Quabbin Watershed Advisory Committee Meeting December 14th, 2015 7:30 PM

Location: DCR Quabbin Visitor's Center, Belchertown, MA 01007

Members Present: Tom Barnes (North Worcester County Quabbin Anglers Association – Alternate), Tom Berube (MA Sportsmen's Council), Jim Boyko (Swift River Valley Historical Society), Elisa Campbell (Sierra Club), Craig Cortis (Worcester County League of Sportsmen), Dennis Duguay (North Worcester County Quabbin Anglers Association - Alternate), Jerry Eves (Trout Unlimited - Alternate), Larry Gates (Quabbin Fisherman's Association), J.R. Greene (Friends of Quabbin, Inc.), Ralph Lapinskas (Public at Large), Tom Lautzenheiser (MA Audubon Society)

DCR Staff Present: Justin Gonsor, Bill Pula

Public Attending: Rosemary Charron, Clayton Sydla, Art Miner

Superintendent's Report

Meeting Start Time: 7:31 PM

Approval of Minutes of Meeting on October 5th, 2015

Elisa Campbell made a motion to accept the minutes from the QWAC meeting held on October 5th, 2015. Jim Boyko seconded the motion. The motion was unanimously approved.

2006 Quabbin Access Plan Update

Bill Pula updated the committee on the upcoming update to the 2006 Quabbin Public Access Plan; every 10 years the plan gets updated. One goal is to develop a policy for drones/UAV's (unmanned aerial vehicles) on the watershed. Bill Pula talked about the possibility of a permit system for drone use by outside parties. There was discussion about the possibility of utilizing drones for research purposes by the state as well as concerns over the public flying them too close to wildlife.

Bill Pula talked about an annual bicycle ride around Quabbin that happens every April. The group has been given a permit in years past for roughly 500 people but every year more people seemed to participate. At the end of the event there is a large gathering that occurs at the tower. The last 2 years the event occurred on the same day that the Quabbin boat launch areas opened for the season. The event has gotten larger over the years and tougher to handle with limited ranger staffing available. There was discussion about not allowing the gathering at the tower and urging the group to meet elsewhere in Belchertown where they could also support the local businesses. J.R. Greene made a motion to not support authorizing the bicycle tour around Quabbin to begin or end on watershed property. Jim Boyko seconded the motion. The motion was unanimously approved.

Bill Pula also brought up a concern that the state police have; people parking and fishing at night on the Swift River north of Rt. 9. The police would like to close the parking area at some point during the night. There was discussion of potentially putting up signs alerting people to when the parking area closes; allowing the state police to issue tickets if needed. There was also discussion about the possibility of creating a permitting system through the visitor center to allow people to use the Swift River parking area all night; displaying the permit on the dashboard of their car that the police could easily check.

Quabbin Fishing Season 2015 – Wrap Up

Bill Pula briefed the committee on the highlights of the 2015 Quabbin Fishing Season. A draft summary of the 2015 Quabbin Boat Launch Area (BLA) activity was prepared by Paul Lyons and distributed to committee members. That draft summary is attached at the end of these minutes. Total BLA revenue is the highest it has ever been (dating back to 2003) and up roughly \$10,000 from 2014. BLA 3 continues to be the most popular area.

The person who used their 2015 Quabbin BLA season pass more than anyone else, Clayton Sydla, was in attendance and was acknowledged. This past season, Clayton took MA Division of Fisheries and Wildlife Commissioner George Peterson out on his boat for a Quabbin tour.

15 new rental motors have been ordered in advance of the 2016 fishing season.

Tom Barnes asked whether or not there are any price increases on the horizon. Bill Pula answered that there are no plans to increase prices for 2016.

Larry Gates was concerned that the Cold Weather Quarantine (CWQ) dates for 2015 are not on the Quabbin website; he thought those dates should have been put on the website after they were finalized. Currently, the Quabbin Fishing Guide website has a link which states that "CWQ are to be determined and that appointments will be made for November and December beginning 10/1/2015." For 2015, 5 dates were reserved for CWQ's; 10/31 and 10/12 in New Salem and 11/7, 11/17, and 11/19 in Belchertown. In the future, when CWQ dates are finalized the exact dates will get posted on the Quabbin Fishing Guide website.

