

Deerfield & Housatonic Basin 20-Year Renewal Permit Meeting

February 17, 2015

Department of Conservation and Recreation Pittsfield
Office

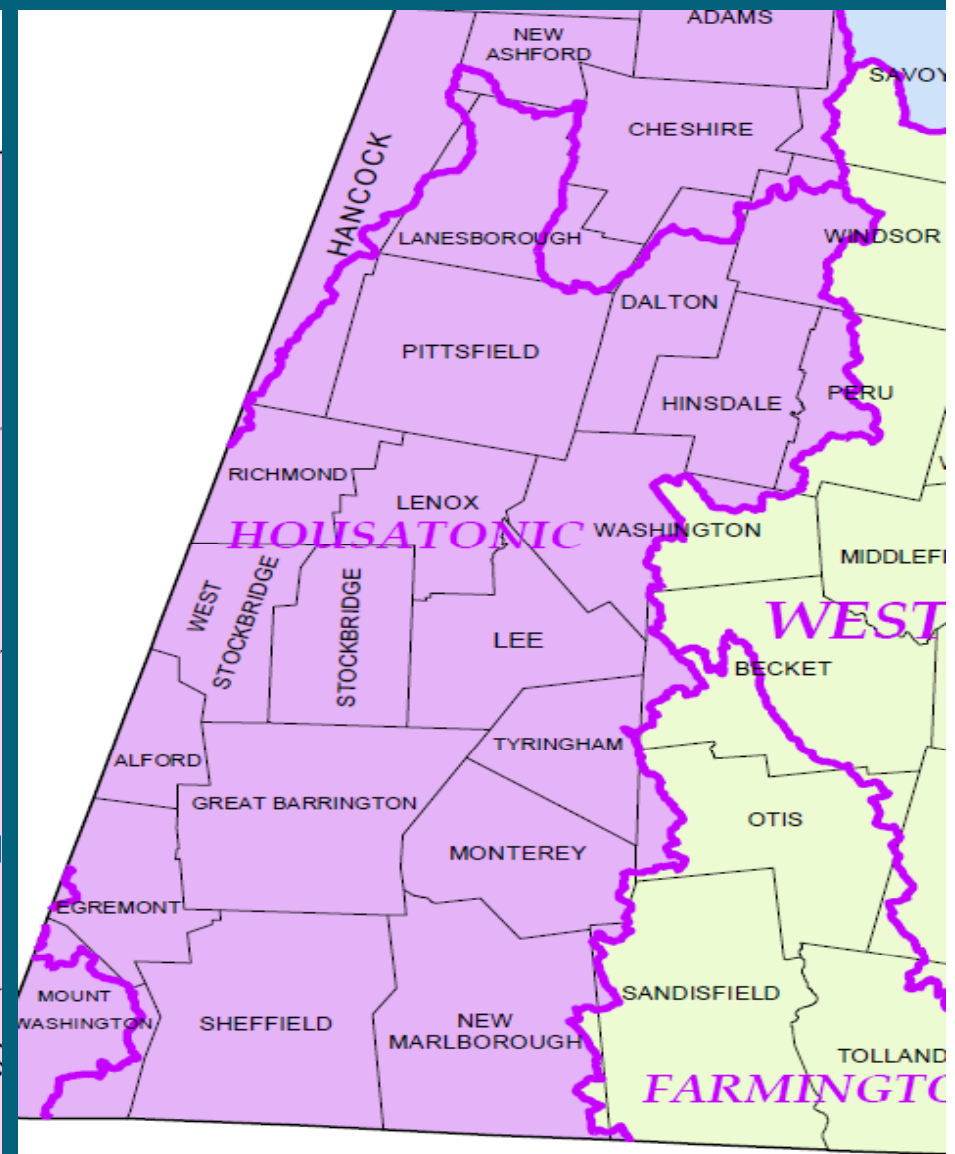
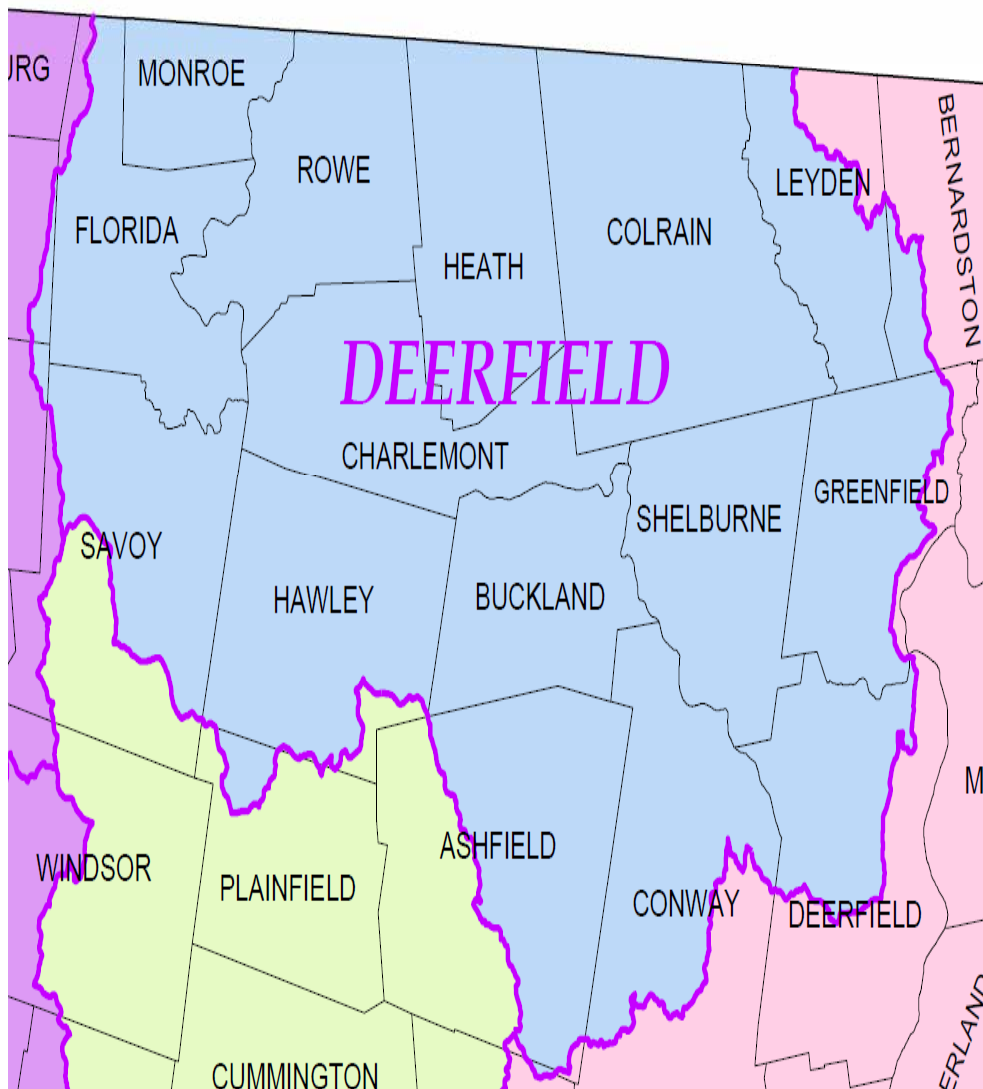
MA Executive Office of Energy and Environmental Affairs
Department of Conservation and Recreation
Department of Environmental Protection
Department of Fish and Game

