

Minutes
Herring River Restoration Committee (HRRC)
Cape Cod National Seashore Headquarters
Wellfleet, MA
September 14, 2016
9:30 am-5:00 pm

Members Present: Tim Smith, Steve Spear, Eric Derleth, Hunt Durey, Hillary Greenberg, Peter Herridge

Others Present: Margo Fenn, Don Palladino, Martha Craig, Helen Miranda Wilson, John Portnoy, Lauren McKean, Sophia Fox, Kelly Medeiros, Mark Adams, and other CCNS Natural Resources staff, and by phone, Nita Tallent, Jill Gannon, Dave Smith and Mitch Eaton.

Webinar with USGS Adaptive Management Team: The National Park Service Natural Resources staff and the HRRC participated in a webinar with the U.S. Geological Survey (USGS) Adaptive Management team to review progress in developing a prototype structured decision-making decision framework for future management of the restored Herring River. Jill Gannon and Dave Smith of USGS led the presentation and discussion. Jill reviewed the components of a structured decision-making (SDM) process, including problem definition, development of objectives and alternative actions to achieve those objectives, prediction of the consequences (or outcomes) of those actions for each objective, and evaluation of the consequences and analysis of trade-offs. She noted that this process is intended to be explicit, transparent, and value-focused.

USGS has been working with a HRRC working group on developing a prototype decision framework for the Herring River Restoration to guide decision-making. This initial prototype is focused on the Lower Herring River basin-as a test case. It assumes that the Mill Creek and Pole Dike Creek dikes would be in place with the tide gates initially set for freshwater drainage only (i.e., no flood tide passage of salt water), and it evaluates the effects of incremental tide gate openings at the Chequessett Neck Road dike. In this first prototype analysis, the predictions about consequences are based on the Woods Hole Group hydrodynamic model (the EFDC model) and on information elicited from the working group.

Jill Gannon presented a draft Consequence Table that includes 33 sub-objectives objectives grouped under five fundamental objectives. For each sub-objective, there are measurable attributes defined, units of measure stipulated, and a desired direction (minimize or maximize) indicated. There are six different management strategies and six different timeframes evaluated using this table. The objectives were developed using both expert elicitation and stakeholder input.

Jill Gannon presented the six different strategies showing how different tide gate opening approaches would affect mean high water over time. The timelines for the strategies ranged from 5 years to 25 years to achieve restoration. She presented hydrographs

showing predicted MHW elevations for increasing tide gate openings for each of the alternative strategies. She also explained the concept of utility-which is a measure of decision makers' and stakeholders' satisfaction with the range of potential outcomes for each objective and some examples of utility curves for different objectives.

Gannon explained that the process for evaluating trade-offs among different tide gate strategies involves several steps:

1. Populate the consequence table (based on models and expert opinion)
2. Develop utility curves for each objective
3. Determine the utility associated with each predicted outcome
4. Replace the predicted outcomes with their associated utilities in the consequence table.
5. Assign relative weights to each objective
6. Calculate a weighted sum of utilities across the objectives for each alternative strategy

Jill Gannon also described how to conduct a sensitivity analysis to see how choices in utility, uncertainty in predicted outcomes, and weighting affect the overall performance of each alternative across all objectives. To date, the USGS team (Jill Gannon, Dave Smith, Mitch Eaton) has looked at 212 possible combinations to identify what causes the relative overall performance of the alternative actions to change. This work is ongoing. Next steps in the process include broadening the spatial scale of the decision tool to encompass the entire Restoration Project area and incorporating secondary management activities (such as vegetation management, sediment management, etc.) into the analysis. This will allow decision makers to refine predictions, utility curves, and weighting of objectives. Then the decision framework can be used to make recurrent decisions over time (adaptive management). This will require developing monitoring protocols, collecting monitoring data, comparing predicted and actual outcomes, updating predicted outcomes, and reassessing the relative performance of the alternatives across all objectives; the reassessment could indicate a different alternative as the best strategy given the new information.

Webinar participants discussed next steps in the SDM/Adaptive Management planning process. The USGS team will meet with the HRRC at its October 12th & 13th meeting. This will be an update on progress and an opportunity to plan what to present to the newly created Regulatory Oversight Group (ROG) at a subsequent meeting in November. The group also discussed the need to make the tool sustainable over the long-term.

Administration/Coordination:

Communications/Coordination with Friends of Herring River: Don Palladino reported that he and Tim Smith had provided an update on the Restoration Project for the Truro Selectmen at their meeting on September 13, 2016. The Selectmen were very supportive of the Project. Both the Wellfleet and Truro Boards of Selectmen have signed MOU III, and the signed copies will be provided to the National Park Service for the Regional Director to sign. Margo Fenn suggested convening a meeting of the new

Herring River Executive Council sometime in October. Don Palladino also met with the new Wellfleet Town Administrator, Dan Hoort.

Approval of Minutes: The Committee voted to approve the minutes of the August 10, 2016 HRRC meeting.

Meeting Schedule: The Committee approved the following schedule for upcoming meetings:

October 12-13, 2016	HRRC regular meeting
October 19, 2016	Blue Carbon Workshop with WBNERR/RAE team
November 16-17, 2017	Regulatory Oversight Group meeting (proposed)
	HRRC regular meeting (proposed)

Discussion and Updates:

Proposed FY17 Work Plan:

CBI Facilitation: The Consensus Building Institute (CBI) is continuing to facilitate discussions between HRRC and the Chequessett Yacht and Country Club (CYCC). Today, HRRC received a new memorandum from CYCC officials regarding funding and an implementation plan for raising the CYCC golf course, the adaptive management process, project permitting and other related issues.

Hydrodynamic Modeling: The Committee discussed what additional modeling runs might be needed for Mill Creek and Upper Pole Dike Creek. The Woods Hole Group (WHG) is working on several new proposals for the Project, which should be completed by the end of September.

Preconstruction Monitoring: The HRRC has received a groundwater modeling proposal from USGS.

Documents Referred to in the Meeting:

-Minutes of the August 10, 2016 HRRC meeting