Bill Pula updated the committee on the invasive species (brittle naiad) that was found in 2013 at Joe O' Laughlin Pond. The pond is attached to Quabbin via a horseshoe dam up at Gate 31 in the north end of the reservoir. Private boats have been prohibited from the pond ever since but the plan is to open it back up to privates in 2016. A Diver Assisted Suction Harvesting (DASH) boat was used to clean up the infestation and our aquatic biologist has since conducted a thorough survey of the pond.

Dennis Duguay mentioned that 15 tagged trout were caught at Quabbin this year as part of the Tag 'N Trout Program put on by the MA Division of Fisheries and Wildlife.

Quabbin Deer Hunt 2015 – Wrap Up

Bill Pula updated the committee on the 2015 Quabbin controlled deer hunt. Two draft summaries of the hunt were handed out to committee members. Both of those draft summaries are attached at the end of these minutes. Harvest numbers were low at Quabbin as well as throughout the rest of the state. In total, 48 deer were harvested out of Quabbin. 865 people participated in the hunt out of the 1,019 that were selected and eligible. The weather was unseasonably warm for all four days of the hunt.

Tom Berube commented about the deep snowpack of the previous winter and the potential for high deer mortality as a result.

Dennis Duguay talked about how areas around gate 40 used to be bare of vegetation and regeneration back in the early 1990's whereas those same areas are now thick and full of regeneration; resulting in it being harder for hunters to find the deer that are out there.

Ralph Lapinskas commented on the rising bear population in Massachusetts as another potential factor in the low deer harvest numbers throughout the state.

Miscellaneous Updates

On December 9th, Leo Roy was named as the new commissioner for DCR.

Member Issues

Jerry Eves handed out a letter to the committee members that was sent from the New England Mountain Bike Association (NEMBA) to Fred Lasky, executive director of the Massachusetts Water Resource Authority (MWRA). That letter is attached at the end of these minutes. Bill Pula mentioned that bicycling in the Ware River Watershed is currently allowed only on existing roads, although numerous unauthorized single-track trails and bridges have been created over the years; some of which go through wetlands. Recently, watershed rangers have issued a few tickets to people who have been caught bicycling on the unauthorized trails, but limited ranger staffing makes enforcement difficult. Tom Lautzenheiser noted that many of the scientific studies cited in the letter to MWRA are from the 1990's and early 2000's; none from the last 5 years. Jim Boyko handed out a letter to the committee members on behalf of the Swift River Valley Historical Society (SRVHS) voicing their opposition to allowing single track riding within the Ware River watershed. That letter is attached at the end of these minutes. There was discussion on the difference between recreation that occurs on existing roads vs. creating new single-track trails in the watershed. Bill Pula talked about the difficulties DCR has been having in closing the unauthorized trails; signage and trail closures being destroyed. Dennis Duguay talked about finding a balance between watershed protection and passive recreation activities. Bill Pula brought up a master policy in the public access plan which states any new recreational activity must first be evaluated for impacts to public drinking water supply protection, apparent wilderness character, natural resources, and historic and pre-Columbian sites. In Quabbin Park, bicycling is allowed only on designated paved roads in nonrestricted areas. In Quabbin Reservation, bicycling is allowed on designated roads through DCR gates 29, 30, 31, 35, 40, 43A and 43B, and 44.

Bill Pula mentioned a request coming out of Senator Rosenberg's Office to install a plaque in the Quabbin Visitor Center dedicated to Les Campbell. That plaque is set to be installed later this year.

Meeting End Time: 8:31 PM

Upcoming QWAC Meetings:

 Monday, March 14th, 2016 at 7:30 PM – DCR Quabbin Visitor Center, 485 Ware Road, Belchertown, MA 01007

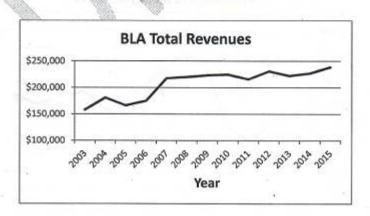
Summary of 2015 Quabbin Boat Launch Area activity Prepared by Paul Lyons for Dec. 2, 2015 WSPTB meeting

The following data summary relates to the 2015 boat fishing program on Quabbin Reservoir. Data from previous years was included for comparison, when appropriate.

