

South Florida Restoration Science Forum  
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Perspectives on the Forum

By Dr. Leonard Berry  
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Edited transcript

[Stuart Langton] "I want to introduce a colleague. Len Berry is the Director for the Florida Center for Environmental Studies where I am involved as a senior fellow to interact with the Task Force and to try to build connections with the state university system. Len has been a great person to work with, and he's a well-known Geographer in his field. We were colleagues that never quite connected in Boston, but we've connected here. Len has been observing the forum as we've gone forward. He has some comments for us on his observations."

[Len Berry] "Well thank you Stu for giving me a task that's almost impossible. I went back and looked at the purpose of this meeting and it said strategies for successful linking of science management, I think we've talked a lot, but we haven't quite got to strategies. We've got thoughts and ideas, we've got pieces, but someone somewhere is going to have to turn around and say how do we really put these together into strategies?"

"As I wandered around the rooms upstairs Monday and yesterday, I put my academic hat on. I thought, What kind of degree would you give for all this information? I'm sure you could get a degree if you took all that displayed information and put it into various academic formats. Of course, it had to be a degree in environmental sciences; a broad based degree that covered most of the biological, chemical, and physical sciences; and you'd be a very well qualified person. What I'd like to see next year is some additional sets of materials that would qualify you to be an MBA - a master's degree in business administration. (At Florida Atlantic University we're just beginning such a program in environmental management.)"

"Next year I'd like to see some posters that managers devised showing what their management job was and how they fitted science into it. Because then I think we'd begin to get some iterations of scientist's view of management and manager's view of science. When I talked to people in some of these rooms, where the arrows between the science and management action were very clear, and I asked them how does this work? One person said I wish I knew; another said we're beginning the science that's going to get there. So a lot of things work, but there's a lot that we still need to be working on, and we need those strategies and ideas."

"Listening to the various contributions here, I began to think a little about the different kinds of science we're engaged in and some of the kinds of science we should be in but are not."

"It's pretty obvious that if we think we have a phosphorus problem and we think that it's just that problem, there's a fairly straight line of looking at the problem, examining when the cattails started to grow then fixing it or thinking we're fixing it. It's a little more complicated with mercury, but the kind of thing. You've got what you think is a chemical problem, It's in the water and you can do some science that's partly experimental, partly field testing, and, afterwards, you hope to come up with solutions. If you're working for the Water Management District or the Corps or if you have contracts with them, the fit between what you find and what you put in action isn't so difficult. Though, obviously it is not as simple as that and we've made tremendous strides in being able to fit the science, management, and the action together."

"It's not a hugely complex process, but when you look at some of the other bits of science, some of which we do and some of which we haven't yet done, we're beginning to look at ecosystems structures and how ecosystems work."

"How will the ecosystem of the Kissimmee River respond to the new meanders that are being put back in is not a one-on-one relationship thing; it's a very complex set of interactions and which also involves a very complex set of managers. I think

that in most of our minds here, the managers are you – the district, the Corps, the park, and so on. However, I know we've got farmers out there thinking they're managers, and we have county commissioners out there that think they're managers. I think we have some environmental activists out there that think they're managers, and the Avon Bombing Range is managed by the Air Force. We've got lots of managers out there, more than the ones we normally think of. We've also have lots very complex systems out there other than the ones that make it easy, or relatively easy, to put science into action."

"I think part of our long-range strategies to deal with this set of communication issues includes how are we really making sure that the broader group of managers with its different levels of managers will get the right kind of information. This probably needs more than Nick [Aumen] putting some of his time into this exercise. It needs a process. One that we need to invent and deal with if it's not there. We need to think about the broader range of science that we need to be engaging in this process. There's a lot of university conducted science going on that's not directly funded by any of the agencies represented in this room, or even directly applicable to the South Florida Restoration. Some of it is, but somehow there needs to be a distillation process that will bring that science into a forum like this one. The Center for Environmental Studies can be part of that effort."

"There is another area of science that has not been mentioned much here that I'd like to make a point for. As we begin the restoration, there is a huge experiment that is taking place which we have touched on it, but I want to make it explicit. This experiment is a very complex one. Take the Kissimmee watershed: How does that ecosystem respond to what we're doing to it? What do we need to measure to make sure we've got the essence of that response? I think there's just a little danger that having done the science up to this point, we think the monitoring is rather a outline task, and we don't give it the right emphasis. As several people just said, including Col. Miller in particular, we need to learn from what we're doing so that 10 years from now we're not doing the same thing. Having very active feedback that is a very important part of science, and although it may not be an exciting part of science, it is critical."

"I know there are some gaps in what we're doing. Some gaps exist just because there isn't the funding, and we need to address these gaps in funding for science issues up front. I think some science gaps are there because we're not focusing on them yet. There are two science gaps that I'll mention now, but I know that everyone has their candidates. One gap pertains to what I'd call the Landscape Level of analysis. We do a lot of very specific detail and in hydrology we can put models together, and we can put data together to give us a real good sense of what's happening right now. We can look at the chemical and physical flows through a hydrological system pretty well, but when we're looking at the biological system and the ecological system and the hydrology all together, I think we don't really have good patterns of analysis yet. The other science gap is one that some of us have discussed before, but we haven't yet seriously addressed. It's the role of the behavioral sciences in the restoration work. Some people get very shy about work on the behavioral science because that can be very fuzzy. On the other hand we are not only restoring the ecosystem for itself, but also for ourselves. Understanding peoples' reactions to the restoration and to the impact of the growth of Florida on the restoration is going to be critical. I am pleading for there to be a better focus on that kind of research as we proceed and to treat it as scientific research because that's the way it has to be done' and it needs to be part of this forum."

"In conclusion, I want to say three or four things that are pretty obvious. Research is going to continue to increase in importance. It's really a key component of everything we do over the next 20 years. Planning that research and getting a vision for it is very important. Research will be done very differently in 10 or 15 years from now. Some from this group need to be creating a vision of a research agenda as differing stages of the restoration occur. The whole cyclic process of monitoring and feedback is critical. There needs to be deliberate structures created for that to happen. It won't happen automatically. Structures must enable a variety of pieces of that monitoring to get shared between scientists, managers, and policymakers and such communication is critical."

"This has been a wonderful forum for communication; not all of the people who need this communication were here, and we need to continue to work on getting those people included. I could talk for days about the importance of this kind of meeting. The information that is shared both here and soon on the Internet is important. The translation of that information for the different audiences is something deserving exploration. One of the best outputs of this meeting is that what's here will not disappear when the meeting ends. It will continue as an ongoing process that will be added to and built upon."

"That's all I'm going to say, but I want to make a couple of acknowledgments. The graphics that were displayed upstairs and that will be displayed on the Internet are world class quality, and the science behind them is world class quality. I want to thank particularly all of the scientists and graphic artists. There has been a lot of thanks for the panelists and for everyone else, but we also owe thanks to the facilitators who did a tremendous job of pulling this information together: some through

the Center for Environmental Studies and the rest from South Florida Water Management District. There's been a lot of leg work getting this stuff done -- more than most conferences -- and the people that did it are very deserving of lots of thanks. Thank you."

[Stuart Langton] "Thank you Len for very thoughtful comments. This has been a great journey and we're now bringing the boat back to the captain, Richard Harvey, who is the chairman of the working group to provide the closing remarks for the forum."