

Connecticut Basin Permit Meeting

September 22, 2016

Northampton Water Filtration Plant

137 Mountain St., Haydenville MA

MA Executive Office of Energy and Environmental Affairs

Department of Conservation and Recreation

Department of Environmental Protection

Department of Fish and Game

Connecticut Meeting

Agenda

- Introductions
- WMA Permit Renewal Process
- Connecticut Basin Specifics
- Questions & Answers
- Informal Agency Consultations

[illegible]

Meeting Purpose- Part One

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

Meeting Purpose- Part Two

- Review Connecticut 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 ...**



Connecticut Permit Renewal Schedule

Activity	Notes
Outreach meeting	September 22, 2016
Water Needs Forecast	Under development
Consultation meetings	On going, as necessary
Renewal Application Filing Period	Sept. 30 – Nov. 30 th
MassDEP issues Order to Compete (OTC)	TBD
Applicant prepares response to OTC	TBD
OTC response due back	TBD
MassDEP reviews	Mtgs. as necessary
Draft permit and public comment period	TBD
Issue final permits*	TBD

* 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 *	2015 Reported Use
Connecticut	1866.5 mgd	149.67 mgd	143.19 mgd	21.49 mgd

* 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

Steps in Developing a Water Needs Forecast

- DCR compiles and analyzes data
- Public Notices: *Environmental Monitor*; status report to WRC
- DCR develops draft forecast; discussions with water supplier
- Basin-wide public meeting (this meeting)
- PWS includes forecast in WMA permit application

Data from Water Supplier

1. Water-use data based on actual metering for 3 to 5 years (from ASRs):
 - Residential
 - Industrial, Commercial, Municipal (Nonresidential)
 - Treatment plant losses (if any)
 - UAW
2. Population served by water system (including out of town and seasonal)
3. Anticipated significant changes in water use (large projects not captured in projections)

Data Obtained by DCR

Data	Sources
Current Town-wide Population	U.S. Census, Planning Office
Population Projections	Regional Planning Agency
Current Employment	Regional Planning Agency
Employment Projections	Regional Planning Agency

Permit Renewal Volumes

You can renew only as much as you currently have

- Existing Allocation vs Requested Volume
 - Existing Allocation = Your registration + permit = 2.0 mgd
 - DCR Projection = 2.30 mgd
- Up to 2.0 mgd can be done through the Permit Renewal Application
- Additional 0.3 mgd requires a new Permit Application (BRPWMo₃)
- Permit Renewal and the new Permit can be done simultaneously
or
- New Permit can be done in the future (but before water is needed)

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

Connecticut

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*	1 day*
	>65 →	2 days *	1 day*	7 days	2 days*

* 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 MassDEP may vary from above requirements

Golf Standard Conditions

All permitted golf courses will be required to:

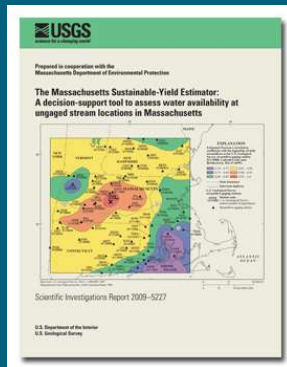
- have a conservation program that includes
 - metering,
 - irrigation system maintenance,
 - turf management, and
 - education;
- limit nonessential irrigation during drought;
- optimize withdrawals to protect cold water fisheries; and
- minimize impacts if the golf course is in a groundwater depleted subbasin.

New or expanding golf courses may also be required to:

- mitigate irrigation impacts; and
- show that there is no alternative source that is less environmentally harmful.

Science and Policy Informing WMA Permit Requirements

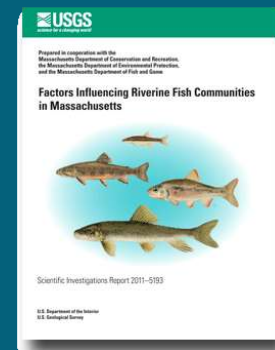
- USGS Studies: August withdrawals and impervious cover have significant impact on fluvial fish