Season pass sales and revenue, 2012-2015.

Cotoooni	2	012	2	013	2	014	2	015
Category	# Sold	Revenue						
Regular	331	\$16,550	342	\$17,100	319	\$15,950	322	\$16,100
Senior	275	\$6,875	286	\$7,150	302	\$7,550	309	\$7,725
Handicapped	18	\$450	19	\$475	26	\$650	24	\$600
Totals	624	\$23,875	649	\$24,725	647	\$24,150	651	\$24,425

Year	BLA Revenue	Season Pass Sales	Total Revenue
2003	\$157,764	\$0	\$157,764
2004	\$181,141	\$0	\$181,141
2005	\$166,272	\$0	\$166,272
2006	\$175,109	\$0	\$175,109
2007	\$217,535	\$0	\$217,535
2008	\$220,176	\$0	\$220,176
2009	\$198,328	\$25,025	\$223,353
2010	\$202,095	\$22,725	\$224,820
2011	\$193,004	\$23,075	\$216,079
2012	\$207,247	\$23,875	\$231,122
2013	\$197,759	\$24,725	\$222,484
2014	\$202,925	\$24,150	\$227,075
2015	\$214,292	\$24,425	\$238,717



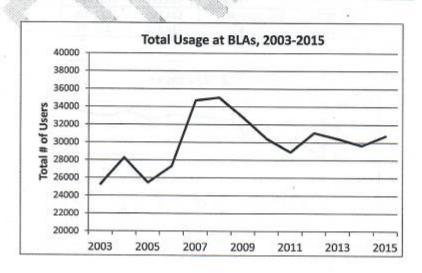
BLA Revenue' by Location, 2013 - 2015.

BLA#	2013	%	2014	%	2015	%
1	\$61,815	31.3%	\$62,611	30.9%	\$65,306	30.5%
2	\$63,170	31.9%	\$67,007	33.0%	\$68,552	32.0%
3	\$72,774	36.8%	\$73,307	36.1%	\$80,434	37.5%
Totals:	\$197,759	100.0%	\$202,925	100.0%	\$214,292	100.0%

*excluding season pass sales

Number of users by category at BLAs, 2003-2015.

Year	Parking Shore	Parking Other	DCR Rentals	Private Boats	Total
2003	2,918		7,120	15,232	25,270
2004	3,574		8,381	16,322	28,277
2005	3,091		7,624	14,743	25,458
2006	2,908	Maria	8,215	16,202	27,325
2007	4,128		11,388	19,195	34,711
2008	4,226	1 300	11,234	19,586	35,046
2009	4,234	- 40	11,349	17,233	32,816
2010	3,988	100	11,049	15,317	30,454
2011	3,629	514	10,335	14,447	28,925
2012	3,513	1,327	11,429	14,824	31,093
2013	3,360	1,411	10,756	14,910	30,437
2014	3,376	1,038	11,203	14,032	29,649
2015	3,464	929	11,994	14,358	30,745



Usage by Location, 2015.

BLA#		Number of	f users:		% by
DLA #	Rentals	Privates	Parking	Total	BLA
1	3,639	3,051	1,729	8,419	27.4%
2	3,607	4,858	1,584	10,049	32.7%
3	4,748	6,449	1,080	12,277	39.9%
Totals	11,994	14,358	4,393	30,745	100.0%
% of total	39.0%	46.7%	14.3%	100%	

Rentals by type, 2015.

Туре	# people	% of total
Rowboats	254	2.1%
Motorboats	11,221	93.6%
Canoes	280	2.3%
Kayaks	239	2.0%
Total	11,994	100.0%

Boat Decontamination Data:

- There are 1,881 boats and/or 25 motors in DCR's boat decontamination database
- In 2015, full decontaminations (i.e., washings) were conducted on 170 boats (compared to 188 in 2013)
- Boats participating in the Cold Weather Quarantine numbered 126 in 2014; So far this
 year, 68 boats have participated in that program, with 16 more scheduled (for a
 tentative total of 84, but boat owners are still signing up for the last two of the year)
- Since the inception of the decontamination program, there have been 50,567 "sealed" boat visits to the 3 BLAs: 11,820 to BLA#1; 17,794 to BLA#2; and 20,953 to BLA#3.