Deerfield & Housatonic Outreach Meeting

Agenda

- Introductions
- WMA Permit Process
- Deerfield & Housatonic Specifics
- Questions & Answers
- Informal Agency Consultations

Deerfield & Housatonic Basin



Meeting Purpose- Part One

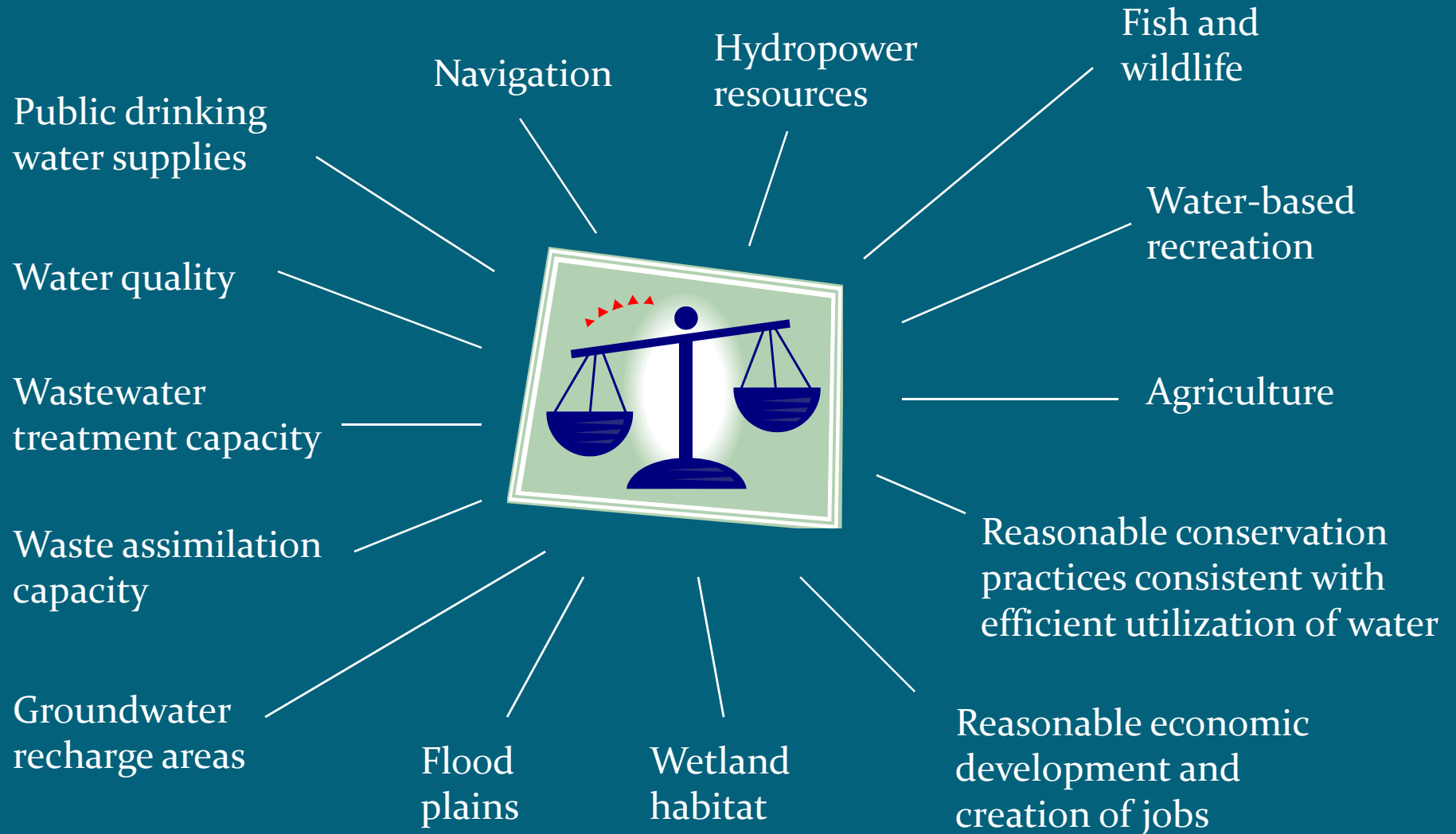
- Explain the WMA permit renewal process, including:
 - WMA Purpose
 - Permit Renewal Schedule
 - Water Needs Forecasts
 - Safe Yield
 - Permit Conditions
 - New Permit Requirements

Meeting Purpose- Part Two

- Review Deerfield & Housatonic data and requirements, including:
 - Water Use
 - Baselines
 - Water Use Restrictions
 - Coldwater Fisheries Resources (CFRs) and Requirements

Water Management Act Purpose

Chapter 21G, Section 7 **Reasonable protection of ...**



Deerfield Permit Renewal Schedule

Timeline	Activity	Notes
Feb 2015	Outreach meeting	
Dec 31, 2014- Feb 28, 2015	Permit Renewal Application filing period	
Dec 2014– Sept 2015	Consultation meetings	As necessary
June 2015	DEP issues Order to Compete (OTC) where necessary	
June – Sept 2015	Applicant prepares response to OTC	
Sept 2015	OTC response due back	
Oct-Nov 2015	DEP reviews	Mtgs. as necessary
Dec 2015	Draft permit issued and public comment period	
Feb 29, 2016	Issue final permit*	

* Permits may be appealed for up to 21 days after permit issuance. Permits under appeal are not considered final permits.

Housatonic Permit Renewal Schedule

Timeline	Activity	Notes
Feb 2015	Outreach meeting	
Mar 31 – May 31, 2015	Permit Application filing period	
Mar – Dec 2015	Consultation meetings	As necessary
Sept 2015	DEP issues Order to Compete (OTC) where necessary	
Sept – Dec 2015	Applicant prepares response to OTC	
Dec 2015	OTC response due back	
Dec- Mar 2016	DEP reviews	Mtgs. as necessary
Mar 2016	Draft permit issued and public comment period	
May 31, 2016	Issue final permit*	

* Permits may be appealed for up to 21 days after permit issuance. Permits under appeal are not considered final permits.

