

Collaborative Adaptive Management - Short Version
Hinkson Creek
Outline - April 29, 2011

(NOTE: This document is meant as the basis for public presentations about adaptive management. It explains the basics so that public officials and the public will know enough to understand what is going to happen over the coming years. These presentations will also help inform those who might consider serving on the stakeholders group. We can add information to this once the four partners agree to some of the basics of the stakeholders group.)

1. What is collaborative adaptive management? Collaborative adaptive management is a stakeholder-based process for decision-making while dealing with the scientific unknowns inherent in many biological systems. It uses an iterative process to make changes and then to determine the effect of those changes on water quality. It has been used (successfully, unsuccessfully and improperly) on a number of ecological issues.

Note that there is no universal definition of adaptive management and collaboration can also take many forms. The city, county, university and department have laid out an operational framework for addressing Hinkson Creek, but the stakeholders group will be making most of the decisions.

This process will be transparent, collaborative and interactive. All meetings will be posted and open to the general public and all major decisions will be posted so that anyone can follow this process. At key points, the public will be welcome to speak, to ask questions and to contribute to the discussion.

Adaptive management is based on assessment, planning, action, monitoring, evaluation and adjustment based on knowledge gained. If done correctly, it is both effective and efficient. When it works best, decision-making improves over time as more is learned.

2. When and where should collaborative adaptive management be used? The department considers two criteria to be fundamental to using adaptive management. First, there must be a need for action within a system with significant uncertainty. Secondly, the issue must be of such importance that the department and stakeholders are committed to long-term engagement using this process and to providing the required resources.

Collaborative adaptive management was designed specifically for use in complex biological systems where physical, chemical and biological processes must be monitored in order to gain understanding of the system or area of interest. It works well even in systems where natural variability (e.g. streamflow) makes comparisons difficult. CAM is a method for taking management actions and mapping their influence on the biological community even though that relationship may be highly non-linear.

3. Why does the department want to use collaborative adaptive management on Hinkson Creek? CAM fits the Hinkson Creek situation for four reasons.

First, it is consistent with the department's history of stakeholder involvement. Collaborative adaptive management is very supportive of this type of local involvement.

Second, there are a significant number of unknowns in the Hinkson watershed about what is causing the impairment, what would be the best way to address the impairment and how we correlate any change observed in the biological community to the actions taken to improve water quality. Adaptive management has been used successfully in similar situations. In Hinkson Creek, the department measured the impairment in terms of the biological community, but doesn't know what is causing that community to fail to thrive. The department strongly suspects that no one thing is entirely responsible for the problem; adaptive management allows us to collaboratively examine a number of potential actions to improve water quality.

Collaborative adaptive management is an iterative process in which the stakeholders can learn from the early actions to help inform the later actions. In other words, it does not pre-determine the approach that is taken, but allows a focus on those actions that are most effective in improving water quality. Because CAM is based on measuring the results of actions, it should lead to a more effective and timely resolution of those water quality conditions that are causing the impairment.

Also, collaborative adaptive management is ideal for working in complex systems where it is difficult to directly compare results because of natural variability (such as stream flow). It is often difficult to separate the effects of changes because conditions are seldom the same from one measurement to the next. CAM is more effective than most approaches in accepting, and dealing with, this uncertainty.

Short version: Collaborative adaptive management is designed to work on complex systems where there are important scientific and other unknowns and includes a stakeholder process. It will allow us to learn by doing and most effectively find solutions for the Hinkson Creek watershed.

4. How does this really work?

Once the overall objectives are set and baseline monitoring is in place, a set of proposed actions are designed and monitoring is also designed to determine the impact of each action on one or several key parameters. An action, or set of actions, is selected for implementation and the resulting change in conditions is monitored. After evaluating the impact of the action, the action and monitoring are revised based on what is learned and the cycle is repeated.

