



# Water Management Act (WMA) Water Authorizations Status and Reported Water Use in MA

Water Resources Commission Meeting  
January 11, 2024  
1:30-3:30 pm via Zoom

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# WMA Permit Renewal Schedule

2029

Ipswich (August)

2031

Boston Harbor & Taunton (June); Ten Mile (Nov.); South Coastal (Dec.)

2032

Cape (March); Housatonic (May); Islands (June); Buzzards Bay (Sept.); Westfield (Nov.); Concord (Dec.)

2033

Millers (Feb.); Chicopee (May); Deerfield (June); Quinnebaug (Aug.); Connecticut (Nov.)

2034

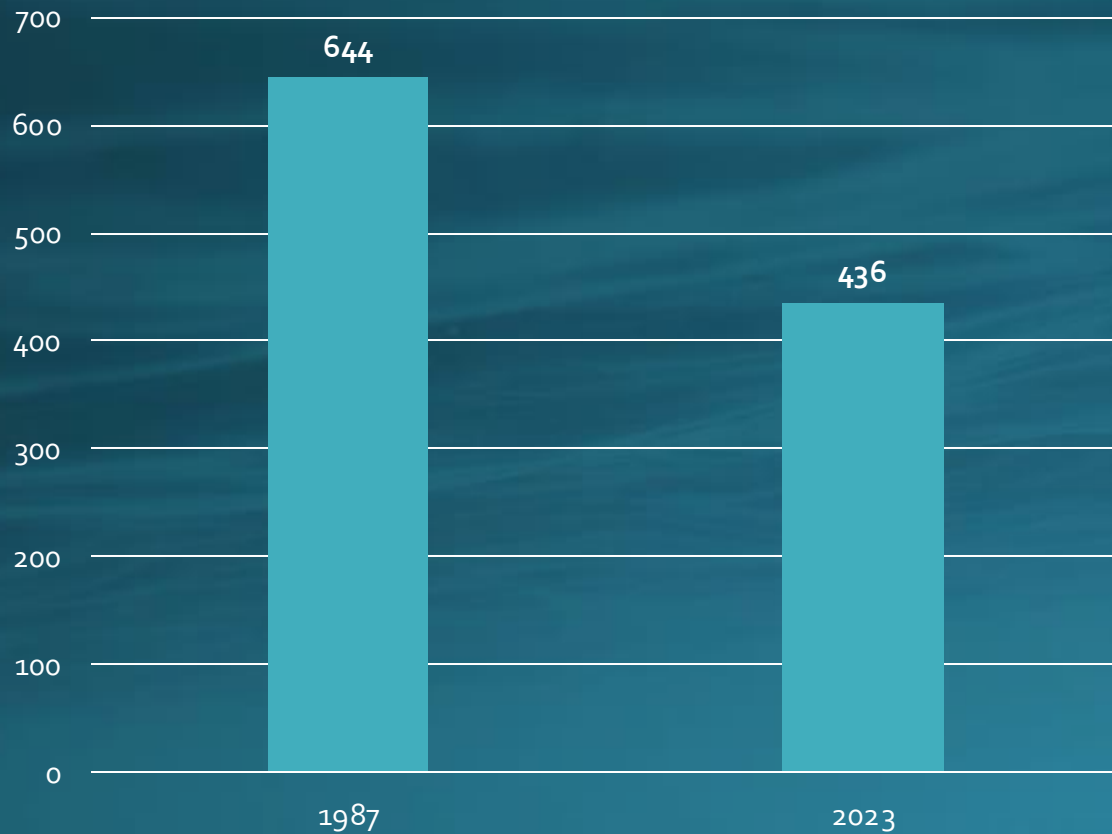
Nashua (Feb.); French (May); Blackstone & Charles (June); Shawsheen (August); Merrimack (Nov.); North Coastal (Dec.)

2035

Parker (Feb.); Narragansett (May)