2015 QUABBIN DEER HUNT SUMMARY

After 50 years without hunting, in 1991 Quabbin Reservation was opened to limited, controlled public deer hunting. This action was in response to growing concern about the impacts of deer browsing on forest regeneration and the potential long-term consequences of those impacts on water quality. The hunt is held during the 2-week shotgun season.

This was the 25th successful season of implementation of the Quabbin Deer Management Program. The results below for Prescott, New Salem, Hardwick and Petersham are preliminary numbers. This data will be finalized and published in the report: Quabbin Reservation White-Tailed Deer Impact Management Program: Results from 2015. Overall, there were 48 deer harvested during the 2015 season. The harvest sex ratio was 27 bucks to 21 does. The largest deer harvested at Quabbin this year was a 185.5 lb, 8-pointer from Hardwick.

First Week: December 3rd and 4th

Hardwick: 11 total deer harvested

December 3, 2015

- · Number Harvested: 8
- · Sex Ratio: 5 male/ 3 female
- Largest Buck: 185.5 lbs (3.5yrs, 8 pts)
- Largest Doe: 131 lbs (3.5yrs)

December 4, 2015

- · Number Harvested: 3
- · Sex Ratio: 0 male/ 3 female
- · Largest Buck: No bucks harvested
- Largest Doe: 130.5 lbs (3.5 yrs)

Petersham: 9 total deer harvested

December 3, 2015

- · Number Harvested: 8
- · Sex Ratio: 5 male/ 3 female
- Largest Buck: 137 lbs (2.5 yrs, 6pt)
- Largest Doe: 114 lbs (2.5 yrs)

December 4, 2015

- · Number Harvested: 1
- Sex Ratio: 1 male/ 0 female
- · Largest Buck: 88 lbs (button buck)
- Largest Doe: No females harvested

Second Week: December 10th and 11th

New Salem: 10 total deer harvested December 10, 2015

- Number Harvested: 6
 - · Sex Ratio: 5 male/ 1 female
 - Largest Buck: 124 lbs (2.5 yrs, 6 pt)
 - Largest Doe: 119 lbs (2.5 yrs)

December 11, 2015

- · Number Harvested: 4
- · Sex Ratio: 2 male/ 2 female
- Largest Buck: 143 lbs (3.5 yrs, 8 pt)
- Largest Doe: 119 lbs (2.5 yrs)

Prescott: 18 total deer harvested

December 10, 2015

- Number Harvested: 10
- Sex Ratio: 7 male/ 3 female
- Largest Buck: 180 lbs (3.5 yrs, 11pt)
- · Largest Doe: 139lbs (3.5 yrs)

December 11, 2015

- Number Harvested: 8
- Sex Ratio: 2 male/ 6 female
- Largest Buck: 113 lbs (1.5 yrs, spike)
- Largest Doe: 136lbs (3.5 yrs)

COMMONWEALTH OF MASSACHUSETTS - EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation 485 Ware Road Beichertown, MA 01007 413-323-6921 413-784-1751 Fax www.mass.gov/dcr



Charles D. Baker Governor

Karyn E. Polito Lt. Governor Matthew A. Beaton., Secretary Executive Office of Energy & Environmental Affairs