Safe Yield

55% of Annual Drought Basin Yield + **Reservoir Storage**

- New methodology* determines maximum withdrawal volumes on annual basis and major basin scale.

*For more detailed description, see the Sustainable Water Management Initiative Framework Summary (November 28, 2012)

Basin	Safe Yield	Total Annual Authorized Withdrawals*	Total Annualized Registered Volume *	2013 Reported Use *
Deerfield	130.0 mgd	3.92 mgd	3.77 mgd	2.64 mgd
Housatonic	87.7 mgd	35.55 mgd	30.69 mgd	17.59mgd

* Withdrawal volume calculated based on 365 days

Water Needs Forecasts (WNF)

- Applications for WMA Permits require a forecast of water needs for the permit term
- DCR develops forecast
- WRC Method:
 - Population and Employment forecasts
 - 65/10 and Current Trends scenarios
 - + 5% Buffer
 - At least 3 years of reliable data
 - Temporary allocation where necessary
- URL: www.mass.gov/eea/wnf-method

WMA Permit Conditions

1. Efficiency Requirements

- 65 residential gallons per capita day (RGPCD)
- 10% unaccounted-for-water (UAW)
- BMPs (leak detection & repair, metering, pricing, public education etc.)

2. Seasonal limits on nonessential outdoor water use

Nonessential Outdoor Water Use Restrictions

Non-Essential: Uses not required for health or safety reasons, by regulation, for production of food or fiber, for maintenance of livestock, or to meet the core function of a business

RGPCD for prior year	Calendar		STREAMFLOW		
	May 1 to Sept 30	7 day Low- Flow Trigger	Flow above ABF	Flow below ABF	7 day Low- Flow Trigger
< 65 →	7 days *	1 day *	7 days	7 days*	1 day*
>65 →	2 days *	1 day*	7 days	2 days*	1 day*

* No watering 9 am to 5 pm on any day

ABF= Aquatic Base Flow

7 Day Low Flow calculated from period of record flows from a local USGS stream gage

Surface water PWSs with a Summer Management Plan with environmental considerations approved by DEP may vary from above requirements

Industry Specific Conditions

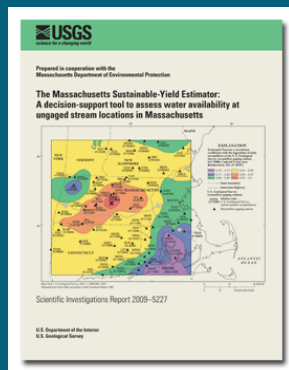
WMA requires that all applications contain the conservation measures instituted, or to be instituted by the applicant.

Standard requirements include but are not limited too:

- Seasonal Demand Management Plans
- Water Audits
- Water Conservation strategy that addresses:
 - Demand management
 - Leak detection & repair
 - Employee awareness and education program

Science and Policy Informing WMA Permit Requirements

- USGS Studies: August withdrawals and impervious cover have significant impact on fluvial fish



SYE



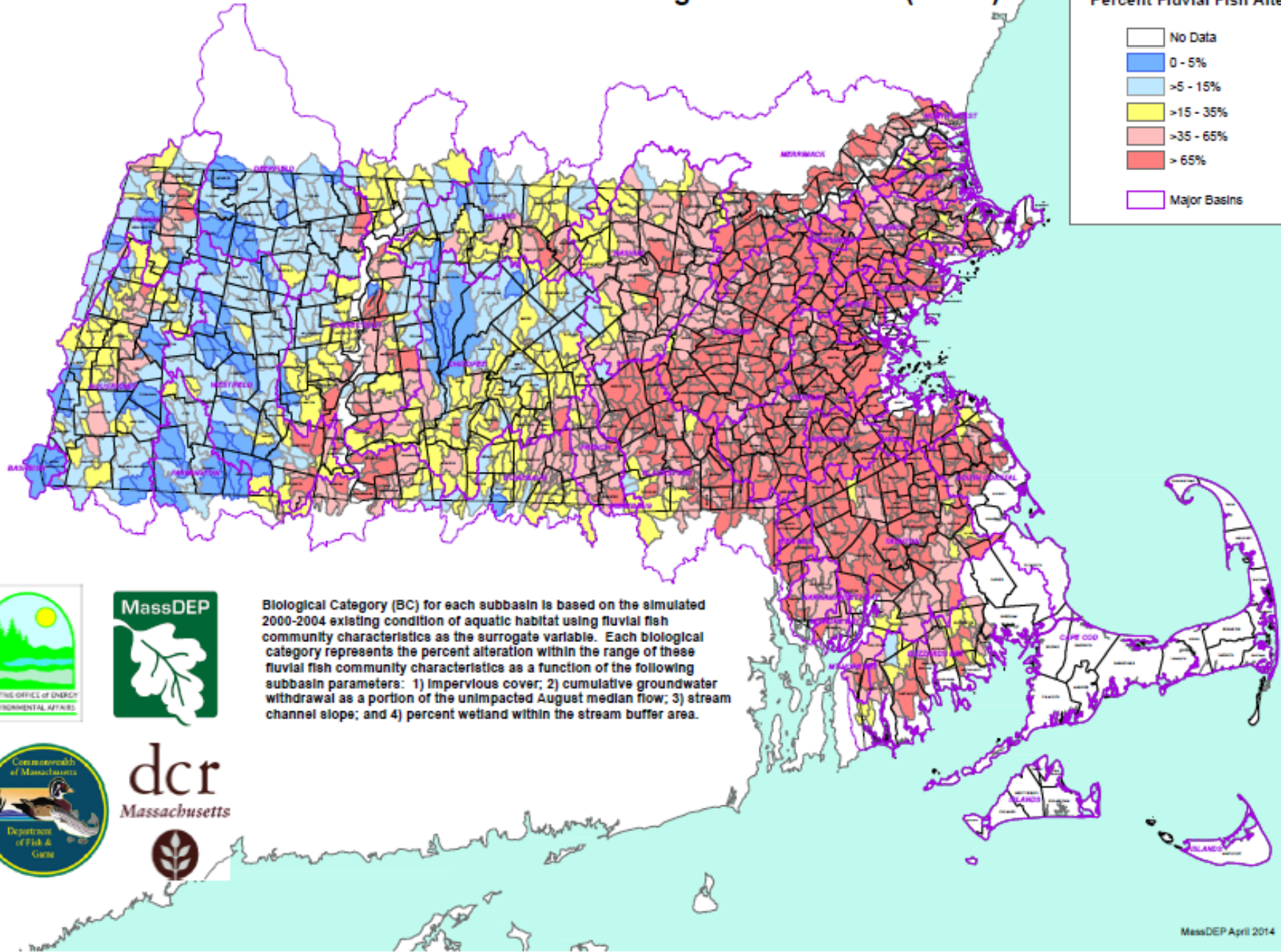
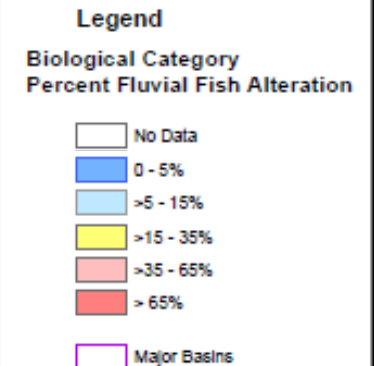
MWI