SYE



MWI










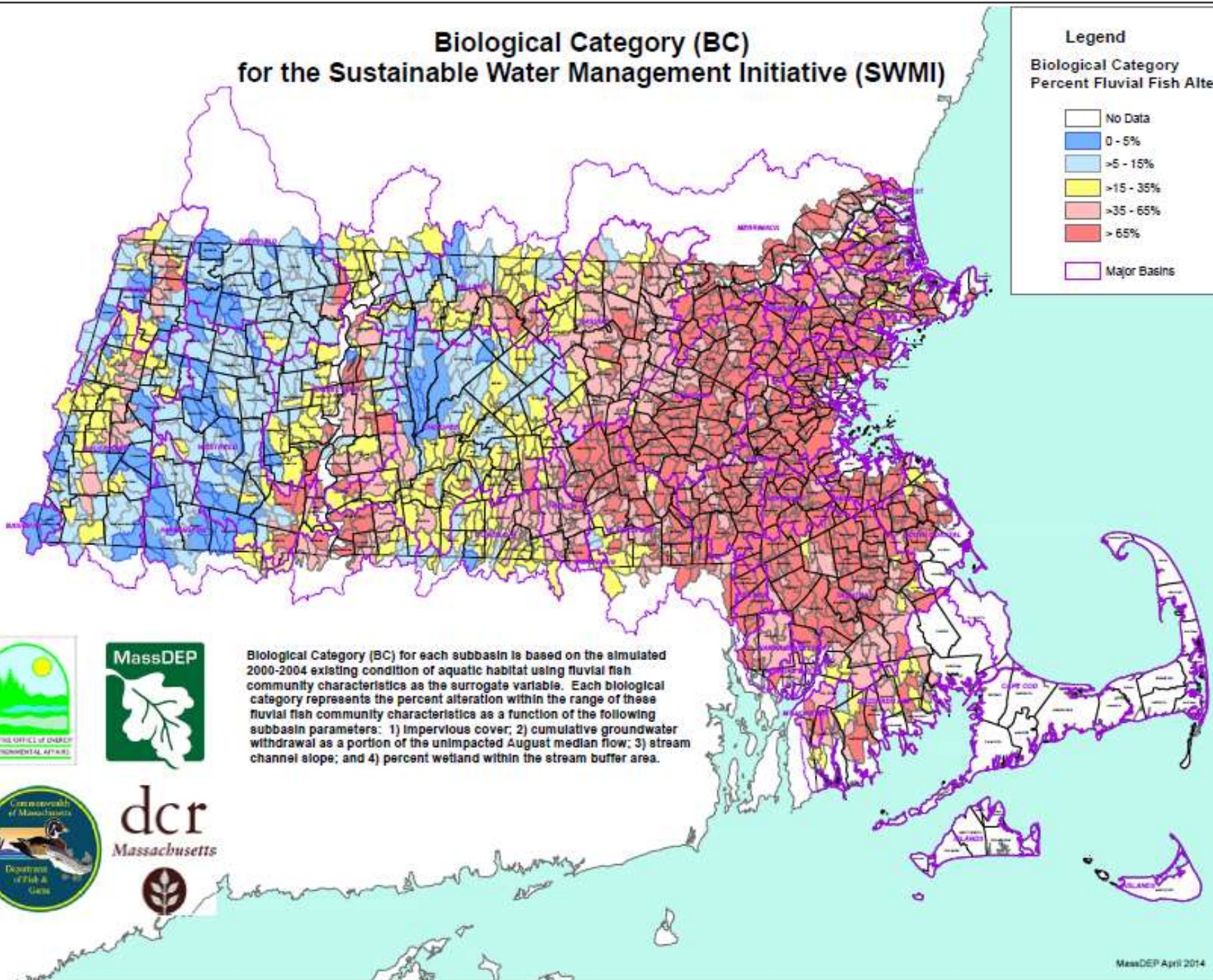
Fish and Habitat

- 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)

Legend
Biological Category
Percent Fluvial Fish Alteration

-  No Data
-  0 - 5%
-  >5 - 15%
-  >15 - 35%
-  >35 - 65%
-  >65%
-  Major Basins



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.



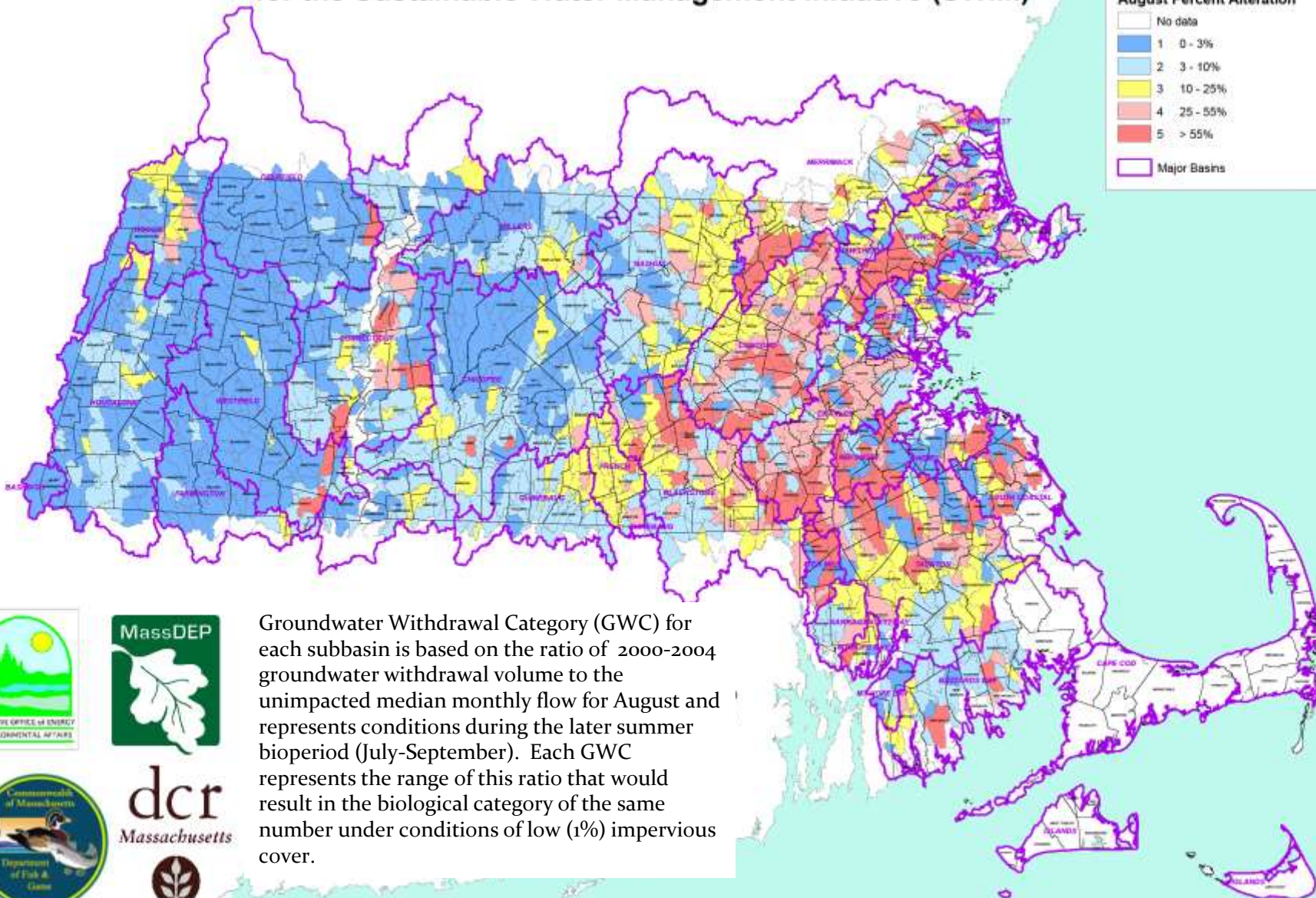
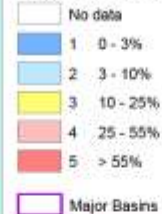
dcr
Massachusetts



