



Exposed Water Entering the Storm System is Heated by the Sun



<http://www.bugamerica.com/destinations/usa/new-york/albany.html>

Steam Rising Off Hot Pavement



<http://www.capturemyvermont.com/users/addisonpeaches>

Exposed Cement Stormwater Channel



General Information

When warmer water from stormwater runoff enters a coldwater system it can negatively impact coldwater dependant species. This is called thermal stress. The design of storm system infrastructure can influence water temperature. This can include directing water though shallow channels with no shade and runoff from impervious surfaces during warm weather. The warmer water will then flow into the nearby lake or stream causing spikes in temperature at those locations. Aquatic organisms including fish and invertebrates are often adapted to a narrow temperature range and can be very sensitive to even slight changes. Stress from the temperature change can affect breeding, behavioral cues as well as overall fitness of organisms.

Best Management Practices

- When designing stormwater structures, take into account the effects of temperature and try incorporating trees for shade to cool the water in open drainage areas.
- Use buffers and practices that promote infiltration so warmer water is not flowing directly into the stream.
- Consider the type of water body and ecosystem when designing stormwater infrastructure to take into account sensitive species.

Additional Information:

EPA

<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=124>

NYSDEC

Section 2.1 of the 2010 NYS Stormwater Management Design Manual—<http://www.dec.ny.gov/chemical/29072.html>

Other

http://www.anr.state.vt.us/dec//waterq/wqd_mgtplan/stressor_thermal.htm

<http://www.water.ncsu.edu/watershedss/info/temper.html>