Fish and Habitat

- SWMI Advisory and Technical Committees helped us develop policy from science
- Five Biological and Groundwater Categories (1=least impact, 5 = most impact)
 - Categories use fluvial fish as surrogate for healthy aquatic habitat,
 - Impervious cover and August groundwater withdrawals used to represent impacts
- Streamflow Criteria mark the boundaries between categories (310 CMR 36.14)

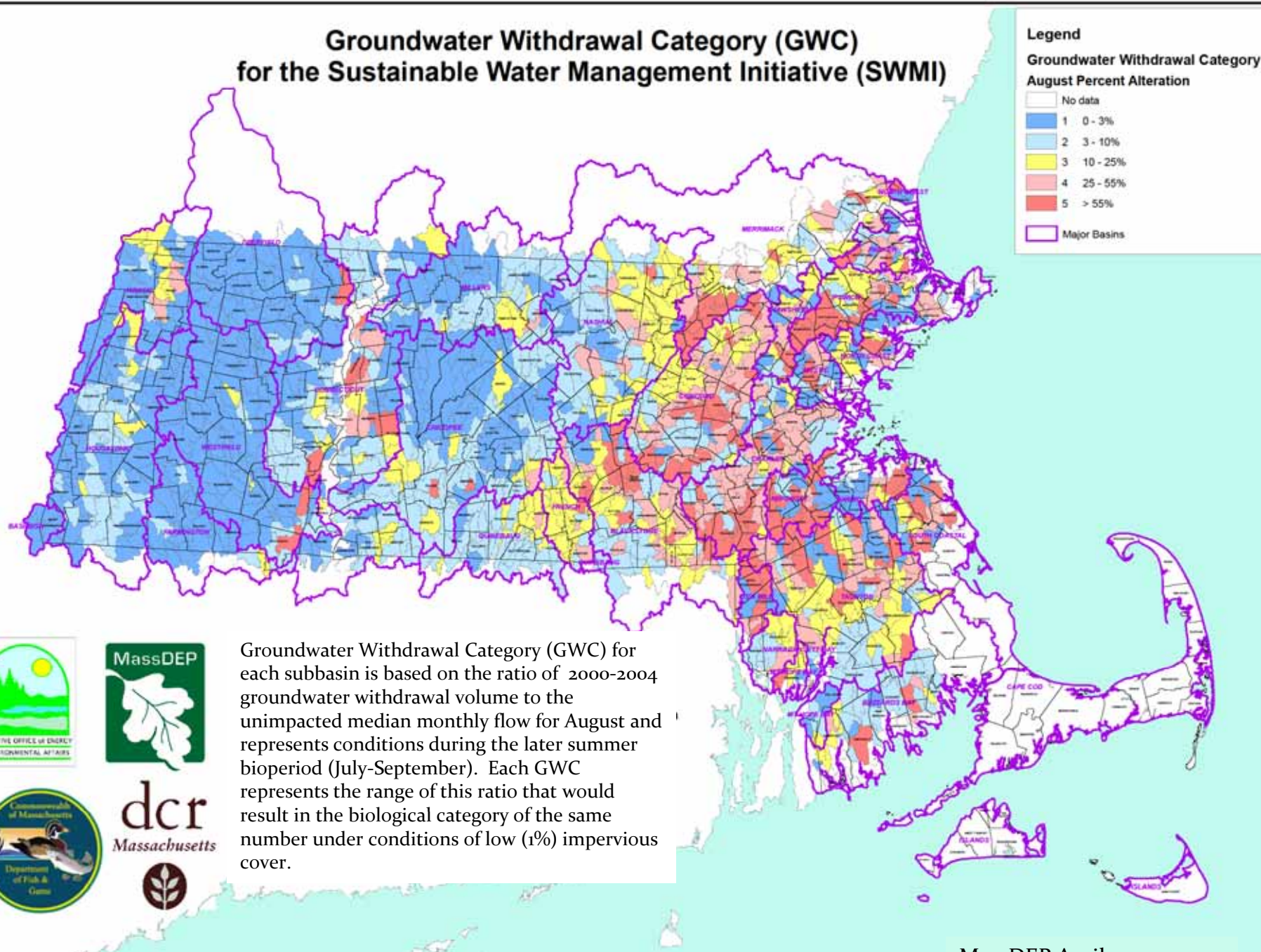
Biological Category (BC) for the Sustainable Water Management Initiative (SWMI)



Biological Category (BC) for each subbasin is based on the simulated 2000-2004 existing condition of aquatic habitat using fluvial fish community characteristics as the surrogate variable. Each biological category represents the percent alteration within the range of these fluvial fish community characteristics as a function of the following subbasin parameters: 1) impervious cover; 2) cumulative groundwater withdrawal as a portion of the unimpacted August median flow; 3) stream channel slope; and 4) percent wetland within the stream buffer area.



Groundwater Withdrawal Category (GWC) for the Sustainable Water Management Initiative (SWMI)



New Permit* Requirements

- CFR Consult for withdrawals in subbasins with Coldwater Fishery Resources (CFRs)
- Minimization for groundwater withdrawals in “ $\geq 25\%$ August Net Groundwater Depleted” Subbasins
- Mitigation commensurate with impact, for requests above baseline, in consultation with agencies
- Show no feasible alternative for requests that change a category

*Those with only registrations are not subject to these requirements

Coldwater Fisheries Resource (CFR) Consult

- Basin meeting serves as the preliminary consult
- Goal: Reduce impacts to CFRs through optimization
- Optimization template will be provided



Minimization

Required* in subbasins defined as having an August net groundwater depletion (NGD) of 25% or more by MA Water Indicator Study data.