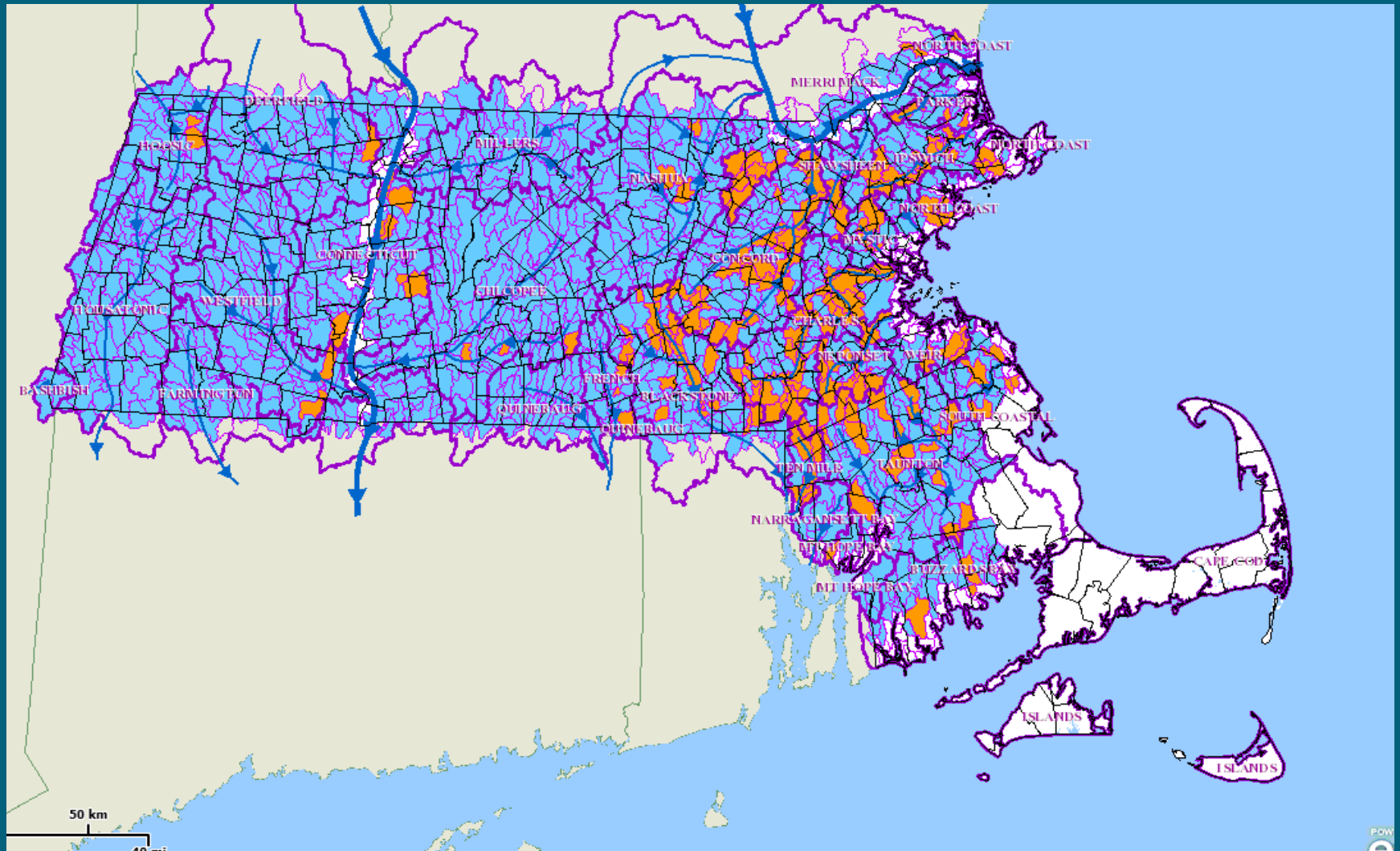
Groundwater Withdrawal Category (GWC) for the Sustainable Water Management Initiative (SWMI)

Legend

Groundwater Withdrawal Category August Percent Alteration



August Net Depletion



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 guidance will be provided



Minimization

Required* in subbasins that are August net groundwater depleted (NGD) by 25% or more according to 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 (Including more stringent outside water use restrictions)

*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 + 5⁰%
- 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