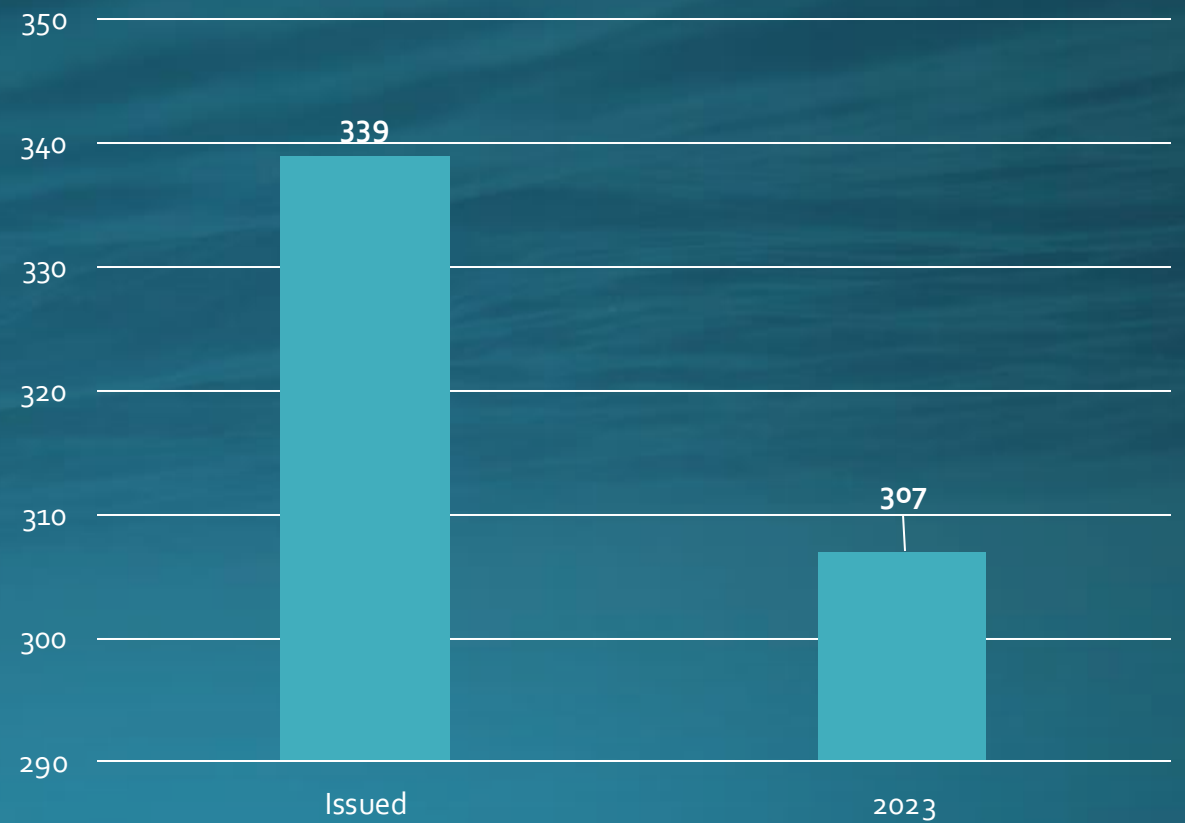
# Total WMA Registrations and Permits Numbers (Excluding Cranberry Withdrawals)

# WMA Registrations (excludes Cranberry)



Decreased: 208

#WMA Permits (excludes Cranberry)



Decreased: 32 (24.4 MGD)

# Top 5 Surrendered WMA Registrations

Name	Basin	Use Type	Annualized Registered Volume (MGD)	Closure Date
Mt Tom Generating Company LLC	Connecticut	Industrial	113.6	12/31/2017
Ogden Martin System of Haverhill	Merrimack	Industrial	10.25	4/6/2006
American Optical Corporation	Quinebaug	Industrial	7.95	1/1/2008
Lenox Development LLC	Housatonic	Industrial	4.6	4/8/2023
Armstrong World Industries Inc	Boston Harbor	Industrial	3.34	6/30/1997

# Statewide Total Volumes by Water Use Type

(All volumes in million gallons per day (MGD) (January 2024))

Water Use Type	Annualized Registered Volume	Annualized Permitted Volume	Total	% of Statewide Total
PWSs (262 Reg. & 203 Permits)	797.83	136.26	934.09	92.1%
Golf (96 Reg. & 62 Permits)	6.12	4.92	11.04	1.1%
Industrial (51 Reg. & 25 Permits)	33.43	18.71	52.14	5.1%
Agricultural excluding Cranberry (25 Reg. & 4 Permits)	1.86	0.96	2.82	0.3%
*Others (10 Reg. & 13 Permits)	10.99	3.45	14.44	1.4%
Total excluding cranberry (436 Reg. & 307 Permit)	850.23	164.36	1014.53	

\*Others include Fish, Ski and Commercial

## New Permits Issued since 2014

Basin	# of New Permits Issued since 2014 (increased volumes , new sources, new permits)
Cape Cod	3
South Coastal	3
Islands, Buzzards Bay, Taunton, Boston Harbor, North Coastal	1 permit in each basin
Total	11
Volumes allocated	3.13 MGD additional allocation ----- 1.95 MGD actual increase in use from baseline period (Eastham, Abington-Rockland, Southport, National Cemetery)