(NGD= Aug unaffected flow – Aug GW withdrawals + Aug GW returns)

Minimization Requirements (to the greatest extent feasible):

- Desktop Optimization
- Water Releases and Returns
- Additional Conservation Measures

*Permittees may avoid Minimization through:

1. Data refinement- showing August NGD is less than 25%, or
2. By conducting a Site-Specific Fish Community Assessment

Mitigation

Mitigation Standard:

- “commensurate with impact”, defined as:
 - volume of increase over baseline
 - does the increase cause a category change?
- considers cost and efficacy

Baseline is the largest of the following:

- 2003 – 2005 water use + 5%
- 2005 water use +5 %
- the community’s registered volume
- Must be in compliance with volume authorized in 2005

Permit Tiers

Tier 1 = No increase above baseline	—————>	no mitigation
Tier 2 = Increase but no category change	—————>	commensurate mitigation
Tier 3 = Increase and category change	—————>	commensurate mitigation (2:1 if indirect mitigation) show no feasible alternative

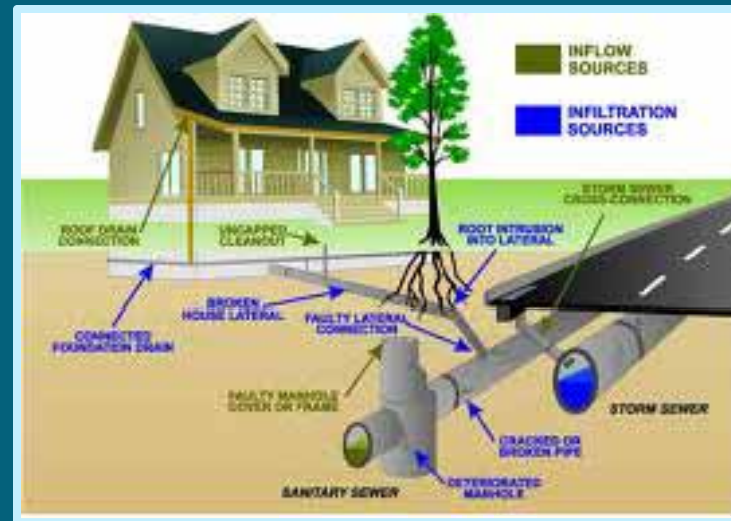
Mitigation Requirements

Direct Mitigation

Can be volumetrically calculated

Eligible Activities:

1. Infiltration and inflow improvements
2. Stormwater recharge (directly connected impervious area redevelop to recharge)
3. Surface water releases



Indirect Mitigation Activities

Qualitative Credit System

- Remove dam/flow barrier
- Culvert replacements meeting crossing standards
- Stream bank/channel/buffer restoration
- Private well bylaw
- Stormwater utility, bylaw with recharge or implement MS4*
- Acquire property in Zone I or II, or for other resource protection
- Infiltration/Inflow removal program
- Install & maintain fish ladder

*must result in increased recharge to get credit



Lipewich River Watershed Association

Deerfield & Housatonic Basin Specifics

- Who withdraws & how much?
- What are my water use restriction triggers?
- Who needs to minimize?
- Who has Cold Water Fishery Resources?
- What is my baseline?
- Do I need to mitigate? Projected Tier?
- What mitigation options exist?

Total Deerfield Water Use

Use Type	Registered Users	Permitted Users	Registered Volumes (mgd)	Permitted Volumes (mgd)
PWS	4	1	2.6	0.02
INDUST	2	0	1.03	0
AGRI	2	0	0.37	0
SKI AREA	0	1	0	0.467
Total	8	2	4	0.487

Total Housatonic Water Use

Use Type	Registered Users	Permitted Users	Registered Volumes (mgd)	Permitted Volumes (mgd)
PWS	9	2	16.92	0.29
INDUST	6	4	12.22	3.65
SKI AREA	1	2	0.16	0.17
GOLF	2	0	0.02	0
COMM	0	1	0	1.3
OTHER	1	0	0.25	0
Total	19	9	29.91	5.76

Permitted Deerfield Users

Name	Registration Volume (mgd)	Current Permit Volume (mgd)	Total Authorized Volume (mgd)
Shelburne Falls Fire District	0.21	0.02	0.23
Berkshire East Ski Area	0	0.467	0.467

Permitted Housatonic Users

Name	Registration Volume (mgd)	Permit Volume (mgd)	Total Authorized Volume (mgd)
Hinsdale Water System	0	0.25	0.25
Lee Water Department	1.13	0	1.13
Bousquet Ski Area	0	0.25	0.25
Butternut Basin Ski Area	0.5	0.27	0.77
Hazen Paper Co	1.04	0.46	1.5
Lane Construction Co	0	1.3	1.3
Onyx Specialty Papers	2.21	1.61	3.82
Pittsfield Generating Company LP	0	1.58	1.58
Lenox Development, LLC	4.6	0	4.6

Deerfield & Housatonic PWS Baseline Volumes

Deerfield

PWS	Baseline Volume (mgd)	Reported Use 2011 (mgd)	Reported Use 2012 (mgd)	Reported Use 2013 (mgd)
Shelburne Falls Fire District	0.21	0.13	0.14	0.15

Housatonic

PWS	Baseline Volume (mgd)	Reported Use 2011 (mgd)	Reported Use 2012 (mgd)	Reported Use 2013 (mgd)
Hinsdale Water System	0.15	0.09	0.09	0.08
Lee Water Department	1.13	0.71	0.68	0.75

Deerfield & Housatonic Non-PWS Baselines

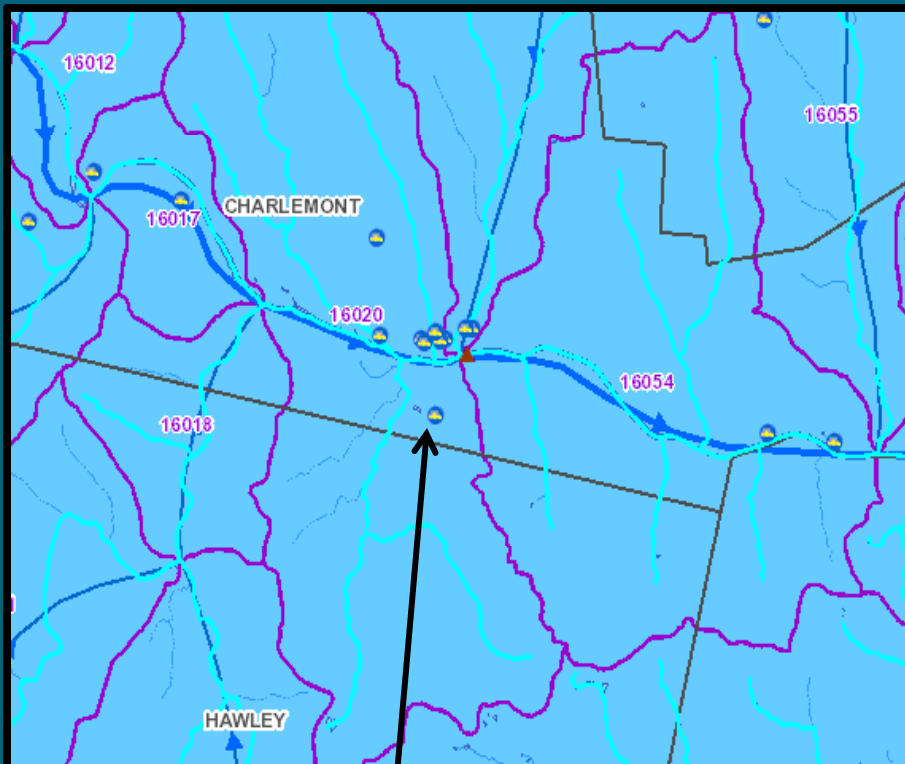
Deerfield

Name	Baseline Volume (mgd)	Current Total Allocation (mgd)	Reported Use 2011 (mgd)	Reported Use 2012 (mgd)	Reported Use 2013 (mgd)
Berkshire East	0	0.467	0.31	0.41	0.43