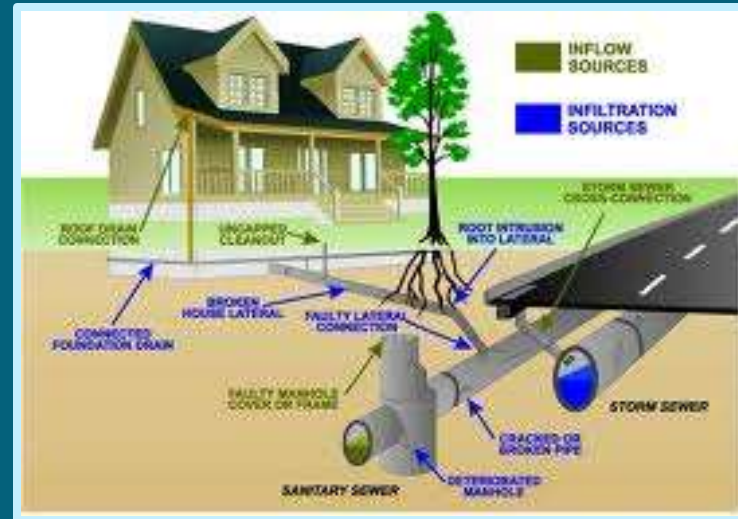
Mitigation Requirements

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

- Install & maintain fishway
- Culvert replacements meeting crossing standards
- Stream 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
- Remove dam

*must result in increased recharge to get credit



Mitigation Plan Development

Action hierarchy

- 1st: Demand Management to stay below baseline
- 2nd: Direct/quantifiable mitigation
- 3rd: Indirect/non-quantifiable mitigation

Location hierarchy (where a choice exists)

- 1st: same subbasin as withdrawals (considering water quality)
- 2nd upstream from the subbasin of withdrawals (considering water quality)
- 3rd: same major basin as withdrawals
- 4th: different major basin

Take cost and
feasibility
into account

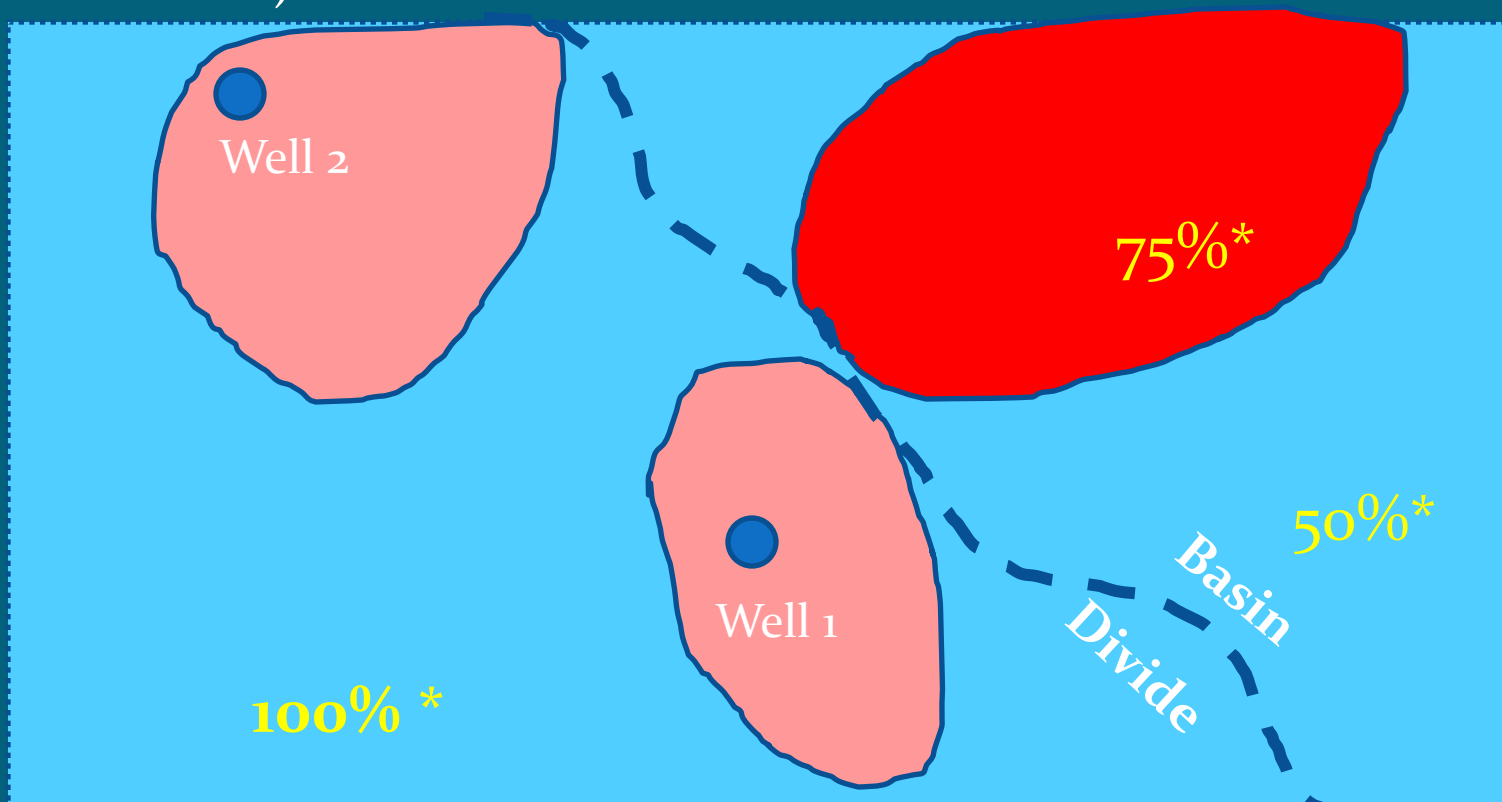
Mitigation Plan Timing

- Mitigation Plan is a live document
- Must be submitted at start of permit, can be phased-in based on use
- Retroactive credits (since 2005) considered if activity/benefit still in effect
- Volumes over Baseline must be mitigated prior to withdrawal (with allowances if withdrawals are already over baseline)

Mitigation Adjustments

Withdrawal location(s) and wastewater returns may result in adjustments in mitigation volumes and credits

- Wastewater Adjustment (* also adjusted by consumptive use factor)
- Location Adjustment Factor



Connecticut 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?