Leo Roy, Commissioner
Department of Conservation & Recreation

2015 - Quabbin Hunt Information - Executive Summary

	Dec. 3 & 4 Hardwick	Dec. 3 & 4 Petersham	Dec. 10 & 11 New Salem	Dec. 10 & 11 Prescott	Totals
Hunters Selected	198	242	240	421	1,101 (1,384 applied)
Eligible Hunters (Returning or Attended Orientation)	188	225	223	383	1,019
Scouting – Participation Day 1; Participation Day 2; Total	21%; 29%; 45%	25%; 24%; 44%	21%; 39%; 51%	39%; 27%; 57%	29%; 29%; 50%
Hunt Attendance – Day 1 / Hunters Eligible to Hunt	159 / 188 (85%)	179 / 225 (80%)	182 / 223 (82%)	327 / 383 (85%)	847 / 1,019 (83%)
Hunt Attendance – Day 2 / Hunters Eligible to Hunt	97 / 188 (52%)	116 / 225 (52%)	138 / 223 (62%)	218/383 (57%)	569 / 1,019 (56%)
Hunt Attendance – Day 1 and/or Day 2 (Participation Rate)	163 / 188 (87%)	184 / 225 (82%)	186 / 223 (83%)	332 / 383 (87%)	865 / 1,019 (85%)
Deer Taken - Day 1 (# Males; # Females)	8 (5 Bucks; 3 Does)	8 (5 Bucks; 3 Does)	6 (5 Bucks; 1 Doe)	10 (7 Bucks; 3 Does)	32 (22 Bucks; 10 Does)
Deer Taken – Day 2 (# Males; # Females)	3 (0 Bucks; 3 Does)	1 (1 Buck; 0 Does)	4 (2 Bucks; 2 Does)	8 (2 Bucks; 6 Does)	16 (5 Bucks; 11 Does)
Total Deer Taken – 2 Days (# Males; # Females)	11 (5 Bucks; 6 Does).	9 (6 Bucks; 3 Does)	10 (7 Bucks; 3 Does)	18 (9 Bucks; 9 Does)	48 (27 Bucks; 21 Does)
Success Rate – Deer Taken / People Hunted	11/163 (7%)	9 / 184 (5%)	10 / 186 (5%)	18 / 332 (5%)	48 / 865 (6%)
Size of Hunt Area (mi.²)	5,636.7 acres (8.8 mi.²)	6,965 acres (10.9 mi.²)	6,871.4 acres (10.7 mi.²)	12,019.9 acres (18.8 mi.²)	31,493 acres (49.2 mi.²)
Deer Taken / Square Mile	11 / 8.8 (1.25)	9 / 10:9 (0.83)	10 / 10.7 (0.93)	18 / 18.8 (0.96)	48 / 49.2 (0.98)
Largest Deer Taken	F – 131 lbs; 3.5 yrs M – 185.5 lbs; 3.5 yrs; 8 pt	E÷ 114 lbs; 2.5 yrs M÷ 137 lbs; 2.5 yrs; 6 pt	F – 119 lbs; 2.5 yrs M – 143 lbs; 3.5 yrs; 8 pt	F – 139 lbs; 3.5 yrs M – 180 lbs; 3.5 yrs; 11 pt	F – 139 lbs; 3.5 yrs M – 185.5 lbs; 3.5 yrs; 8 pt
Notes:					



New England Mountain Bike Association

EXECUTIVE OFFICE

Executive Director PO Box 2221 Acton MA 01720

NEMBA (800) 57-NEMBA F - 831-850-6871 E – pk@nemba.org

WWW NEMBA ORG

Frederick A. Laskey, Executive Director Massachusetts Water Resources Authority Charlestown Navy Yard 100 First Ave, Building 39 Boston MA 02129

December 1, 2015

Dear Mr. Laskey,

We are writing you and your Advisory Board with regard to your October 30th, 2015 comment letter to the Massachusetts Department of Conservation and Recreation (DCR) regarding Executive Order 562 of DCR's Regulations.

As the executive director of the MWRA, we are dismayed that you would make such a broad and factually incorrect statement regarding the damaging impacts of mountain biking on the water supply. We request that you review the scientific literature on this subject and amend and correct your official comment to the DCR Office of Public Outreach.

Here is your comment:

It is not uncommon for interest groups to want new recreational activities that may not be compatible with water supply protection in the watershed forest, or on the reservoirs and other water bodies. For example, the latest demands come from single-track mountain bikers wanting to open the Ware River Watershed forest to a highly damaging activity that threatens the water supply

There is a large body of scientifically peer-reviewed research undertaken by recreation ecologists, botanists and land management agencies about the impacts of mountain bikes, none of which support your statement. All studies to date indicate that the relative impacts of mountain biking are commensurate to that of hiking. 1 Conversely, there have been no peer-reviewed studies that indicate that mountain biking impacts are substantially greater than that of hiking. Your comment clearly is not supported by the scientific literature, and we urge you to issue a retraction.

