Multiple Modeling Practices: Making a Difference for the Chesapeake Bay

Jeremy Trombley, Department of Anthropology, University of Maryland

The purpose of the presentation was to demonstrate that there are other possible concerns that could be addressed using multiple models than the quality of data concerns. One possibility is to view models as relationship building agents that allow disparate groups to share knowledge, and negotiate a mutual understanding of the issues facing the Chesapeake Bay.

The world is messy, and models simplify the mess in order to make sense of particular issues and challenges. However, it's important to understand that models, the people who make them, and the institutions within which they are embedded are all part of the mess as well (Law 2004). This is illustrated well in the following quote:

> "In the virtual Columbia electronic fish swim past electronic dams on video terminals. Change the electronic river and the fate of the electronic fish is graphically displayed... The virtual river influences events in the actual Columbia. How electronic fish behave will lead to decisions on how fish in the actual Columbia - the organic machine - will be managed. That the various virtual Columbias depend on the actual Columbia for some of their own electrical power only compounds the ironies and connections" (White 1996; 106)

Three concepts were introduced to help make sense of the role of modeling practices in reorganizing and influencing the Bay system. The idea of *friction*, drawn from the work of Anna Tsing (2004) and Paul N. Edwards (2010) suggests a resistance to interconnection between groups and the differences that must be overcome. According to Tsing (2004; 20), friction is "...the awkward, unequal, unstable, and creative qualities of interconnection across difference." The process of overcoming and utilizing those differences is referred to as *work* or the *mangle* (Pickering 1995) – a process in which all of the actors (human, institutional, technological, etc.) involved are modified or rearranged in order to relate to one another. It is through this process of working to overcome and utilize difference that a new world is composed and the mess is reorganized.

The actors involved in Chesapeake Bay Modeling System has over 30 years worked to overcome various frictions – between disparate data sources, new and evolving technologies, and different stakeholder groups (including both scientists and policymakers). The result has been a large infrastructure built around a complex model that requires a lot of computing power and a lot of manpower to maintain and run. This has developed within and reinforced a government-centric approach to addressing the associated environmental concerns. However, it is possible to conceive of alternative approaches that could augment the existing modeling effort in order to make the world of the Bay differently.

Working with multiple models would certainly add new sources of friction, for example: reconciling data sets, increasing uncertainty surrounding model results, and creating confusion among the public as to the accuracy and validity of model results. However, depending on how the additional modeling efforts are carried out, they could also result in new possibilities for the Bay system: a broader understanding of modeling and model results, greater participation from stakeholders in Bay cleanup efforts, or more poly-centric rather than government-centric approaches to the challenges facing the Bay (Ostrom 2010).

Works Cited

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