## Volumes Reduced since 2014

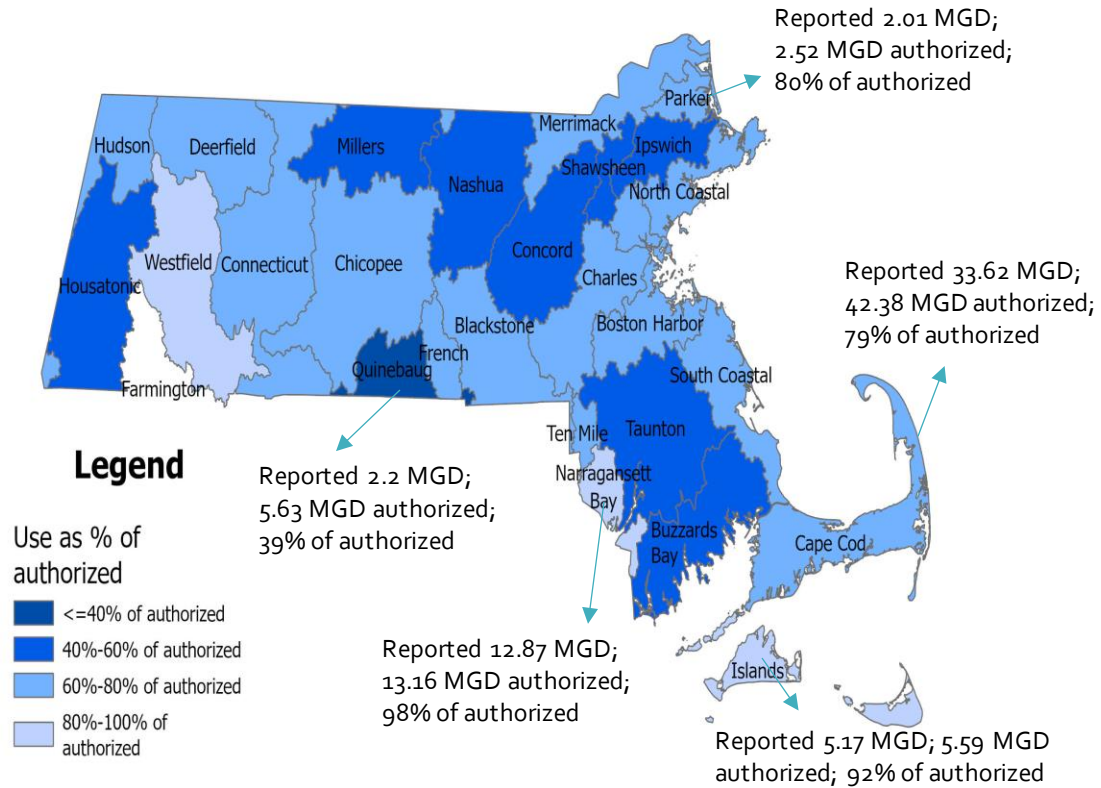
Basin	# of Permits Reduced or Surrendered
Taunton	5
Concord	4
Boston Harbor	3
Ipswich	2
Westfield, South Coastal, Charles	1 permit in each basin
Total	17
Reduced Permit Vol.	10.66 MGD
Reduced Reg. Vol.	7.87 MGD

### Reasons:

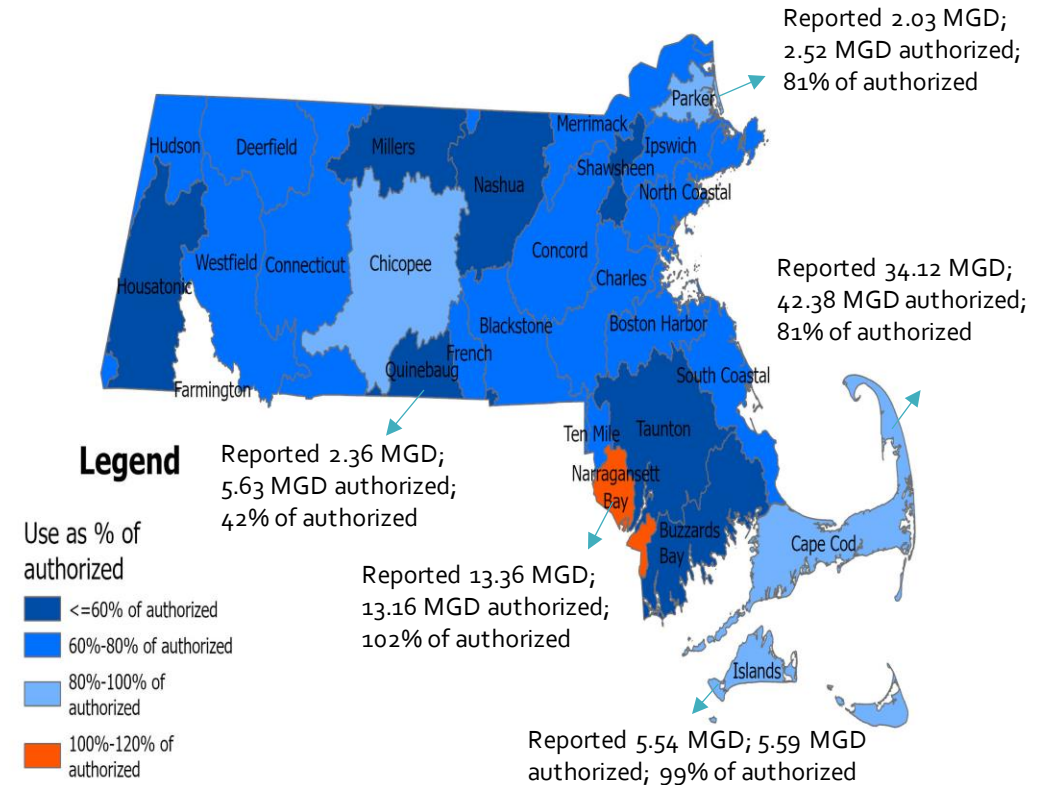
- 4 Gave up permits
- 5 Held back volumes to avoid mitigation
- 6 Reduced volumes due to needs
- 2 Reduced for other reasons