The DCR itself undertook a detailed review of the scientific literature during the Resource Management Plan (RMP) process for the Middlesex Fells Reservation and concluded that "with respect to environmental impacts, these two recreational uses have similar impacts and should be evaluated similarly"2

Massachusetts Department of Conservation and Recreation. 2012.

Ride the Trails - Save the Trails

Off-road Impacts of Mountain Bikes: A Review and Discussion. Gordon R. Cessford, Wellington, N.Z.; Dept. of Conservation. Science & Research Series, 0113-3713; No. 92, 1995 Resource Management Plan, Middlesex Fells Planning Unit, p. iii.

If MWRA has published data and studies that contradict DCR's findings please provide them in support of your position. We will gladly provide you copies of some of the key studies so that you can read them for yourself.

Here is a brief summary of a few of the key studies.

One of the first studies to use scientific methodology to determine the relative impact of mountain biking to that of hiking and other forms of recreation was John Wilson and Joseph Seney's study the "Erosional Impact of Hikers, Horses, Motorcyclists, and Off-Road Bicycles on Mountain Traits in Montana." The researchers pre-wetted a section of traits to make it susceptible to erosion and then measured the effect of each user by making 100 pesses along the trail by each type of use. Mountain biking was shown to cause less sediment displacement than hiking or horseback riding.

In 2001, two researchers from the University of Guelph's Department of Botany designed a highly technical study of the impacts of mountain biking and hiking on the vegetation and soils in a deciduous forest. They measured five different activity levels of hiking and biking (0, 25, 75, 200 and 500 passes) along a 1-meter by 4-meter section of forest floor. They not only compared differences in plant stem density, species richness and soil exposure before and after the impact of hiking and biking, but they also studied the regeneration of the resource after the two activities ceased. They found that impacts of hiking and biking on vegetation and the soils were statistically the same. They also determined that the impacts of hiking and biking were undetectable after one year.

In 2006, Dr. Jeffery Marion conducted a research report for the National Park Service to determine how trails degrade and erode depending upon both trail design characteristics and different recreational uses: hiking, biking, equestrian use, and motorized use. Marion's study focused on over 78 miles of trail at the Big South Fork National Forest and Recreation Area. The final results indicated that trail design and construction plays an important role in the amount of erosion degradation; however, the biking and hiking trails had the least amount of trail degradation while equestrian and motorized trails had significantly more. Marion concluded that the "[t]ype of use was found to be a substantially greater determinant of trail degradation than amount of use. Horse and ATV trails are significantly more degraded than hiking and biking."

We strongly urge you to correct your statement that mountain biking is a "highly damaging activity that threatens the water supply system." The Department of Water Supply Protection's own data indicates that water quality has improved in the Ware River Watershed and this equally indicates that mountain biking is not a threat to water quality. If this is not correct, please show us the scientific evidence that mountain biking has threatened the water supply.

⁵ Assessing and Understanding Trail Degradation: Results from Big South Fork National River and Recreation Area. United State Department of the Interior. U.S. Geological Survey. Patuxent Wildlife Research Center. Virginia Tech Field Unit. 2006. p. 34.

Ride the Trails - Save the Trails 2

³ Erosional Impact of Hikers, Horses, Motorcyclists, and Off-Road Bicycles on Mountain Trails in Montana. John P. Wilson & Joseph Seney. Mountain Research and Development, Vol. 14, No. 1 (Feb., 1994), pp. 77-88.
⁴ Impacts of Experimentally Applied Mountain Biking and Hiking on Vegetation and Soil of a Deciduous Forest. Eden Thurston & Richard J. Reader. University of Guelph, Department of Botany. Environmental Management. Vol. 27, No. 3,

We believe that there is a misguided witch hunt within your agency and the DWSP to demonize mountain biking that is completely unjust and should cease. If this is how MWRA and DWSP is choosing to spend the Massachusetts taxpayer's money instead of on issues that actually impact the quality of water in our state then serious questions need to be asked about both the leadership and management practices of MWRA and DWSP and where you are getting your inaccurate, disingenuous information.

