facing shoreline off Hickory Ridge
2011	Sample confirmed by DNR	Ezra Savage Road
2011	Sample confirmed by DNR	Turkey Neck-- western shoreline, east and north from DC Yacht Club
2010	2010 DNR SAV Study Report	Deep Creek Cove
2010	2010 DNR SAV Study Report	Honi Honi point (Arrowhead Condominiums)
2010	2010 DNR SAV Study Report	Red Run Cove
2011	Property Owners & FODCL Members	Green Glade
2011	Property Owners & FODCL Members	Hazelhurst
2011	Property Owners & FODCL Members	North Glade at Bill's Marine
2010/2011	Property Owners & FODCL Members	All along Thousand Acres Shoreline
2011	Sample confirmed by DNR	Penn Point
2010/2011	FoDCL sighting; reported to DNR	Chadderton School Cove
2011	FoDCL sighting; reported to DNR	Turkey Head Point
2011	Owners/FoDCL reported to LMO	Blakeslee/The Reserve Cove
2011	FoDCL sighting; reported to DNR	Blakeslee Point
2011	FoDCL sighting; reported to DNR	Paradise Point Cove
2011	FoDCL sighting; reported to DNR	Paradise Arm Cove
2011	FoDCL sighting; reported to DNR	Pawn Run/Penn Cove Points
2011	FoDCL sighting; reported to LMO	Stillwater Cove

NOTE: Most coves are too shallow to support EWM, which needs at least 10 feet by August to support the massive stalks found in beds. So this survey does not represent the full extent of EWM at Deep Creek Lake.

Compiled by Friends of Deep Creek Lake.

207694794

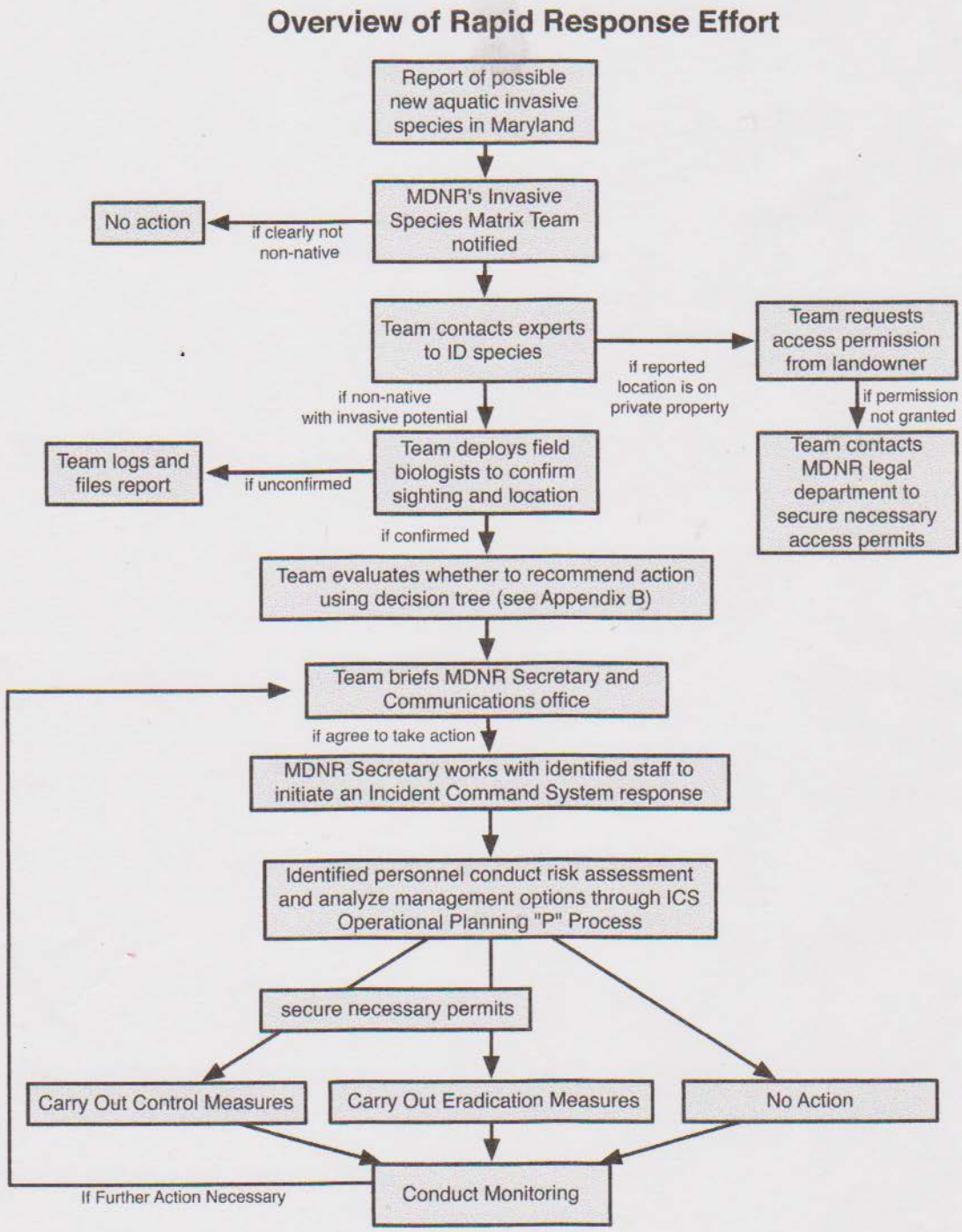
Overview of Rapid Response Effort
Report of possible new aquatic invasive species in Maryland
MDNR's Invasive Species Matrix Team notified
No action
if clearly not non-native
Team contacts experts to ID species
Team requests access permission from landowner
if reported location is on private property
if permission not granted
Team contacts MDNR legal department to secure necessary access permits
if non-native with invasive potential
Team deploys field biologists to confirm sighting and location
Team logs and files report
if unconfirmed
if confirmed
Team evaluates whether to recommend action using decision tree (see Appendix B)
Team briefs MDNR Secretary and Communications office
if agree to take action
MDNR Secretary works with identified staff to initiate an Incident Command System response
Identified personnel conduct risk assessment and analyze management options through ICS Operational Planning "P" Process
secure necessary permits
Carry Out Control Measures
Carry Out Eradication Measures
No Action
Conduct Monitoring
If Further Action Necessary