# 2021 and 2022 reported water use to total authorized volumes

## 2021 reported water use to total authorized volumes by basins



## 2022 reported water use to total authorized volumes by basins

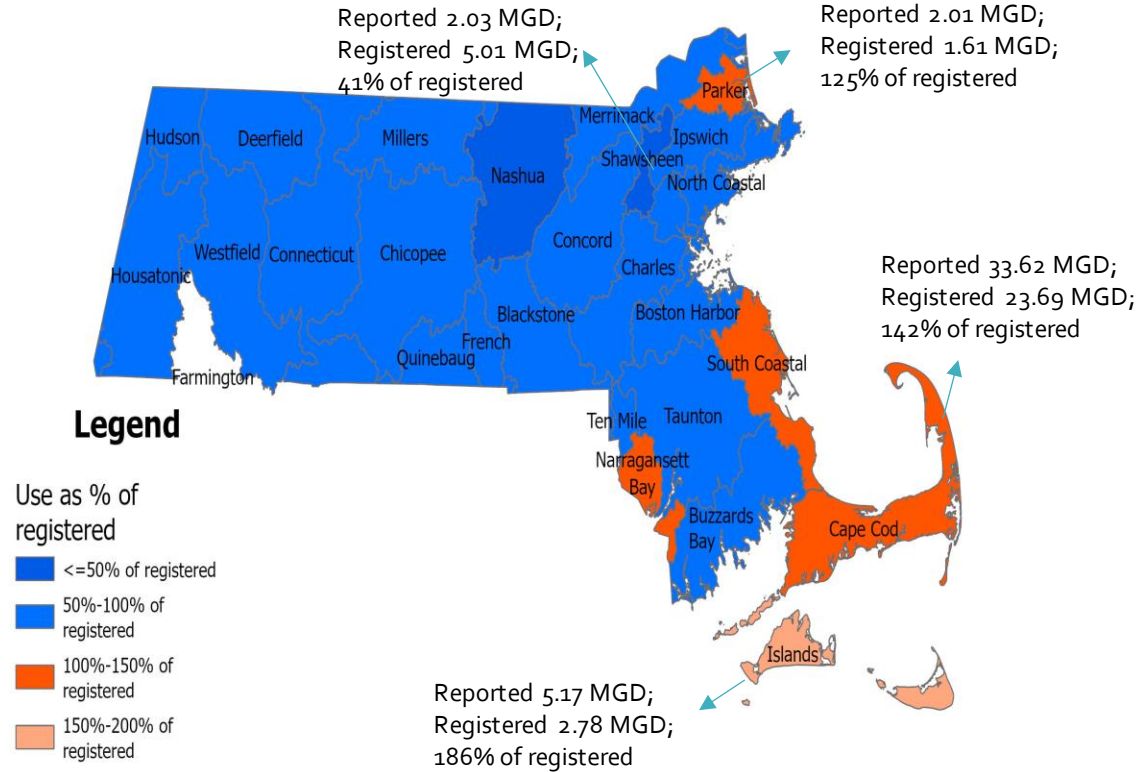


	Reported (MGD)	Authorized (MGD)	% reported/Authorized
Ipswich	17.25	32.54	53%
Charles	29.62	43.18	68.6%
Concord	19.83	34.35	57.7%
South Coastal	25.82	36.24	71.2%

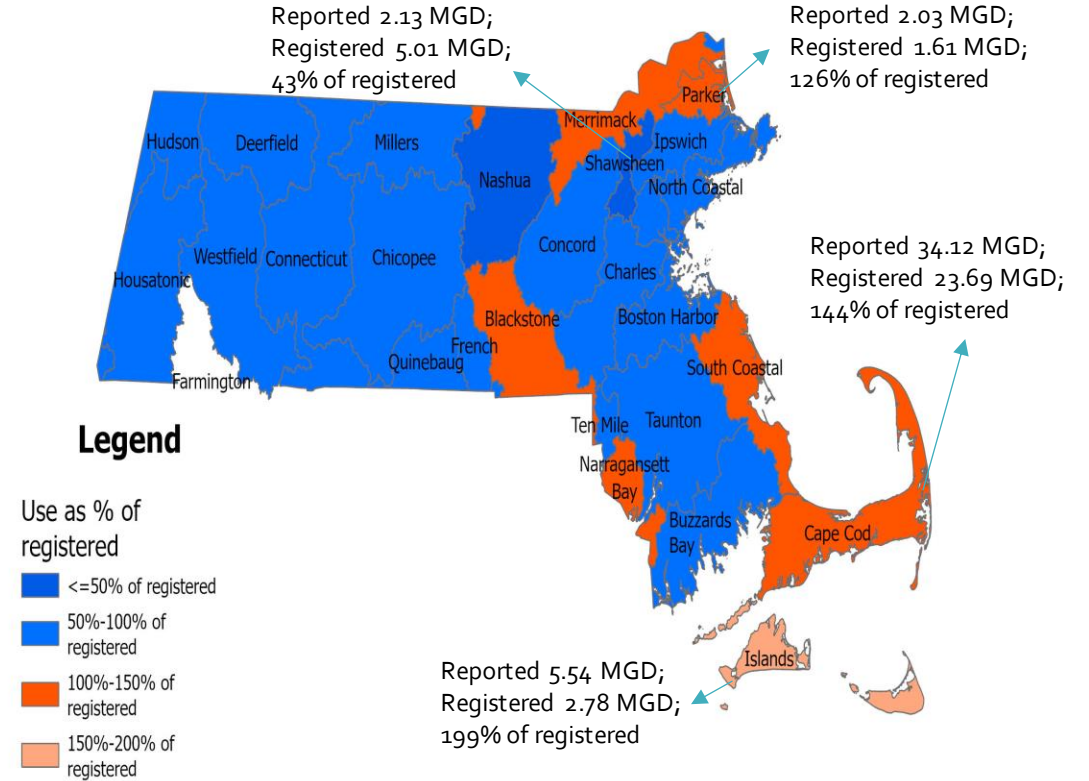
	Reported (MGD)	Authorized (MGD)	% reported/Authorized
Ipswich	19.71	32.54	60.6%
Charles	30.29	43.18	70.1%
Concord	22.11	34.35	64.4%
South Coastal	26.96	36.24	74.4%