The MWRA and the DWSP are obliged to allow public access to MWRA and DWSP managed public properties and the recreational-use policies should be based upon sound science, should support compatible uses such as mountain biking along with hiking, and be in alignment with best practices established by DCR for managing passive recreation in Massachusetts.

Respectfully.

Philip Keyes, Executive Director New England Mountain Bike Association

CCI

EOEA Secretary Matthew Beaton DCR Acting Commissioner Daniel Sieger DWSP Director Jonathan Yeo MWRA Advisory Board Director Joseph Favaloro

PS: Below are is a partial bibliography of relevance to mountain bike impacts.

Bjorkman, A. W. (1996). Off-road Bicycle and Hiking Trail User Interactions: A Report to the Wisconsin Natural Resources Board. Wisconsin, Wisconsin Natural Resources Bureau of Research.

Cessford, G. R. (1995). Off-road impacts of mountain bikes: a review and discussion Off-Road Impacts of Mountain Bikes: A Review and Discussion Science & Research Series No 92. Wellington, NZ, Department of Conservation. pp: 42-70.

Chavez, D., P. Winter, et al. (1993). Recreational mountain biking: A management perspective. Journal of Park and Recreation Administration 11 1: 7.

Edger, C. O. (1997). Mountain biking and Marin Municipal Water District watershed. Trends 34 3: 5.

Fritz, S. C., J. C. Kingston, et al. (1993). Quantitative trophic reconstruction from sedimentary diatom assemblages - A cautionary tale. Freshwater Blology 30(1): 1-23.

Gander, H. and P. Ingold (1997). Reactions of Male Alpine Chamois Rupicapra r. rupicapra to Hikers, Joggers and Mountainbikers. Biological Conservation 79: 3.

Ride the Trails - Save the Trails

Goeff, U. and J. Alder (2001). Sustainable mountain biking: A case study from the Southwest of Western Australia. Journal of Sustainable Tourism 9.3: 19.

Gruttz, J. and D. Hollingshead (1995). "Managing the Biophysical Impacts of Off-Road Bioycling" or "Shred Lightly." Environmental Ethics & Practices in Backcountry Recreation Conference, University of Calgary, Alberta.

Hammit, W. E. and D. N. Cole (1998). Wildland Recreation: Ecology and Management. New York, John Wiley and Sons, Inc.

Hellmund, P. C. (1998). Planning Trails with Wildlife in Mind: A Handbook for Trail Planners. Denver, Colorado State Parks,

Hendricks, W. W. (1997). Mountain bike management and research: An introduction. Trends, 34(3), 2-4.

Herrero, Jake, and Stephen Herrero (2000) Management Options for the Moraine Lake Highline Trail: Grizzly Bears and Cyclists. Unpublished Report for Parks Canada.

Kasworm, W. F. and T. L. Monley (1990). Road and trail influences on grizzly bears and black bears in northwest Montana. Bears: Their Biology and Management: Proceedings of the 8th International Conference, Victoria, B.C., International Association for Bear Research and Management.

Knight, R. L. and D. N. Cole (1991). Effects of recreational activity on wildlife in wildlands. Transactions of the North American Wildlife and Natural Resource Conference.

LeChevallier, M. W., M. Abbaszadegan, et al. (1999). Committee report: Emerging pathogens - viruses, protozoa, and algal toxins. Journal American Water Works Association 91(9): 110-121.

Leung, Y. F. and J. L. Marion (1996). Trail degradation as influenced by environmental factors: A state-of-the-knowledge review. Journal of Soil and Water Conservation 51(2): 130-136.

Marion, J. L. (2006). Assessing and Understanding Trail Degradation: Results from Big South Fork National River and Recreational Area. USDI, National Park Service.

Olive, Nathaniel D., and Marion, Jeffrey L. (2008). The influence of use-related, environmental, and managerial factors on soil loss from recreational trails, Journal of Environmental Management, Volume 90, Issue 3, p. 1483-1493.

Papouchis, C. M., F. J. Singer, et al. (2001). Responses of desert bighorn sheep to increased human recreation. Journal of Wildlife Management 65 3: 573-582.