Community-Specific One-Page Summary Sheet

Includes 6 summary tables:

- 1) Reported Use 2010-14
- 2) Performance Standards
- 3) WNF Scenarios
- 4) Permit Data
- 5) Subbasin Data
- 6) Streamflow Triggers

example

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

Total Connecticut Water Use

Use Type	Registered Users	Permitted Users	Registered Volumes (mgd)*	Permitted Volumes (mgd)*
PWS	12	11	22.79	4.064
INDUST	8	1	116.51	0.235
GOLF	6	8	0.227	0.669
WMAOTH	3	2	3.28	0.39
COMM	0	1	0	0.41
AGRI	3	3	0.38	0.719
Total	32	26	143.19	6.487

* Withdrawal volume calculated based on 365 days

Permitted Connecticut PWS Users

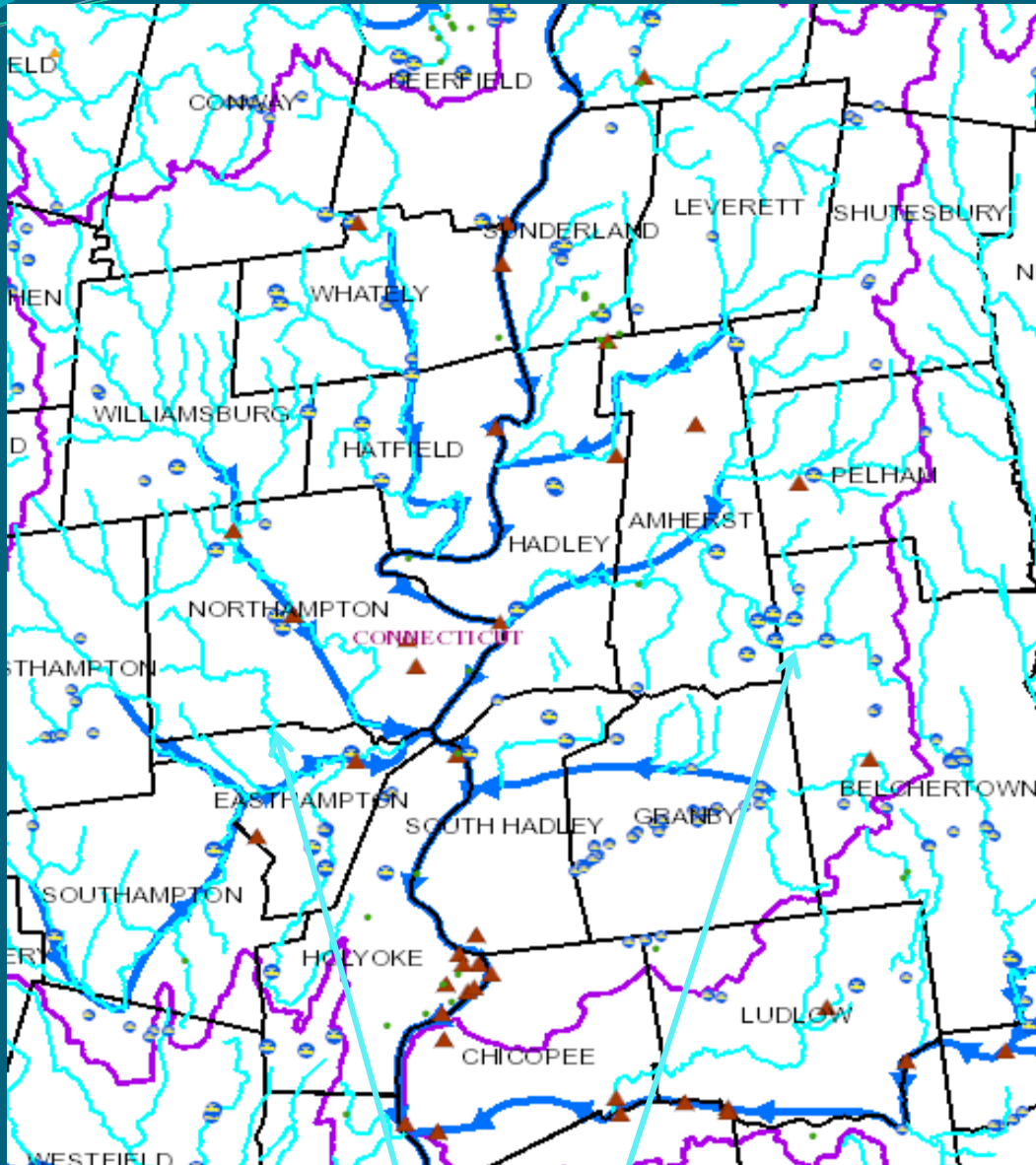
Name	Registration Volume (mgd)	Current Permit Volume (mgd)	Total Authorized Volume (mgd)
Amherst DPW Water Division	3.34	1.21	4.55
Belchertown Water District	0.19	0.21	0.4
Bernardston Fire & Water District	0.17*	0.17	0.17
East Northfield Water Company	0	0.14	0.14
Easthampton Water Department	3.31	0	3.31
Hadley Water Department	0.79	0.13	0.92
Northampton Water Department	3.96	0.84	4.8
Southampton Water Department	0	0.36	0.36
Turners Falls Fire District	1.04	0.14	1.18
Wilbraham Water Department	0	0.864	0.864