# 2021 and 2022 reported water use to registered volumes

2021 reported water use to registered volumes by basins



2022 reported water use to registered volumes by basins



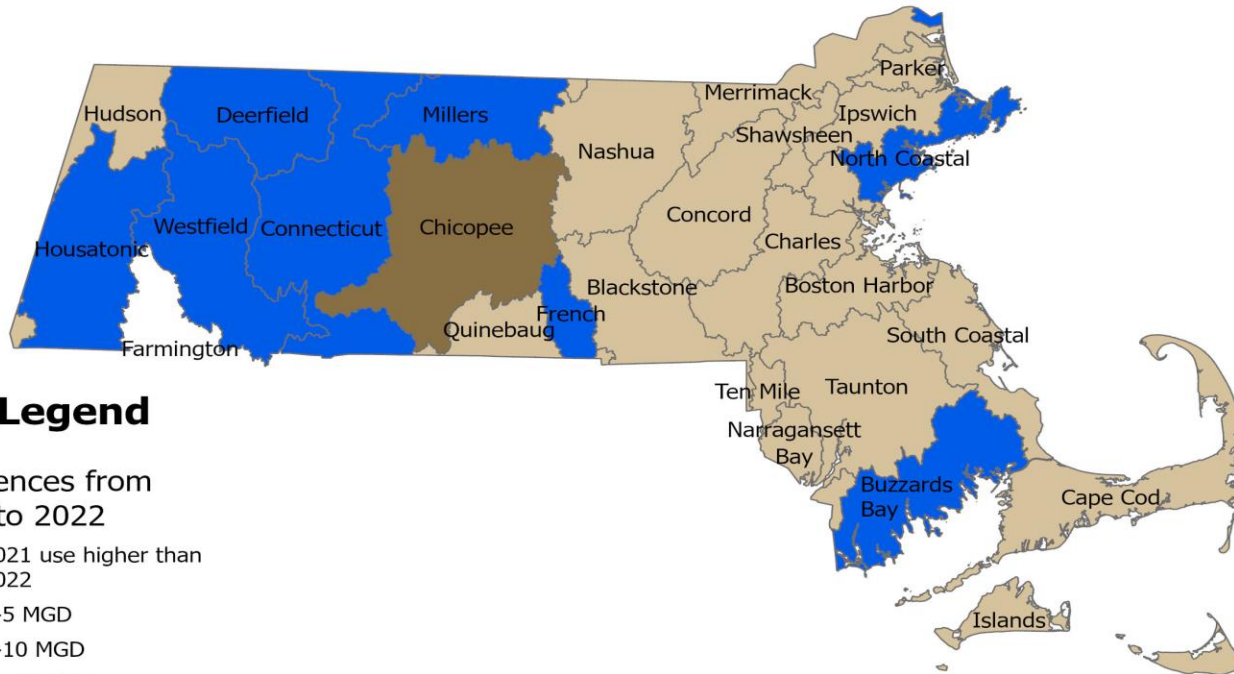
	Reported (MGD)	Registered (MGD)	% reported/ Registered
Ipswich	17.25	29.58	58.32%
Charles	29.62	34.08	86.9%
Concord	19.83	28.19	70.34%
South Coastal	25.82	24.42	105.7%

	Reported (MGD)	Registered (MGD)	% reported/ Registered
Ipswich	19.71	29.58	66.63%
Charles	30.29	34.08	88.9%
Concord	22.11	28.19	78.4%
South Coastal	26.96	24.42	110.4%