Roggenbuck, J. W., D. R. Williams, et al. (1993). Defining Acceptable Conditions in Wilderness. Environmental Management 17 2: 187-197.

Schuett, M. A. (1997). State park directors' perceptions of mountain biking. Environmental Management 21(2): 239-246.

Spahr, Robin. (1990) Factors Affecting The Distribution Of Bald Eagles And Effects Of Human Activity On Bald Eagles Wintering Along The Boise River, 1990. Boise State University, Thesis. Suk, T. J., S. K. Sorenson, et al. (1987). The relation between human presence and occurrence of Giardia Cysts in streams in the Sierra-Nevada, California. Journal of Freshwater Ecology 4(1): 71-75.

Taylor, A. R. and R. L. Knight (2003). Wildlife Responses to Recreation and Associated Visitor Perceptions. Ecological Applications 13 4: 12.

Taylor, D. N., K. T. Mcdermott, et al. (1983). Campylobacter Enteritis from untreated water in the Rocky Mountains. Annals of Internal Medicine 99 1: 38-40.

Thurston, E. and R. J. Reader (2001). Impacts of experimentally applied mountain biking and hiking on vegetation and soil of a deciduous forest. Environmental Management 27(3): 397-409.

Tyser, R. W. and C. A. Worley (1992). Alien flora in grasslands adjacent to road and trail corridors in Glacier National Park, Montana (USA). Conservation Biology 6(2): 253-262.

Van der Zande, A. N., J. C. Berkhuizen, H. C. van Latesteijn, W. J. ter Keurs, and A. J. Poppelaars (1984) Impact of outdoor recreation on the density of a number of breeding bird species in woods adjacent to urban residential areas. Biological Conservation 30: 1-39.

Vaske, J. J., M. P. Donnelly, et al. (1993). Establishing management standards - Selected examples of the normative approach. Environmental Management 17(5): 629-643.

White, D. D., M. T. Waskey, et al. (2006). A comparative study of impacts to mountain bike trails in five common ecological regions of the Southwestern U.S. Journal of Park and Recreation Administration 24(2): 20.

Wilson, J. P. and J. P. Seney (1994). Erosional Impact of hikers, horses, motorcycles, and off-road bicycles on mountain trails in Montana. Mountain Research and Development 14(1): 77-88.

Wöhrstein, T. (1998). Mountainbike und Umwelt - Ökologische Auswirkungen und Nutzungskonflikte (Mountainbike and Environment - Ecological Impacts and Use Conflict). Saarbrücken-Dudweiler. Incomplete Reference, Pirrot Verlag & Druck.

Swift River Valley Historical Society



Keeping alive the stories of the four "lost towns" of the Quabbin

November 18, 2015

Mathew Beaton, Secretary Executive Office of Energy and Environmental Affairs 100 Cambridge Street, Suite 900 Boston, MA 02114-2534

RE: Proposed changes to recreational uses in MWRA Watersheds

Dear Secretary Beaton:

The mission of the Swift River Valley Historical Society is to preserve the cultural heritage of the four communities destroyed by the creation of the Quabbin Reservoir and to ensure that the land and water resources that comprise the MWRA system are not diverted to uses that will damage either the historic or the natural resources preserved at great personal and financial cost.

Our view is that watersheds is not are not recreation areas. Recent requests to allow off-road mountain biking in the Ware Watershed will damage the historic landscape, compromise water quality, and threaten Quabbin watershed by creating a precedent for allowing new intrusions.

Limited, passive recreation that is compatible with protection of the water supply should be the only recreational activity that is allowed in Watershed lands. Anything more would deviate from the purpose stated in the taking of the land in the name of clean water.

Advocates for off-road mountain biking should be turned away firmly, and applications for regulatory or legislative changes should be vigorously opposed.

Respectfully Submitted,

Elizabeth Sharpe, President

Fred L. Heyes, Vice-president and Secretary

cc Fred Laskey, MWRA; Lexi Dewey, WSCAC; Dan Siegar, Acting DCR Commissioner; Kathy Baskin, —Director of Water Policy for EEOA; Senator Stan Rosenberg; Senator Ann Gobi; QWAC members

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