* Bernardston is registered in Deerfield Basin

Permitted Connecticut Non-PWS Users

Name	Registration Volume (mgd)	Current Permit Volume (mgd)	Total Authorized Volume (mgd)
Australis Aquaculture LLC	0	0.41	0.41
Chang Farms Inc	0	0.65	0.65
Crumpin Fox Club	0	0.08	0.08
Elmcrest Country Club	0	0.226	0.226
Four Star Farms Inc	0	0.167	0.167
Great Swamp Farm	0.21	0.39	0.6
Ledges Golf Club	0	0.14	0.14
Ludlow Country Club Inc (Chicopee Basin)	0	0.096	0.096
New Hampden Country Club	0	0.135	0.135
Nourse Farms Inc	0.2	0.38	0.58
Oak Ridge Golf Club Inc	0	0.15	0.15
Open Square Properties LLC	0	0.235	0.235
Sunderland State Fish Hatchery	2.79	0	2.79
Veterans & Franconia Golf Courses	0	0.2	0.2
Westover Municipal Golf Course	0	0.12	0.12

Connecticut Fishery Resources



CFRs are light blue

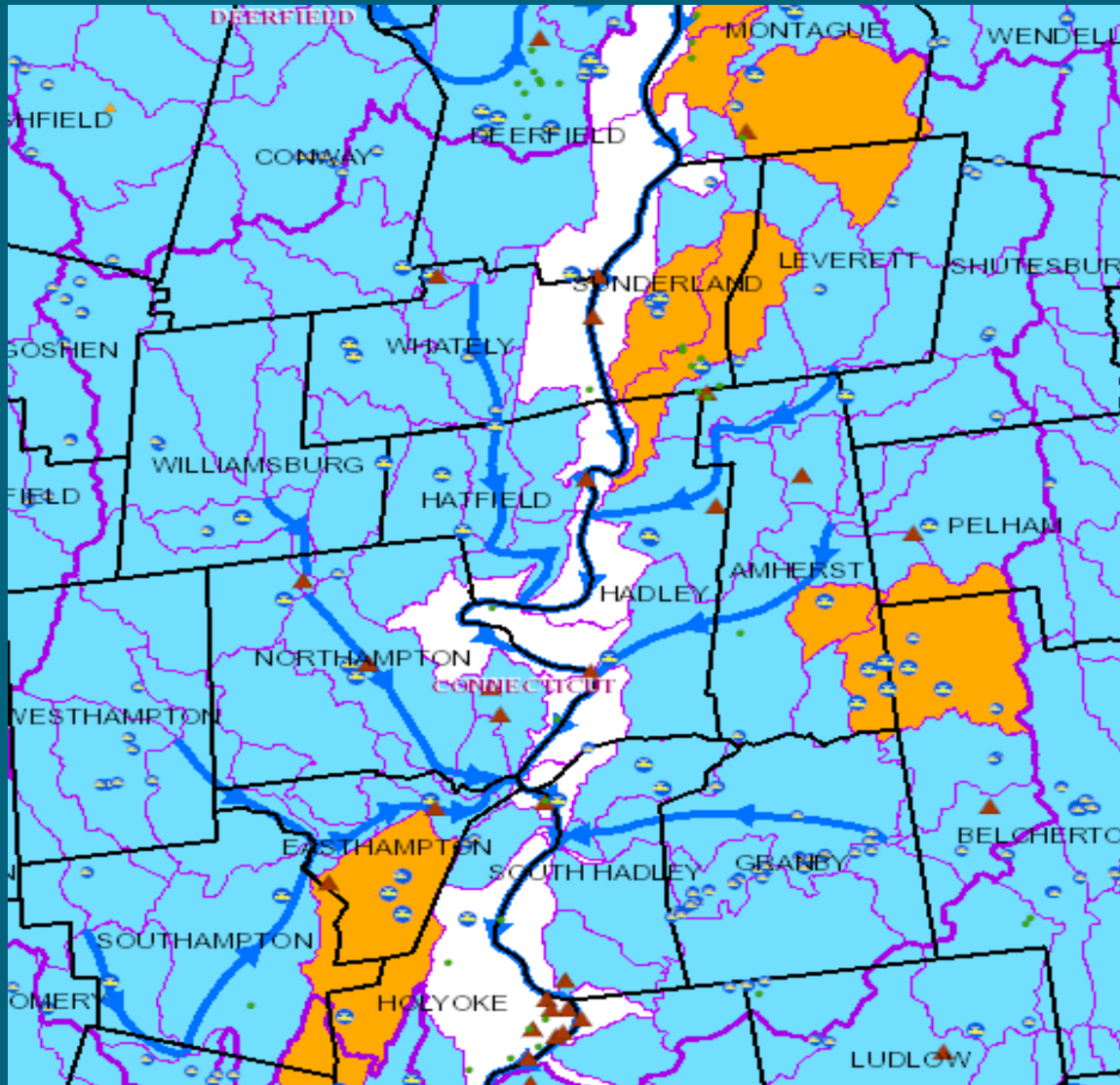


CFRs are considered a particularly sensitive receptor warranting protection.

