

Stream Temperature Data and Modeling Meeting II
May 1, 2014
Ideas, Recommendations, and Discussion Topics

Stream Temperature Database Design and Potential Integration with other Data Sources

There would be great value in having a place like NorEast to maintain datasets that have gone through quality assurance review. Being able to associate stream temperature with other stream variables also would be valuable.

There is a lot of value in having a central location that can be updated by individual data collectors. Other projects are doing this; for example the National Ecological Observatory Network (NEON) has a set of standard collected, and derived, metrics. We can draw from what others are doing. Data providers agree upon a set of common standards that they then follow as they upload data.

It is much more efficient and accurate for the original data providers to perform the quality assurance rather than for a third party to attempt to do so after the fact.

There are also examples of having separate databases maintained by individual data managers, but then linked together in a “virtual database” that draws from them based on shared fields. An example has been established by CUAHSI (Consortium of Universities for the Advancement of Hydrologic Science).

Commenter agrees on the need for common standards for temperature data.

It is important for it to be easy to enter data; if the process is too complicated, it may not be used.

Discussion occurred around the question of whether the temperature dataset should be a stand-alone product or incorporated into a broader water-quality system. It should be possible to incorporate stream temperature data into other systems through webservices, as opposed to trying to have an integrated database covering many different metrics. Also, as an example USGS can provide the stream temperature data it collects to NorEast via webservices from NWIS (the National Water Information System).

Several commenters noted the importance of stream flow data and that it could make sense to link stream temperature and stream flow data.

The intended use of the data will affect issues such as how regularly the data must be updated. For example, a snapshot in time may be adequate for various modeling purposes, but regulatory applications such as through TMDLs would require much more regular updating.

An important issue to address is the long-term sustainability of NorEast. There are many challenges in simply maintaining existing databases and monitoring systems (such as USGS stream gauges), much less adding a new data system.

NorEast is being enhanced; one goal is to add a batch uploading feature. Sessions are being planned to demonstrate and obtain feedback on this database.

Use and Applications of Stream Temperature Data and Information

Would states try to use NorEaST ?

- MA- maybe, they are re-evaluating what they are doing
- CT – would like to look at the system more closely, but likely
- NH – yes – have no capacity to develop their own database
- ME – state not represented at meeting; another observer commented that tribes would participate (Penobscot and Maliseet)
- RI – not currently collecting temp. data but may consider if neighboring states collectively agree to use
- VT – probably – don't have capacity to do it themselves, have tried it and are helping to work out kinks

Several commenters noted that stream temperature data from one state can benefit and be used by a neighboring state.

There is potential to incorporate stream temperature information into state standards and policies. The information would be relevant not only for stream protection but also stream restoration and stream assessment.

Vermont's regulatory approach to stream protection is leading to the collection of much streams data, including temperature data.

Compiled stream temperature could have two uses. One would be for "discovery" – it is explored by researchers looking to uncover patterns. But a much more useful approach would be to design a system to answer specific questions up-front. So, management-relevant questions to be answered should be framed as part of any database or monitoring effort.

One application of stream temperature data would be in better classifying habitat for fish and other aquatic species. Current regional classification approaches have not been able to use empirical temperature data because they are not available on a widespread basis.

Discussion revolved around how to make stream temperature useful and properly packaged for management decisions. The USGS work on stream sensitivity/resiliency to temperature change was noted as a useful application.

Other Considerations and Future Directions

Question is raised about whether anyone wants to take on the role of "Dan Isaak of the Northeast." No single person volunteered to take this role, but several people expressed interest and value in having those tools available in the Northeast.

There is a need to integrate the many water collection activities, e.g., USGS involvement with NAWQA, NHD+, groundwater data, and a national watershed modeling effort. USFS also has temperature data collection efforts.

Different management, research, and climate questions operate on different scales, and it is important to keep that in mind in designing monitoring efforts.

NorWest may be a model for how to encourage participation. This project focused on showing what would come out of the project, and early on. So rather than requesting data from everyone at once, they proceeded sub-basin by sub-basin. Also, by setting a schedule in advance, data providers were able to build the data requests into their schedule, which was more effective than expecting them to drop everything else they were doing for an immediate request. An example of how NorWest is being used is by the U.S. Forest Service in their revisions to forest plans.

A new source of streamflow and temperature data was highlighted – the Atlantic Highlands study of NAWQA is collecting information from 70 sites across highland areas of the Northeast from Pennsylvania to Maine.

Post-meeting steps could include a survey of meeting participants, convening a small group to consider next steps, and gathering examples and information about potential applications of temperature data here and in other regions.