5. How much will this cost?

The costs are not pre-determined. There will be costs for implementing actions to improve water quality and measuring the effects of those actions. These costs will be shared, but no agreement is in place on this topic yet. The stakeholder group will guide this process.

6. How will the collaborative adaptive management process allow the city/county/university meet the 39.6 percent reduction in stormwater?

The 39.6 percent reduction is not the goal for the CAM process. The goal is to return the biological community to a fully functioning level. The CAM approach allows a wide range of activities to contribute to reaching the water quality goals; some of these activities will reduce stormwater run-off, others will improve the quality of the run-off that does occur; under CAM both can contribute to the solution by improving the biological community. By learning as we implement actions, we hope to find collaboratively the most effective approach(es) rather than be committed to one that was pre-determined.

7. How will we know what is working and when we have reached our goal?

We will monitor the stream's response to each action or set of actions taken. This provides the data to show what actions appear to be most effective and to document that we have met the water quality goals that will allow Hinkson Creek to be moved to the list of streams that are meeting the applicable water quality standards.

8. Is collaborative adaptive management always an appropriate response to water quality issues? No, the process is ideally used only where scientific uncertainty is high and other factors are present. If we have a watershed with a known problem or pollutant identified, the normal water quality management process is more suitable. It is the numbers and importance of things that are not well known in the Hinkson Creek watershed that makes it well suited for an adaptive management approach.

9. What does this mean for permits within the Hinkson Creek watershed? Almost all permits for continuous discharges into the creek are written for five years. This will continue as it has in the past. As we learn more about the watershed and what things are most effective in improving water quality, some of those permitting limitations and conditions may change at the times of renewal, which might be synchronized to facilitate the overall discussion.

10. Where are we in the Collaborative Adaptive Management Process?

One can think of two major phases (preparation and implementation) for collaborative adaptive management. We are currently in the early first phase in which our focus is to engage stakeholders and to educate the community about CAM. The next step in this phase will be to bring together the stakeholders and have the stakeholders design the process for them to work together. The stakeholders will then set objectives, look at potential actions, monitoring and assessments needed.

Once those steps are done, the CAM implementation cycle will begin with specific assessments, planning actions, monitoring...

11. Who will be the in the stakeholders group? How do I apply to be a member of the stakeholder s group? How will they be chosen? The stakeholders group will be chosen to represent the people who live in the watershed. The department will work with the city, county and university to identify and choose good candidates to represent all stakeholders through a productive collaboration. (This section can be beefed up once the four major partners agree on how we'd like to populate the stakeholders group.)

12. How will the public be able to know what is going on? The adaptive management process is open to the public and will allow for periodic input from those not in the stakeholders group. Meetings will be posted in advance and summaries will be provided. Social media and information sharing technologies will also be used to provide access to these discussions and the content of the discussions.

13. What are the rules for the stakeholders? The stakeholders will make and agree to the rules within the limits of public participation and adaptive management.

14. How does the adaptive management process end? The process could reach a logical end through a number of ways. First, the biological community in Hinkson Creek could improve to the point where the stream is no longer considered impaired. That is the desired scenario. The process could also end

if a specific pollutant were identified so that the normal water quality based regulatory process would occur.

Alternatively if the stakeholders cannot agree on how to proceed, the department would be forced to follow a more traditional approach to meeting water quality criteria for Hinkson Creek.

15. What are the major risks inherent in this approach?

The single biggest cause of failure in the application of adaptive management is the lack of continuing commitment. Too often, interest in and support of the process wanes with time preventing the CAM process from succeeding. Before coming to this stage, the department, city, county and university have all committed to seeing this process through to the end. With four major partners and strong local interest, the department does not expect to see the loss of interest here.

CAM has had its greatest successes where it was based on a clear objective or set of objectives, a sound scientific approach, well-considered management actions and continuing involvement of stakeholders. We have tried to enhance the probability of success by forming "science" and "actions" sub-committees that use local expertise in support of the stakeholder process.