

DRIVING SCIENTIFIC DISCUSSIONS UP THE VALUE CHAIN IN COASTAL DECISION-MAKING

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Keywords: coastal decision-making, vision, role of scientists

INTRODUCTION

In this paper I summarize the key lessons I have learned over several decades of experience with varying degrees of success of being actively involved in trying to incorporate the best and most current science into coastal decision-making at local, regional, state, and national levels. At the end I will describe a conceptual model for incorporating science into coastal decision-making that allows one to capture most of the lessons and qualities I have found to be important. Many of these were described in an earlier paper (Schubel 1996), but they have been refined over the ensuing years through adaptive application. The model facilitates the process of incorporating science and scientists into the coastal decision-making process.

ESSENTIAL INGREDIENTS

It all starts with having (1) a clear vision of the environmental end state—the vision—we want to achieve and (2) a clear understanding of the roles of science and scientists in the coastal decision-making process. Achieving important and sustainable environmental goals requires a clear and compelling vision that is defined in terms of desired values and uses developed and endorsed by a broad cross-section of society through an inclusive and transparent process. Scientists should participate in this phase of the process, but primarily as citizens and stewards. They also can provide useful input in ensuring that the vision is coherent with the evolving trajectories of “natural” processes as altered by humans. Often we spend far too little time developing the shared vision. It is a messy, inefficient and frustrating process; one in which the frictional losses are large. I have become convinced that inefficiency up front in the coastal decision-making process is a key to achieving effectiveness farther downstream in the process.

Once a clear, compelling vision has been formulated, scientists should begin to play critical roles in developing and designing a portfolio of tactics and strategies to achieve that vision, and a set of metrics to measure progress. This needs to be a collaborative process with coastal decision-makers and with representative of key stakeholder groups. There needs to be a clear understanding and agreement of the roles and responsibilities among the various groups of participants. We confuse the roles at our own peril. Setting societal goals and priorities—determining what kind of future we want—should be a democratic process in which opinions are weighted equally. In developing and selecting strategies that have a strong scientific and technical basis to achieve those desired ends, scientific expertise should be given special weight. Social scientists need to have much greater involvement in developing and selecting those strategies than has been the case in the past and they must be represented not only by economists. The value of scientific expertise should not be underestimated or diluted prematurely (Boghossian 2006). As the

late Richard Feynman (1991) observed: you don't improve the quality of a technical decision by asking a lot of uninformed people. Society decides where we want to go, scientists map out the possible paths to get there, and decision-makers decide on which path to follow. One of the major deficiencies continues to be the lack of recognized and respected institutional mechanisms to engage scientists, decision-makers, and key stakeholder groups and to exploit the scientific knowledge we already have in making decisions.

A vision implies a desired future state. We continue to be preoccupied with environmental programs of restoration. We can restore important ecosystem values and functions, but that will come by focusing on the future coastal "landscape" and not on one from the past. Will and Ariel Durant (1968) once remarked: "The future never just happened; it always was created." We created the present we now live in with little purposeful thought, and we are creating the future our children and grandchildren will live in. We should do it purposefully with a clear vision to guide us.

If science is to be integrated effectively into coastal decision-making, there needs to be a client with the power to act or to influence those who can. Too often scientists do not have a client. Often we meet in workshops and conferences and talk to peers about how environmental decisions should be made and lament the failure of managers to take advantage of scientific advances of ours and those of professional colleagues, and the key decision makers are not present. Frequently they haven't even been invited and if they have been, they often are there as observers listening to our presentations filled with jargon which too often end with gratuitous statements such as "the policy implications of my research are clear." When pushed, they may have no notion of how policies are made. Getting a client after the "case" has been developed is far less effective than having a client request the case up front and building the case around the client's issue to be solved, not the researchers' interests.

A MODEL FOR INTEGRATING SCIENCE INTO COASTAL DECISION-MAKING

I have found that many of the characteristics of the conceptual model described earlier (Schubel 1996) and captured graphically in Figure 1 is helpful in designing the process for integration of science into coastal decision-making. The challenge is to initiate and sustain a conversation among decision-makers, scientists, and representatives of key stakeholder groups and drive the discussion up the value chain from data to information to knowledge to wisdom and finally to action—to decisions by decision-makers. The role of scientists is to help identify and evaluate alternative strategies to achieve pre-determined ends. It is the role of the decision-maker to select from among those alternatives the combination that best meets the other factors—economic, social, political—with which he or she must deal.

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

***Figure 1. Schematic representation of decision-making value chain
(modified from Cooley, 1987).***

A figure similar to Figure 1, although with a different orientation and for a different purpose, was presented by Cooley (1987). Halbert, Hargrove/Russell investment counselors uses the same sequence of data to information to knowledge to wisdom to action as part of their corporate strategy (Russell Hill, personal communication 2003). In Figure 1, Cooley's curve has been rotated by 90° to place "action" at the top rather than at the bottom of the curve to emphasize the challenge of driving the conversation up the value chain and keeping it there long enough to make important decisions that lead to action. It is within the box that "out of the box" thinking must occur and be focused on making key decisions. Some of the requirements for effective incorporation of science into coastal decision-making include:

- A client with a decision to be made, a problem to be solved (Salacuse 1994).
- Creation of a safe environment where creative and adaptive work can be done (Kim 1990; Heifetz, 1994).
- Constancy of commitment by leading scientists and key decision-makers who constitute the core working group
- A "catch and release" program to involve scientists with specific knowledge as needed, and to involve young, untenured faculty and protect them from the politicization that often accompanies involvement in this sector and which counts for little in the academic reward system.
- Strong facilitation.
- Recurrent meetings to maintain momentum, to build trust, and to continually drive the conversation farther up the value chain and be ready when policy windows open (Kingdon 1984).
- Vertical and horizontal syntheses of existing information built around carefully crafted architectures of questions (Boyer 1990, Schubel 1996).
- Rapid summaries of meeting results that are well-written and illustrated.
- Transparency and inclusiveness.

These factors can contribute to initiating a conversation among decision-makers, scientists, and key stakeholders and sustaining it long enough to drive it up the value chain shown in Figure 1 to do adaptive work within the box.

A CLOSING OBSERVATION

The model for effective integration of science into coastal decision-making is simple and straight forward. It is the execution that is complex and convoluted.

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*Proceedings of Coastal Zone 07
Portland, Oregon
July 22 to 26, 2007*