# Reported Water Use Change from 2021 to 2022

Reported Water Use Change from 2021 to 2022



## Legend

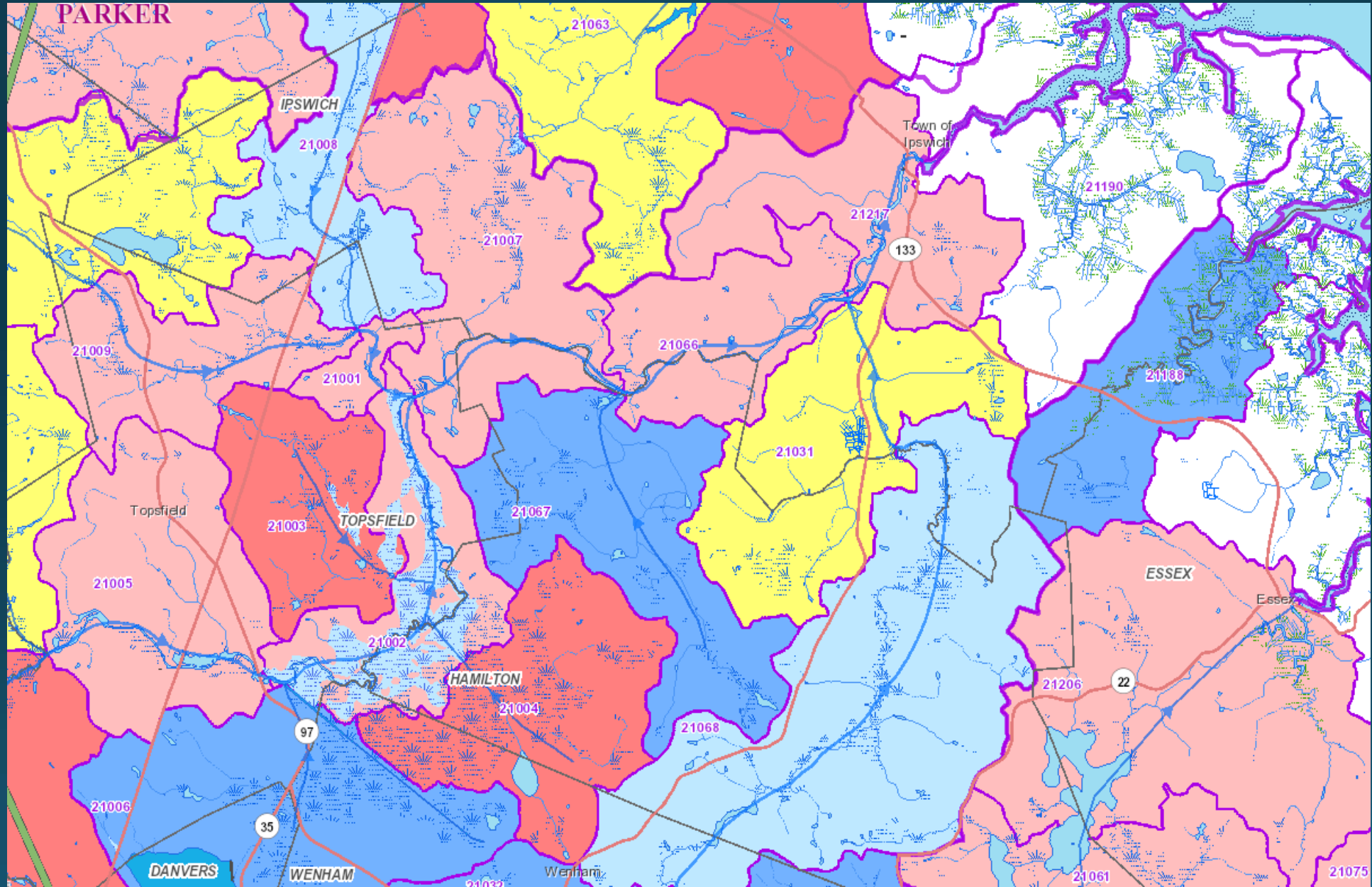
Differences from 2021 to 2022

- 2021 use higher than 2022
- 0-5 MGD
- 5-10 MGD
- 10-15 MGD
- 15-20 MGD

	Total Reported Use
2021	663.5 MGD
2022	696.7 MGD

Basins	2021 Reported Use	2022 Reported Use	Differences
Chicopee	153.5 MGD	171.08 MGD	17.58 MGD
Blackstone	24.15 MGD	26.6 MGD	2.45 MGD
Merrimack	54.07 MGD	56.08 MGD	2.01 MGD
Connecticut	21.63 MGD	20.67 MGD	-0.96 MGD

# Example: Ipswich River Basin





# 2022 Ipswich reported groundwater use scenario

Find by Subbasin ID:  Find by PWS System Name:

Find by PWSID:  Find PWS by Town Name:

**21217 Ipswich Ipswich River-Nichols Brook to mouth**

**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): 150.03	Ground Water Discharge: 0.173	PWS and Commercial Wells: 8.972	To Change GWC (mgd): 3.378
Impervious Cover (%): 11.3	Septic Systems: +4.325	Private Wells: + 1.135	To Change BC (mgd): 0
Surface water withdrawals exist in or upstream of subbasin: YES	Total Subsurface Discharge: = 4.497	Total Groundwater Withdrawals: = 10.106	
	Surface Water (NPDES): 0.000		

