

**Appleton, Tim**

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**From:** Eric Brown [Eric.Brown@cbia.com]  
**Sent:** Friday, February 25, 2011 12:35 PM  
**To:** Senator LeBeau  
**Subject:** Requested follow-up to CBIA's Testimony re SB 1020: Stream Flow

Dear Representative Berger, Senator LeBeau and members of the Commerce Committee:

After my oral testimony yesterday on **SB 1020, An Act Concerning Water Resources and Economic Development**, you asked that I supply the committee with the data I used from the Connecticut Department of Environmental Protection (DEP) to calculate the percentage of rivers and streams in Connecticut that are impaired due to insufficient flow. What follows is a summary of my analysis including links to the underlying data. I hope this is useful. Please feel free to follow-up with me if you have any questions.

Thank you very much for your interest.

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 Section 303(d) of the Federal Clean Water Act requires states to regularly report to the Federal Environmental Protection Agency (EPA), a list of waters within the state that do not meet state water quality standards and are therefore, "impaired".

Connecticut's water quality standards provide standards for both water quality and water quantity. Therefore, a river or stream segment may be "impaired" due to insufficient flow as well as due to pollution.

DEP's list of impaired waters can be found in Table 3-3 of its "2008 State of Connecticut Integrated Water Quality Report" (page 134). I went through the Table and added up the total number of miles of stream and river segments impaired due to "water diversions" or "baseflow depletions from groundwater withdrawals" and determined the number to be 23.71 miles.

According to the EPA's "Connecticut Water Quality Assessment Report", there are 5,830 miles of rivers and streams in Connecticut.

Therefore, according to DEP and EPA data, the percentage of river and stream segments in Connecticut impaired due to "water diversions" and "baseflow depletions from groundwater withdrawals is:

$$= 23.71 \text{ miles} / 5,830 \text{ miles}$$

$$= 0.41\%$$

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 Subsequent to the calculation above, I looked further into the detail contained in the EPA's Water Quality Assessment Report and found:

- It states that 23.7 miles are impaired by "Flow Alterations From Water Diversions". It has a separate category of "Baseflow Depletion from

Groundwater Withdrawals" which totals 32.3 miles.

- DEP's tables groups these 2 categories together and the river segments add up to 23.7 miles, as noted above. So it appears that there is a discrepancy in how the DEP and EPA have reported the data.
- Using the most conservative assumption that the EPA numbers are additive, the percentage of river and stream segments in Connecticut impaired due to insufficient water quantity is:

$$\begin{aligned}
 &= 23.7 \text{ miles} + 32.3 \text{ miles} / 5,830 \text{ miles} \\
 &= 56 \text{ miles} / 5830 \text{ miles} \\
 &= 1.0 \%
 \end{aligned}$$

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 Finally, there are other "probable sources" of impairment listed in the EPA report grouped as "hydromodifications". These are:

"Impacts from hydrostructure flow regulation/modification":	42.4 miles
"Upstream impoundments (e.g. PI-566 Nracs structures)":	41.1 miles
"Channelization":	39.4 miles
"Post-development erosion and sedimentation":	4.0 miles
"Streambank modifications/destablization":	1.7 miles

If we add a further layer of conservatism into the previous calculations by adding in all these miles (128.6 miles) to the 59.4 miles noted above, the percentage rises to:

$$\begin{aligned}
 &= 184.6 \text{ miles} / 5,830 \text{ miles} \\
 &= 3.2 \%
 \end{aligned}$$

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