CFR Present near Permitteds Source(s)

Amherst	Northampton
Belchertown	East Northfield
Bernardston	Turners Falls
Easthampton	Wilbraham
Hadley	Sunderland fish
Crumpin Fox Golf	Veterans & Franconia

Connecticut Minimization Requirements



Permits Requiring Minimization

Amherst

Belchertown

Bernardston

Easthampton

Turners Falls

Great Swamp Farm

Connecticut PWS Baseline Volumes

Connecticut Basin PWS	Baseline Volume (mgd)	Reported Pumping 2013 (mgd)	Reported Pumping 2014 (mgd)	Reported Pumping 2015 (mgd)
Amherst DPW Water Division	3.8	2.86	2.86	3.02
Belchertown Water District	0.18*	0.15*	0.16*	0.16*
Bernardston Fire & Water District	0.15*	0.16*	0.3*	0.36*
East Northfield Water Company	0.08	0.04	0.04	0.05
Easthampton Water Department	3.31	1.71	1.46	1.4
Hadley Water Department	0.79	0.69	0.74	0.81
Northampton Water Department	3.96	3.23	3.17	3.14
Southampton Water Department	0.36	0.34	0.33	0.35
Turners Falls Fire District	1.04	0.74	0.77	0.78
Wilbraham Water Department	0**	0**	0**	0**

* Connecticut Basin Only

** All water purchased from MWRA

Connecticut Non-PWS Baseline Volumes

Connecticut Basin Non-PWS	Baseline Volume (mgd)	Reported Pumping 2013 (mgd)	Reported Pumping 2014 (mgd)	Reported Pumping 2015 (mgd)
Australis Aquaculture LLC	0.15	0.15	0.15	0.11
Chang Farms Inc	0.12	0.24	0.21	0.23
Crumpin Fox Club	0.07	0.05	0.04	0.06
Elmcrest Country Club	0	0.09	0.12	NR
Four Star Farms Inc	0.08	0.02	0.01	0.03
Great Swamp Farm Inc	0.21	0.09	0.14	NR
Ledges Golf Club	0.06	NR	0.04	0.03
Ludlow Country Club (Chicopee basin)	0	NR	0.09	NR
Hampden Country Club	0.04	0.04	0.03	0.07
Nourse Farms Inc	0.2	0.1	0.08	0.01
Oak Ridge Golf Club Inc	0	0.08	0.06	0.09
Open Square Properties LLC	0	0	0	0
Sunderland State Fish Hatchery	2.79	3.94	4	3.33
Veterans & Franconia Golf Courses	0	0.12	0.15	0.23
Westover Municipal Golf Course	0.07	0.08	0.08	0.11

Connecticut Nonessential Water Use Triggers

Trigger	May- June Trigger Value (cfs)	July – Sept. Trigger Value (cfs)	7 Day Low Flow Trigger Value (cfs)	Permittees assigned
01171500-Mill River at Northampton	60	25	10	Amherst; Easthampton; Hadley; Northampton; Southampton; Ledges Golf Club; Westover Golf
01176000-Quaboag River at W. Brimfield	130	67	30	Belchertown; Wilbraham; Ludlow Country Club
01170100-Green River near Colrain	46	17	8.4	Bernardston; East Northfield; Crumpin Fox;
01169000-North River at Shattuckville MA	112	38	15	Turners Falls;
01183500-Westfield River near Westfield	544	244	117	Elmcrest Country Club; Hampden Country Club; Oak Ridge Golf Club;

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>

MassDEP 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.

MassDEP 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:

14061

Major Basin:

Connecticut

HUC12 Name:

Fort River

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): 12.40	Ground Water Discharge: 0.000	PWS and Commercial Wells: 2.219	To Change GWC (mgd): 0.000
Impervious Cover (%): 3.9	Septic Systems: + 0.123	Private Wells: + 0.117	To Change BC (mgd): 0
Surface water withdrawals exist in or upstream of subbasin: NO	Total Subsurface Discharge: = 0.123	Total Groundwater Withdrawals: = 2.336	
	Surface Water (NPDES): 0.000		

Individual Subbasin Data (only includes this subbasin)

Net Groundwater Depletion (NGD)

Coldwater Fisheries Resource Exist: Yes

Net Groundwater Depletion (%): 96.1

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	
Affected Streamflow (mgd)*	0.111	Change (+/-) to existing GW Withdrawal (mgd)	0	Calculate	Clear
Unaffected Streamflow (mgd)**	2.302	Unaffected Streamflow (mgd)	2.302		
GW Withdrawals (mgd)***	- 2.336	Proposed Total GW Withdrawal (mgd)	- 2.336		
(Unaffected Streamflow) - (GW Withdrawals)	= -0.034	(Unaffected Streamflow) - (Prop. GW Withdrawal)	= -0.034		
(GW Withdrawals) / (Unaffected Streamflow)	= 101.5%	(Proposed GW Withdrawal) / (Unaffected Streamflow)	= 101.5%	0.0%	Percent Difference
Groundwater Withdrawal Category (1-5) GWC:	5	Proposed Groundwater Withdrawal Category (1-5)	5	NO	Change in GWC?
Biologic Category (1-5) BC:	5	Proposed Biologic Category (1-5)	5	NO	Change in BC?

USGS report SIR 2009-5272 ("Mass. Indicators") describes subbasin delineation, streamflow simulation, and water withdrawal and discharge volume calculations.

* August affected streamflow = Aug. unaffected streamflow - Aug. groundwater withdrawals + Aug. wastewater discharges

** August unaffected streamflow = median August streamflow simulated using 1960-2004 USGS records of measured daily streamflow. Streamflow simulated for pour point of subbasin and includes streamflow from all upstream subbasins.

