

Research Update

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Bottom Line

Analysis of survey data from Reclamation personnel yielded the following rank order for factors disputed in conflicts over science:

1. Scientific inferences
2. Whether existing science addressed critical issues
3. Uncertainty in the science
4. Data quality
5. Perceived need for additional science
6. Whether science should be the basis for decisionmaking
7. The qualifications of the scientists

Results also showed that those using collaborative processes had the fewest problems in these areas overall.

Better, Faster, Cheaper

By using collaborative processes (such as joint factfinding, collaborative modeling, and collaborative learning) to manage disputes over science, Reclamation personnel will likely experience fewer and less intense disputes over inferences drawn from the science, scientific uncertainty, data quality, perceived gaps in the science, adequacy of the science, and qualifications of scientists. Fewer disputes over science will result in reduced litigation and diversion of agency resources for the dispute management.

Managing Disputes Over Science: Contested Factors

Contested factors in disputes over science and their relation to the tools for managing them

Problem

According to focus groups held in Reclamation's regional and area offices, some of the most prevalent conflict management challenges the offices face are "disputes over science." For instance, a fish biologist might contend that an endangered species requires X amount of water to survive, and an ecologist might claim that it requires Y amount of water. These disputes are often further complicated when political constituencies adopt the views of one scientist or another.

This research effort focused on determining to what degree Reclamation personnel experience problems commonly associated with disputes over science, such as:

- Inferences drawn from the science
- Whether the science focused on the critical issues
- The quality of the data
- The level of uncertainty
- The adequacy of existing science (and whether additional science was required)
- Whether science should even be the basis for the management decision
- The competency of the scientists conducting the science



Scientists often differ as to how wetlands should be classified, one scientific dispute that Reclamation's managers contend with.

The research team also investigated whether any of the methods generally used to manage disputes over science resulted in fewer overall problems. The typical methods for managing scientific disputes are:

- Direct discussions amongst scientists
- Expert peer review panels
- Conducting additional science
- Public educational outreach
- Adaptive management processes
- Collaborative learning approaches

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Solution

This Reclamation Science and Technology Program research project conducted an electronic survey among Reclamation personnel who are directly involved in disputes over science to determine lessons learned from these disputes and the dispute resolution methods used to resolve them.

Application and Results

Survey results indicated that the most prominent factors disputed were (ranked in order):

- The inferences drawn from the science
- Whether the existing science addressed the critical issues
- The level of uncertainty
- The quality of the data

Issues of relatively less concern to survey respondents included whether there was a need for additional science, whether science should be the basis for water management decisions and, finally, the qualifications of the scientists. Among dispute resolution methods, collaborative approaches appeared to be the most trouble-free.

Based on this research, to reduce the number and intensity of disputes over science, it is recommended that Reclamation conduct its science with an eye towards the following:

- Making unbiased and objective scientific inferences
- Identifying and focusing on the most germane or critical issues in dispute or likely to be in dispute
- Determining and, to the extent possible, managing each of the sources and degrees of uncertainty
- Taking special precautions to ensure data quality



In addition, when the potential for conflict exists and it is feasible to do so, Reclamation scientists involved in dispute resolution should seriously consider using collaborative approaches.

Example of a dispute over science: To what extent does Tamarisk (salt cedar) deplete water supply in the Western United States? How can such disputes be managed?

Future Plans

Dennis Kubly (formerly of Reclamation's Upper Colorado Region) and Douglas Clark (Reclamation's Technical Service Center) are currently drafting a manual with Program and Administrative (P&A) funding that describes various methods for managing disputes over science.

“In focus groups held in regional and area offices, members of Reclamation’s leadership told us they routinely spend 50 to 75 percent of their time managing conflict. Development of collaborative competencies among our employees is, therefore, vital to the future of this agency.”

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More Information

<http://www.usbr.gov/research/projects/detail.cfm?id=6641>