Housatonic

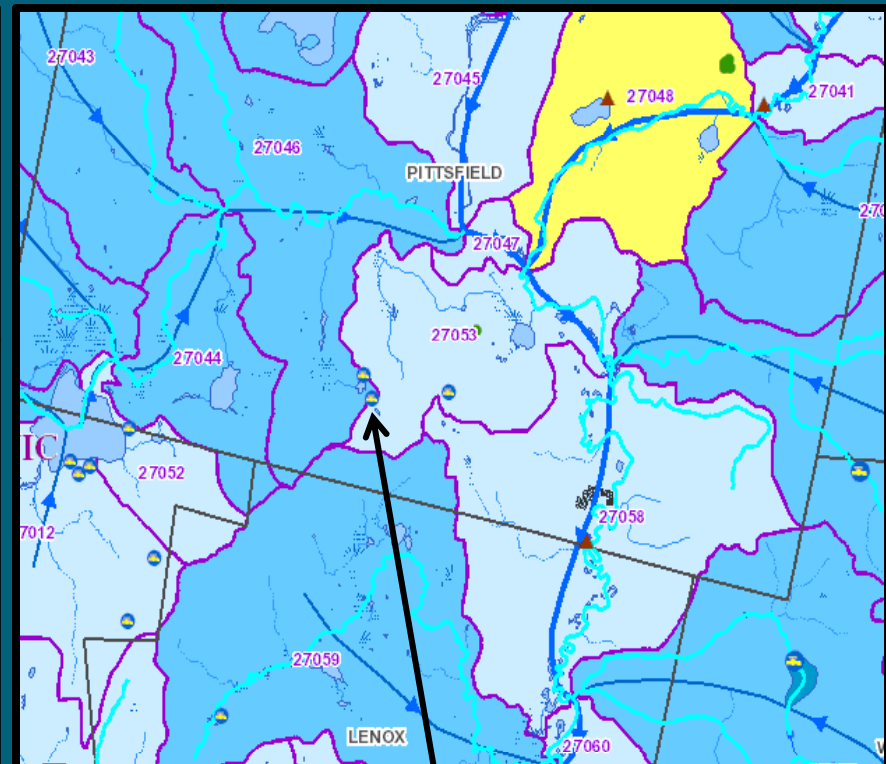
Name	Baseline Volume (mgd)	Current Total Allocation (mgd)	Reported Use 2011 (mgd)	Reported Use 2012 (mgd)	Reported Use 2013 (mgd)
Bousquet Ski Area	0.25	0.25	0.12	0.23	0.14
Butternut Basin Ski	0.718	0.77	0.4	0.4	0.42
Hazen Paper Co	1.27	1.5	0.34	0.34	0.37
Lane Construction	0.57	1.3	0.03	0.03	0.15
Onyx Papers	2.26	3.82	1.29	1.16	1.18
Pittsfield Generating	0.36	1.58	0.2	0.27	0.19
Lenox Development	4.60	4.6	0.05	0	0

Additional Volumes before GWC or BC changes



Berkshire East Ski Area

Sub-basin	MGD to change GWC	MGD to Change BC
16020	1.21	3.06
16054	1.33	3.26



Bousquet Ski Area

Sub-basin	MGD to change GWC	MGD to Change BC
27046	.031	.253
27047	.89	.327

Nonessential Water Use Triggers

Trigger	May- June Trigger Value	July – Sept. Trigger Value	7 Day Low Flow Trigger Value	Permittees assigned
North River at Shattuckville	112 cfs	38 cfs	15 cfs	Shelburne Falls; Berkshire East Ski Area
Housatonic River at Great Barrington	257 cfs	124 cfs	68 cfs	Lee; Butternut Basin Ski Area; Lane Construction Co; Hazen Paper Co; Onyx Paper, Lenox Development LLC
Housatonic at Coltsville	56 cfs	23 cfs	19 cfs	Hinsdale; Bousquet Ski Area; Pittsfield Generating Company;

Online SWMI Interactive Maps

- GIS map provides an interactive graphic display that includes:
 - GWC & BC
 - August Net groundwater depletion
 - Water use points
 - Cold Water Fishery Resources
 - Aquifers and more

- Map is at

<http://www.mass.gov/eea/agencies/massdep/water/watersheds/sustainable-water-management-initiative-swmi.html>

DEP Permitting Tool

- Displays data and equations to determine BC, GWC, August NGD for 1400 subbasins.
- User may increase or decrease water use and see resulting change in above values.
- Two main views:
 - PWS information includes: recent usage, baseline volumes, projected usage, sources, and other users
 - Subbasin information includes: cumulative area, % of impervious cover, streamflow values, etc.

DEP Permitting Tool

Find by Subbasin ID: Find by PWS System Name:
 Find by PWSID: Find PWS by Town Name:

Click to use pull
downs and to View
All Subbasins

All Water Use
Points in Subbasin
Report

Calculation Tool
Report

Click on "X" in upper right of this form to close this window and return to main page.