*** GW Withdrawals = 2000 to 2004 average August pumping from PWS and commercial wells; private well volumes estimated from U.S. Census data. mgd = million gallons per day

Groundwater Withdrawal Category (GWC) is the ratio of GW Pumping to Unaffected Streamflow (in percent) in the following ranges:

GWC1 (0 to <3%); GWC2 (3 to <10%); GWC3 (10 to <25%); GWC4 (25 to <55%); GWC5 (55% or greater)

Biologic Category (BC) is the estimated biological condition based on streamflow, impervious cover and natural basin characteristics.

The Biological Categories represent the estimated percent loss in the relative abundance of fluvial fish in the following ranges:

Summary Info for Connecticut PWS Permits

Connecticut Permits	Current Total Allocation (MGD)	DCR 65/10 +5% Buffer Forecast for 2033 (MGD)	Potential Allocated Volume (MGD)
Amherst Water Department	4.55	3.72	3.72
Belchertown Water District	0.21	0.32	0.21
Bernardston Fire & Water Department	0.17	Temporary Allocation	0.17
East Northfield Water Company	0.14	Temporary Allocation	0.14
Easthampton Water Department	3.31	-	3.31
Hadley Water Department	0.92	TBD	0.92
Northampton Water Department	4.8	4.05	4.05
Southampton Water Department	0.36	TBD	0.36
Turners Falls Fire District	1.18	Temporary Allocation	1.18
Wilbraham Water Department	0.864	-	0.864

Summary Info for Connecticut Permits

Connecticut Permits	CFR Present	Minimization required	Projected Permit Tier	Alternative analysis
Amherst Water Department	Yes	Yes	2	No
Belchertown Water District	Yes	Yes	2	No
Bernardston Fire & Water District	Yes	No	2	No
East Northfield Water Company	Yes	No	2	No
Easthampton Water Department	Yes	Yes	1	No
Hadley Water Department	Yes	No	2	No
Northampton Water Department	Yes	No	2	No
Southampton Water Department	No	No	1	No
Turners Falls Fire District	Yes	Yes	2 or 3	Maybe
Wilbraham Water Department	Yes	No	3	Yes

Summary Info for Connecticut Permits

Connecticut Permits	CFR Present	Minimization required	Projected Permit Tier	Alternative analysis
Crumpin Fox Golf Club	Yes	No	2	No
Elmcrest Country Club	No	No	3	Yes
Ledges Golf Club	No	No	2	No
Ludlow Country Club (Chicopee basin)	No	No	2	No
Hampden Country Club	No	No	2 or 3	maybe
Oak Ridge Golf Club	No	No	3	Yes
Veterans & Franconia Golf Courses	Yes	No	3	Yes
Westover Municipal Golf Course	No	No	2 or 3	maybe
Australis Aquaculture	No	No	2	No
Chang Farm	No	No	2	No
Four Star Farm	No	No	2	No
Great Swamp Farm	No	Yes	2 or 3	maybe
Nourse Farm	Yes*	No	2	No
Open Square Properties	No	No	2	No
Sunderland State Fish Hatchery	Yes	Yes	TBD	TBD

*Sources with CFR are registered only

Connecticut Permit Reviews

Connecticut Permit Holder	DEP Reviewer	DCR Reviewer
Amherst	Longridge	McCrory
Belchertown	Longridge	Drury
Bernardston	Longridge	McCrory
East Northfield	Longridge	TBD
Easthampton	Bumgardner	-
Hadley	Longridge	Graham
Northampton	Bumgardner	Cohen
Southampton	Longridge	Graham
Turners Falls	Bumgardner	Drury
Wilbraham	Bumgardner	TBD
Crumpin Fox Golf	Bumgardner	-
Elmcrest Country Club	Bumgardner	-
Ledges Golf Club	Bumgardner	-
Ludlow Country Club	Bumgardner	-
Hampden Country Club	Bumgardner	-
Oak Ridge Golf Club	Bumgardner	-
Veterans & Franconia	Bumgardner	-
Westover Golf	Bumgardner	-
Australis Aquaculture	Longridge	-

Connecticut Permit Holder	DEP Reviewer	DCR Reviewer
Chang Farms	Longridge	-
Four Star Farms	Longridge	-
Great Swamp Farm	Longridge	-
Nourse Farm	Longridge	-
Open Square	Longridge	-
Sunderland Fish	Longridge	-

DEP Reviewers

Name	Email	Phone #
Kimberly Longridge	kimberly.longridge@state.ma.us	413-755-2215
James Bumgardner	james.bumgardner@state.ma.us	413-755-2270

DCR Reviewers

Name	Email	Phone #
Sara Cohen	Sara.cohen@state.ma.us	617-626-1374
Michele Drury	Michele.drury@state.ma.us	617-626-1366
Marilyn McCrory	Marilyn.mccrory@state.ma.us	617-626-1423
Erin Graham	Erin.graham@state.ma.us	617-626-1426

WMA Regulations and Permit Assistance

- Regulation (**Promulgated November 7, 2014**) and Policy Development (**Ongoing**)
- Permit application forms and worksheets
- 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>

- Duane LeVangie
MassDEP
Water Management Program Chief
One Winter Street, Boston, MA 02108
duane.levangie@state.ma.us
617 292-5706

Water Needs Forecast Contacts

Anne Carroll 617-626-1395
anne.carroll@state.ma.us

Michele Drury 617-626-1366
michele.drury@state.ma.us