**Individual Subbasin Data (only includes this subbasin) Net Groundwater Depletion (NGD)**

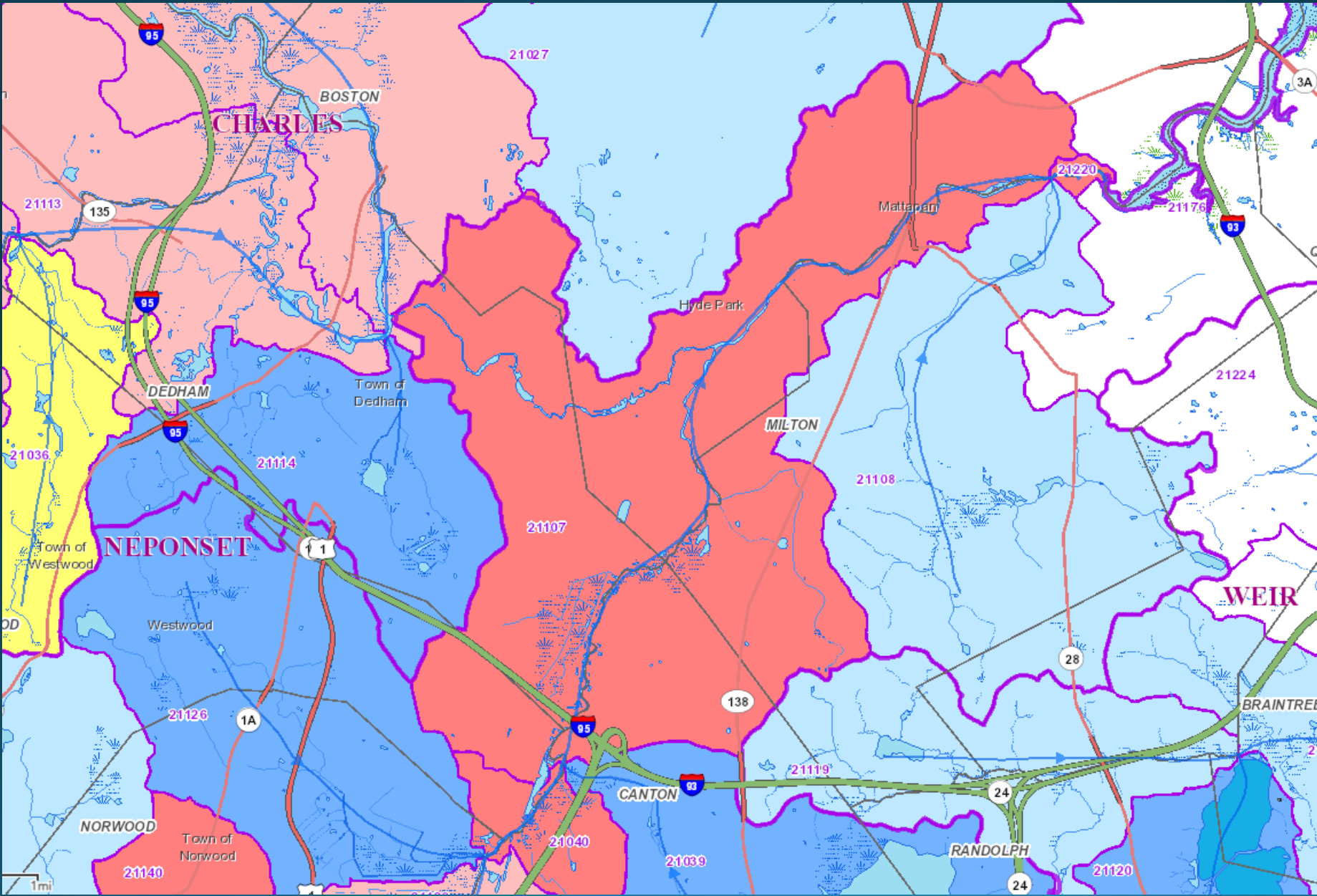
Coldwater Fisheries Resource Exist: <b>No</b>	Net Groundwater Depletion (%): 22.9	Positive value indicates depleted. Negative value indicates surcharged.
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**Unaffected streamflow, Ground Water withdrawals, Groundwater Withdrawal Category (GWC) and Biologic Category (BC).**

Estimated August Condition		Proposed Changes to existing GW Withdrawal		Existing vs. Proposed	
Affected Streamflow (mgd)*	<input type="text" value="18.919"/>	Change (+/-) to existing GW Withdrawal (mgd)	<input type="text" value="-5.17"/>	<input type="button" value="Calculate"/>	<input type="button" value="Clear"/>
Unaffected Streamflow (mgd)**	<input type="text" value="24.517"/>	Unaffected Streamflow(mgd)	<input type="text" value="24.517"/>		
GW Withdrawals (mgd)***	<input type="text" value="- 10.106"/>	Proposed Total GW Withdrawal (mgd)	<input type="text" value="- 4.935"/>		
(Unaffected Streamflow) - (GW Withdrawals)	= <input type="text" value="14.411"/>	(Unaffected Streamflow) - (Prop. GW Withdrawal)	= <input type="text" value="19.582"/>		
(GW Withdrawals) / (Unaffected Streamflow)	= <input type="text" value="41.2%"/>	(Proposed GW Withdrawal) / (Unaffected Streamflow)	= <input type="text" value="20.1%"/>	<input type="text" value="-21.1%"/>	Percent Difference
Groundwater Withdrawal Category (1-5) GWC:	<input type="text" value="4"/>	Proposed Groundwater Withdrawal Category (1-5)	<input type="text" value="3"/>	<input type="text" value="YES"/>	Change in GWC?
Biologic Category (1-5) BC:	<input type="text" value="5"/>	Proposed Biologic Category (1-5)	<input type="text" value="5"/>	<input type="text" value="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.