Double Click on Sub Basin ID to view water use volumes

Subbasin Characteristics

Sub Basin ID: **27016** Major Basin: **Housatonic** HUC12 Name: **Housatonic River-Washington Mountain Brook to Hop Bk**

Subbasin Cumulative Data (includes this subbasin and all upstream contributing subbasins)

Subbasin Information	August Wastewater Discharges (mgd)	August Groundwater Withdrawals (mgd)	Additional GW Withdrawal Volume to Cause a Change in Existing GWC and BC:
Area (Square Miles): 8.76	Ground Water Discharge: 0.000	PWS and Commercial Wells: 0.000	To Change GWC (mgd): 0.044
Impervious Cover (%): 0.9	Septic Systems: + 0.008	Private Wells: + 0.010	To Change BC (mgd): 0.0554
Surface water withdrawals exist in or upstream of subbasin: YES	Total Subsurface Discharge: = 0.008	Total Groundwater Withdrawals: = 0.010	
	Surface Water (NPDES): 0.000		

Individual Subbasin Data (only includes this subbasin)

Net Groundwater Depletion (NGD)

Coldwater Fisheries Resource Exist: Yes

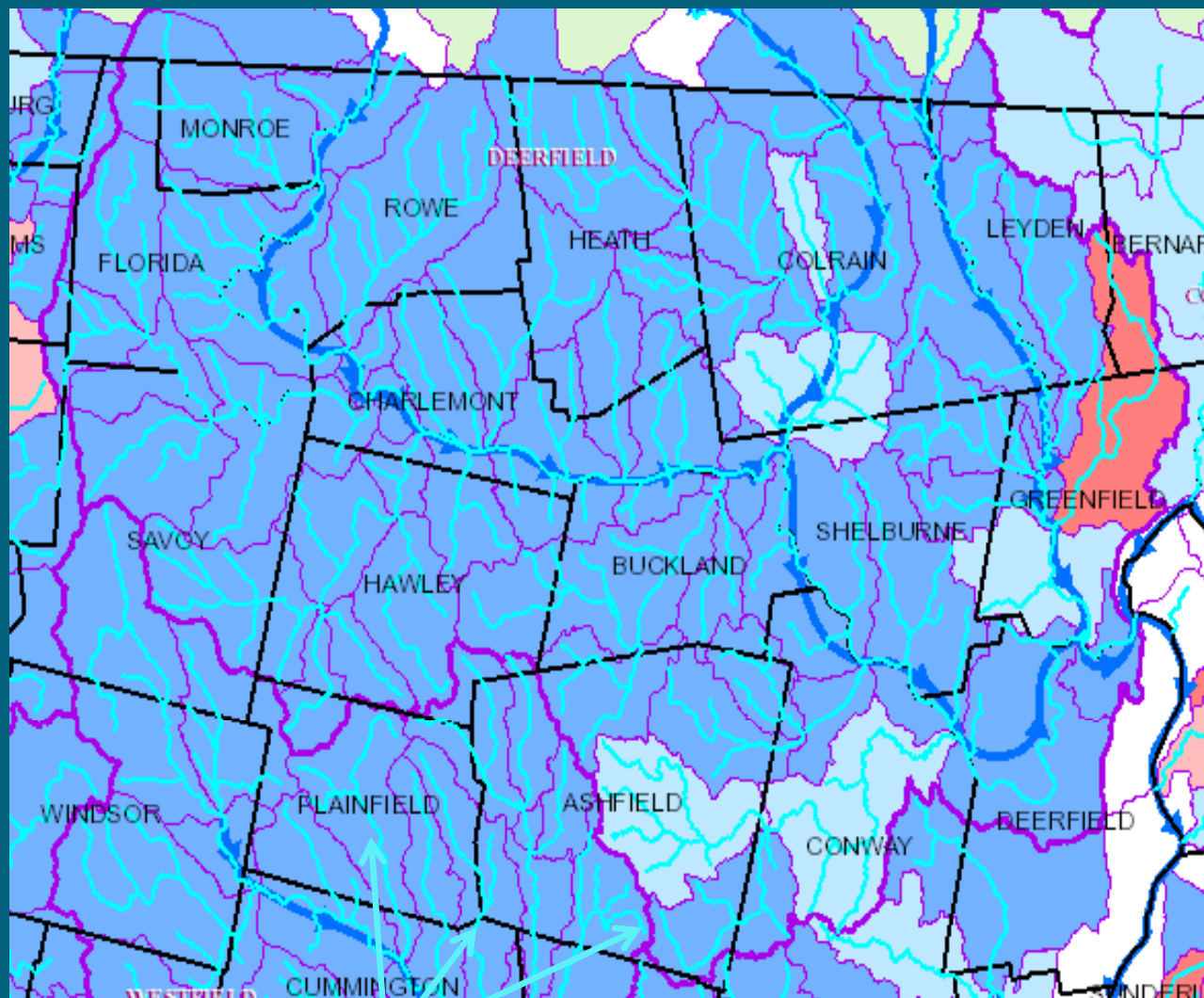
Net Groundwater Depletion (%): 0.1

Positive value indicates depleted.
Negative value indicates surcharged.

Unaffected streamflow, Ground Water withdrawals, Groundwater Withdrawal Category (GWC) and Biologic Category (BC).

Estimated August Condition		Proposed Changes to existing GW Withdrawal		Existing vs. Proposed	
		Change (+/-) to existing GW Withdrawal (mgd)	<input type="text" value="0"/>	<input type="button" value="Calculate"/>	<input type="button" value="Clear"/>
Unaffected Streamflow (mgd)*	<input type="text" value="1.794"/>	Unaffected Streamflow(mgd)	<input type="text" value="1.794"/>		
GW Withdrawals (mgd)**	- <input type="text" value="0.010"/>	Proposed Total GW Withdrawal (mgd)	- <input type="text" value="0.010"/>		
(Unaffected Streamflow) - (GW Withdrawals)	= <input type="text" value="1.784"/>	(Unaffected Streamflow) - (Prop. GW Withdrawal)	= <input type="text" value="1.784"/>		
(GW Withdrawals) / (Unaffected Streamflow)	= <input type="text" value="0.5%"/>	(Proposed GW Withdrawal) / (Unaffected Streamflow)	= <input type="text" value="0.5%"/>	<input type="text" value="0.0%"/>	Percent Difference
Groundwater Withdrawal Category (1-5)	GWC: <input type="text" value="1"/>	Proposed Groundwater Withdrawal Category (1-5)	<input type="text" value="1"/>	<input type="text" value="NO"/>	Change in GWC?
Biologic Category (1-5)	BC: <input type="text" value="1"/>	Proposed Biologic Category (1-5)	<input type="text" value="1"/>	<input type="text" value="NO"/>	Change in BC?

Deerfield Coldwater Fishery Resources



CFRs are considered a particularly sensitive receptor warranting protection.