Figure 1

TO: POLICY AND REVIEW BOARD
FROM: BARBARA BEELAR, BOARD MEMBER
RE: EMAIL EXCHANGE BETWEEN CHAIR DAVID MYERBERG AND BRUCE MICHAEL, OCTOBER 12, 2011

The following seeks to clarify and expand upon the email exchange between PRB Chair and RAS Director.

Myerberg Question #1: "Is there a EWM problem in Deep Creek {Lake}?"
Michael Response: "Whether or not there is a problem has yet to be determined. We are working on options for a SAV monitoring design for 2012 that will address the question.

Eurasian Watermilfoil is an SAV which is classified by EPA as an "invasive species". In fact, some state governments (Washington, Oregon, Montana, Colorado, Idaho, and Georgia) have classified EWM as a "noxious" aquatic plant species.

By its scientific classification as an invasive species, EWM is a problem.

Aquatic invasive species (AIS) are non-native organisms that may cause harm to human health, the environment, and the economy when introduced to marine, estuarine, or freshwater ecosystems (EPA 2005). Each year aquatic invasive plants and animals disrupt ecosystems across the nation, incurring millions of dollars in ecological and economic damages (Pimentel 2005).Their presence threatens natural resources and affects both commercial and recreational industries, including fisheries and boating. In the Mid-Atlantic region, AIS have been responsible for outcompeting and preying upon native plants and animals, as well as threatening million-dollar industries (EPA 2005). [Mid-Atlantic Panel on Aquatic Invasive Species-- the Maryland Example, January 2009, Edited by Jessica Smits and Fredrika Moser, Maryland Sea Grant College University System of Maryland. Page 5. .http://www.mdsg.umd.edu/images/uploads/siteimages/MarylandPlanFinal.pdf].

Not all SAVs are beneficial. Invasive SAVs are not beneficial. EWM is an invasive SAV.

""At the outset, however, it is important to understand that SAV provides a vital function in a healthy lake ecosystem. Many SAV species grow to the

surface and are considered prime fish habitat, contribute to clear water, reduce nutrients, stabilize sediments and are food for waterfowl. "[Bruce Michael email, 10/13/11.]

Friends of Deep Creek Lake fully recognizes the importance of a healthy SAV community. We are aware the difference between our healthy lake and the "dead" zones the Chesapeake Bay. The preliminary SAV Study report found what most lake users know :"a healthy, thriving and diverse mix of aquatic vegetation. . ." [DNR SAV Assessment-Preliminary 2010 Results, page 1]

EWM in DCL is a problem in part because of the wide distribution which already exists. Controls cannot be applied in one or two places to stop the spread of this invasive SAV. It now infests areas throughout the lake along main channel shorelines and coves. There is now almost an unbroken EWM chain from The Reserve to southern section of Pergin Farms, across Deep Creek Cove and along Hickory Ridge shoreline, Yacht Club Road shoreline and up near Turkey Neck Point. Three coves are now clogged: Hickory Ridge, Back Bay and Stillwater Cove.

Myerberg Question # 2 "Should the PRB be at a point of considering such a solution as the weevil?"
Michael Response:: "No. DNR's SAV experts have been evaluating various options to help control EW. Introducing a new species to the lake does not come without risks. Generally we try to avoid introducing a new species as a biological control as it can spread to other systems and have unintended negative consequences. A complete evaluation of the extent of the problem and the risk of introducing a new species is the next first step. In the meantime we will evaluate and provide a suite of options for individual property owners to address this issue. We expect to have this evaluation completed by early 2012."

EWM is found throughout the lake.—along main channel shorelines and deeper sections of cove. This particular SAV can disperse widely and very rapidly. Utilization of the current Lake Management practice of an ad hoc, incremental, private property owner driven approach will not be successful. It will not deter the spread of this infestation and only create delay in needed, system-wide approach.