# Example: Neponset River Basin



# Neponset River Basin Authorized and Reported Volumes (MGD)

Name	Reg. Vol	Days	Reg. Annualized Vol.	2023 Perm. Vol	Total Authorized	Annualized Reported Withdrawals	2022 Annualized Reported Withdrawals	2022 GW reported Withdrawals
CANTON WATER DEPARTMENT			0.00	2.67	2.67	1.28	1.24	1.24
COLONIAL WATER COMPANY			0.00	0.14	0.14	0.13	0.11	0.11
DEDHAM WESTWOOD WATER DISTRICT	2.62	365.00	2.62	0.49	3.11	2.63	2.71	2.71
FOXBOROUGH WATER DEPARTMENT	0.64	365.00	0.64	0.73	1.37	1.17	0.87	0.87
MEDFIELD WATER DEPARTMENT	0.92	365.00	0.92	0.00	0.92	0.09	0.25	0.25
SHARON WATER DEPARTMENT	0.55	365.00	0.55	0.73	1.28	0.55	0.68	0.68
STOUGHTON DPW WATER DIVISION	1.08	365.00	1.08	0.13	1.21	1.09	1.06	1.06
WALPOLE SEWER & WATER DEPARTMENT	2.25	365.00	2.25	0.53	2.78	2.14	2.34	2.34
HOLLINGSWORTH & VOSE COMPANY	1.02	365.00	1.02	0.00	1.02	0.10	0.10	0.00
BLUE HILL COUNTRY CLUB	0.37	148.00	0.15	0.00	0.15	0.07	0.12	0.12
DCR PONKAPOAG GOLF COURSE	0.17	210.00	0.10	0.00	0.10	0.02	0.05	0.00
SOUTH SHORE COUNTRY CLUB			0.00	0.06	0.06	0.02	0.05	0.04
SPRING VALLEY COUNTRY CLUB	0.18	245.00	0.12	0.00	0.12	0.12	0.15	0.08
WALPOLE COUNTRY CLUB			0.00	0.06	0.06	0.04	0.04	0.00
<b>Totals</b>	<b>9.80</b>		<b>9.45</b>	<b>5.53</b>	<b>14.98</b>	<b>9.46</b>	<b>9.78</b>	<b>9.49</b>

# 2022 Neponset reported groundwater use scenario

Find by Subbasin ID:  Find by PWS System Name:

Find by PWSID:  Find PWS by Town Name:

**21107** **Boston Harbor** **Neponset River-East Branch to mouth**

**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): 100.82	Ground Water Discharge: 0.109	PWS and Commercial Wells: 11.196	To Change GWC (mgd): 0.000
Impervious Cover (%): 19.3	Septic Systems: +2.294	Private Wells: + 0.304	To Change BC (mgd): 0
Surface water withdrawals exist in or upstream of subbasin: YES	Total Subsurface Discharge: =2.404	Total Groundwater Withdrawals: = 11.499	
	Surface Water (NPDES): 0.119		

**Individual Subbasin Data (only includes this subbasin) Net Groundwater Depletion (NGD)**

Coldwater Fisheries Resource Exist: <b>No</b>	Net Groundwater Depletion (%): 51.8	Positive value indicates depleted. Negative value indicates surcharged.
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**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)*	<input type="text" value="8.585"/>	Change (+/-) to existing GW Withdrawal (mgd)	<input type="text" value="-1.704"/>	<input type="button" value="Calculate"/>	<input type="button" value="Clear"/>
Unaffected Streamflow (mgd)**	<input type="text" value="17.544"/>	Unaffected Streamflow(mgd)	<input type="text" value="17.544"/>		
GW Withdrawals (mgd)***	<input type="text" value="- 11.499"/>	Proposed Total GW Withdrawal (mgd)	<input type="text" value="- 9.794"/>		
(Unaffected Streamflow) - (GW Withdrawals)	<input type="text" value="= 6.044"/>	(Unaffected Streamflow) - (Prop. GW Withdrawal)	<input type="text" value="= 7.749"/>		
(GW Withdrawals) / (Unaffected Streamflow)	<input type="text" value="= 65.5%"/>	(Proposed GW Withdrawal) / (Unaffected Streamflow)	<input type="text" value="= 55.8%"/>	<input type="text" value="-9.7%"/>	Percent Difference
Groundwater Withdrawal Category (1-5) GWC:	<input type="text" value="5"/>	Proposed Groundwater Withdrawal Category (1-5)	<input type="text" value="5"/>	<input type="text" value="NO"/>	Change in GWC?
Biologic Category (1-5) BC:	<input type="text" value="5"/>	Proposed Biologic Category (1-5)	<input type="text" value="5"/>	<input type="text" value="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  
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# Questions?/Comments?

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