On May 3rd,2012 the Northeast Region hosted an EPA Region I/USGS Conte Research Center led meeting on stream temperature and data modeling in the Northeast. Below you will find a link to the meetings websitebrief summary of the meeting, where all of the day's presentations are archived. Please forward this to your staff as appropriate.

Meeting Website: <http://www.northatlanticlcc.org/streamtemp_050312.html>

Meeting Summary:

Summary of the “Temperature Data and Modeling Meeting-5/3/2012”,
Hosted by EPA Region 1, USFWS Region 5 and USGS Conte Anadromous Fish Research Center

Approximately 50 people were in attendance with others participating via webinar. The participants were from several federal agencies, state fish/game, and state water quality programs, including notable national experts.

The purpose of the meeting, organized by Ralph Abele and Ben Letcher, was to bring those collecting water temperature data together with those using water temperature data to build models. This meeting offered the opportunity to network and collaborates so that the science of water temperature and the implications on aquatic biota can be advanced.

The meeting proved to be very insightful, motivational, and validated much of our effort with understanding the relationship and implications of water temperature and aquatic biota here in CT.

Most important take home messages of the day:

* + Development of a common framework should be move forward so to maximize utility of the data being collected in the region
	+ Water temperature data should be collected year round not just summer months
	+ Water temperature data should be paired with air temperature and aquatic biota data where and when possible
	+ Ground water input and air temperature are the predominant influence on stream temperatures in the northeast
	+ Temperature thresholds for fish life history traits should be determined from real-world in situ water temperature data, not controlled laboratory studies
	+ Water temperature should be considered similar to flow, meaning, take frequency and duration into consideration as well as maximums, averages, and other point statistics
	+ Next steps are to survey the participants and determine priorities and collaborative opportunities

**Summary of sessions:**

**Session 1: Brief summaries of agencies collecting data**

There were 10 agencies (federal and state) represented. Each was provided with a standard set of questions in a template. Common themes were that data are easily acquired with minimal effort but managing the volume of data generated and how to interpret the data are major stumbling blocks. Each agency presented a map of water temperature locations. There was overlap in many states with multiple agencies collecting data in the same watershed/stream system. The super dense coverage of point in Vermont were “grab” values taken at the time fish community samples were collected and were not true in-situ effort.

Outcome of the session was that agencies could use help managing and interpreting the data and that more communication could reduce redundancy and increase efficiency.

**Keynote: Dan Isaak, US Forest Service Rocky Mountain Research Station**

**Isaack** et al have developed an impressive system to capture, manage, and utilize water temperature data from the western states. These data have been used for many applications including TMDL’s, fish species restoration, fish species conservation, and predictions based on climate change. A similar network could be developed for the eastern states with the identification of a coordinating agency and staff.
<http://www.fs.fed.us/rm/boise/AWAE/projects/stream_temperature.shtml>

**Session 2: Summaries of programs using water temperature data for modeling**

There were 3 types of modeling efforts represented. **Jacobs and Detenbeck** presented models for New England streams. Both had similar issues as secondary data users, mainly having to invest significant time and effort to “clean” the data. Both would love to see a common framework established. **Jacobs** was focused on modeling cold water habitats and evaluation of *Lyons et al 2009* criteria for New England.**Detenbeck** focused on being able to evaluate water temperature and the influence of urbanization and storm water BMP on water temperature.

The second type of model was focused on how to predict stream temperature for any given basin. **Bjerklie** presented work in the CT River watershed using the PRMS and SNTEMP models. His conclusions were that ground water input and air temperature were key variables that determine water temperature regime for any given point. Polebitski presented a point and click application that uses USGS STREAMSTATS coupled with a water temperature model to produce an output with flow and temperature statistics for any point selected on any water body.

The third type of model was region predictive models, both from USGS staff (**McKenna and Seelbach**). **McKenna** had an outstanding presentation and much of the information presented is directly transferrable to our efforts to better understand water temperature regimes and fish community data. His work provides a prediction of what should be at any stream reach, water temperature and resulting fish species, for all NHD+ reaches. I will be getting the shapefiles for the western portion of CT. This type of model is very similar to the macroinvertebrate MMI model developed by **Bellucci and Becker**. It provides and expectation that can be compared to an actual observation. Those deviating in the negative direction could be considered “impaired” and those in the positive direction “places to learn from”.

**Seelbach** presented decades of work from Wisconsin and Michigan. This volume of work, especially *Lyons et al 2009*, is the gold standard for water temperature, implications on aquatic biota, and forecasting environmental change. They have been able to make a map of cold, cool and warm water fish habitat and have this map accepted by both EQ and EC agencies. The maps provide a common language which enables collaboration and facilitates the best management of the resource possible. Also a path and format that CT DEEP should aspire towards.