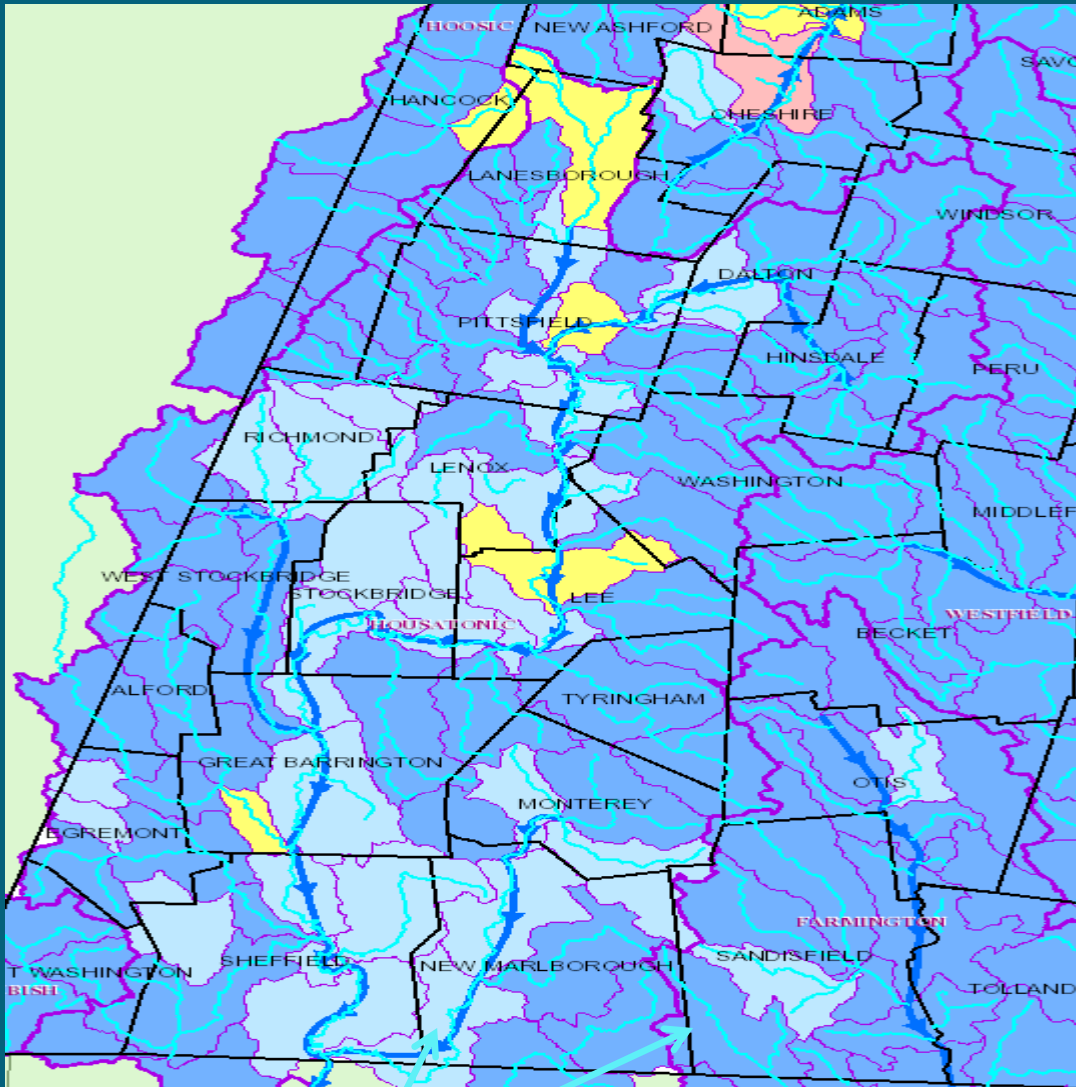
Permit holders with CFRs

Shelburne Falls Fire District

Berkshire East Ski Area

CFRs are light blue

Housatonic Coldwater Fishery Resources



CFRs are light blue



CFRs are considered a particularly sensitive receptor warranting protection.

Permit Holders with CFRs

Butternut Basin Ski Area

Bousquet Ski Area

Hinsdale Water System

Lane Construction Co

Lee Water Department

Pittsfield Generating Company LP

Lenox Development LLC

Onyx Specialty Paper

Hazen Paper

Summary Info for Permits

Deerfield Permits	CFR present	Minimization required	Projected Permit Tier	Alternative analysis
Berkshire East Ski Area	Yes	No	2	No
Shelburne Falls Fire District	Yes	No	1	No

Housatonic Permits	CFR present	Minimization required	Projected Permit Tier	Alternative analysis
Bousquet Ski Area	Yes	No	1	No
Butternut Basin Ski Area	Yes	No	1	No
Hazen Paper Co	Yes	No	1	No
Hinsdale Water System	Yes	No	1	No
Lane Construction Co	Yes	No	1	No
Lee Water Department	Yes*	No	1	No
Onyx Specialty Paper Inc.	Yes*	No	1	No
Pittsfield Generating Company LP	Yes	No	1	No
Lenox Development LLC	Yes	No	1	No

*** Consultation with DFG will be required**


Permit Reviews

DEP Reviewers

Name	Email	Phone #
Kim Longridge	Kimberly.Longridge@state.ma.us	413-755-2215
Jim Bumgardner	James.Bumgardner@state.ma.us	413-755-2270

Permit Holder	Reviewer
Berkshire East Ski Area	Longridge
Shelburne Falls Fire District	Bumgardner
Bousquet Ski Area	Longridge
Butternut Basin Ski Area	Bumgardner
Hazen Paper	Longridge
Hinsdale Water System	Longridge
Lane Construction Company	Longridge
Lee Water Department	Bumgardner
Lenox Development LLC	Bumgardner
Onyx Specialty Paper, Inc.	Bumgardner
Pittsfield Generating Company LP	Bumgardner

Community-Specific One-Page Summary Sheet

- Includes 6 summary tables:
 - 1) Reported Use 2009-13
 - 2) Performance Standards
 - 3) WNF Scenarios
 - 4) Permit Data  example
 - 5) Subbasin Data
 - 6) Streamflow Triggers

Permit Requirements*	
CFR Consult?	Yes/no
Minimization required?	Yes/no
Estimated renewal request in mgd	1.47
Baseline (BL) in mgd	1.54
Projected increase above BL in mgd	-0.07
Estimated Permit Tier	1
Mitigation Required?	no

*includes comments to explain data sources and decisions

WMA Regulations and Permit Assistance

- Regulation (**Promulgated November 7, 2014**) and Policy Development (**Ongoing**)
- Permit application forms and worksheets (Winter 2015)
- Financial assistance (Annual Grant Program)
 - Eligible planning projects:
 - Optimization
 - Outdoor water use restrictions
 - Implementation of reasonable water conservation
 - NEWWA and MWWA Toolbox of BMPs
 - Eligible implementation projects:
 - Demand management (water audits, soil moisture sensors etc..)
 - Mitigation projects designed to improve flow impacts
ex. dam removal, culvert replacement, etc.

Further information

- MassDEP Technical Resources webpage at:
<http://www.mass.gov/eea/waste-mgmt-recycling/water-resources/preserving-water-resources/sustainable-water-management/>
- MassDEP SWMI webpage at:
<http://www.mass.gov/dep/water/resources/swmi.htm>
- Massachusetts Sustainable Water Management Initiative (SWMI), Framework Summary, November 28, 2012 at :
<http://www.mass.gov/eea/docs/eea/water/swmi-framework-nov-2012.pdf>

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