Friends of Deep Creek Lake has not recommended a specific EWM control approach.

Friends of Deep Creek Lake has encouraged DNR to heed the recommendations of the DNR Invasive Species Matrix Team for a rapid response.

Preventing introductions of aquatic invasive species is crucial to avoid their establishment and spread. Prevention measures, however, are not foolproof and government officials and natural resource managers must be prepared to take action in the event of an AIS introduction. The National Invasive Species Council defines rapid response as a systematic effort to eradicate, or contain invasive species while infestations are still localized (NISC 2008). To be most effective, a response to an introduction should occur quickly. Organizing an appropriate response requires significant coordination and analysis. **[ibid.]**

Myerberg Question #3 "Are the documents that Ms. Beelar attaches accurate?"
Michael Response: "The attached documents appear to be accurate. In the first document I can only verify the samples "confirmed by DNR'".

Myerberg Question #4. "Is there peer-reviewed science behind the weevil solution and are the short and long term results as benign as described by the company?"
Michael Response: "Our staff have not reviewed all the literature on the effectiveness of the weevil as a biological control for EW, but there are cases where it has not be as effective or as benign as advertised. We have concerns that the Weevil could spread to other systems."

Myerberg Question #5: "Would you think that now is the time for such a presentation to the PRB?"
Michael Response: "We have not confirmed if EW is a problem that warrants control by introducing the Weevil. Introducing a species as a biological control would required thorough evaluation by DNR staff. Before our 2012 monitoring complete-- before, in other words, we have analyzed the nature and extent of the problem-- in our view it is premature to have EnviroSciences present to the PRB at this time."

The Friends of Deep Creek Lake's proposal to the PRB Chair to invite staff from EnviroScience was NOT to advocate or focus on the benefits and risk of a particular control approach.

Barbara Beelar recommended to David Myerberg that scientists from this group make an *"overview presentation on EWM"* based on their extensive lake management experiences dealing with invasive species. *[Email from Barbara Beelar to David Myerberg, 10/12/11].* This recommendation was made to provide PRB members and the stakeholder community with valuable information and opportunity to ask questions.

Myerberg Question #6. "Do you have any other thoughts on this issue and Ms Beelar's email?

Michael Response: "As stated in my initial response, DNR's SAV experts are working on developing a SAV monitoring design for 2012 to characterize the extend of EW in DCL and determine if this species is a threat to other species, a healthy ecosystem and recreational activities. If EW is found to be a severe problem and/or out competing other more desirable species, we will have recommendations on how to protect infrastructure and control/manage this species."

As an invasive SAV, the existence of EWM in Deep Creek Lake is a threat to a healthy ecosystem as well as recreational activities. EWM is a serious problem which has explosive propagation mechanisms enabling it to dominate other desirable SAVs.

The presence of EWM in the lake challenges Lake Management compliance with COMAR principles. Section 08.08 .01

> ***"A. The primary purposes for the promulgation of regulations for Deep Creek Lake are the protection of the lake as a natural resource, the preservation of its ecological balance, and furtherance of its highest use as a recreational resource . .."***

As an invasive, EWM does 1)threaten the natural resource; 2) upsets the ecological balance of the lake with the potential for dominance of this one species over other, beneficial SAVs; and 3) is impacting the highest use as a recreational resource with growing limits for swimming, kayaks, sailing, water-skiing, wake boarding and fishing.

EWM is also a threat to public health, an economic threat, with potential for property tax devaluation and negative impacts on the tourist and development sectors of the regional economy.

In short, EWM is a problem and needs to be controlled immediately.

Email to Bruce Michael, head of DNR Resource Assessment Services, and in whose department control measures for EWM will be tested.

Date: 11/29/12

Bruce

Hope you are enjoying a peaceful holiday with your family and friends.

I am taking advantage of the quiet time to catch up on piles of paper on my desk.

In so doing, I do not find any written statement to you to follow up on various comments re: EWM work at DCL in 2013.

At the 11/14/12 State of the Lake meeting and the WQWG meeting the next day, it was reported that DNR plans to conduct a second EWM survey in June of 2013. We urge you to schedule this work for mid- August when the EWM emergence is fully evident. As we reported to you, the 2012 study on July 9 and 10 did not capture the full emergence this year; this year the height of the emergence was in mid-August.. This timetable is consistent with what we have learned from consulting groups which study this invasive, such as EnviroScience in Ohio.

We urge a careful review of 2,4-D as a control measure. You heard the negative reactions from the audience at the State of the Lake meeting. I can only begin to imagine the response on the season by not only the lake property owners but the business and tourism sectors. I recognize that all control measures have their "down side". Our experience is that talking about use of the Milfoil weevil is received much better than use of an herbicide related to agent orange. A lot of community education will need to take place no matter what options are chosen in 2013.

Looking forward to working with you in the New Year

Barbara Beelar, Friends of Deep Creek Lake

File:EWMemailBruceMichael122912