



Good morning! I'd like to welcome everyone to our workshop "When Sound Science is Not Enough: Linking Science to Coastal Decisions". We have a full day planned for you and I hope by the end of the day you will have a clearer understanding of what the NERRS Science Collaborative has been up to the past four years and how this program helps the NERRS link reserve science to coastal decisions.

NOAA Wanted a Program That...

- Maximizes impact of research funding in the NERRS
- Increases the interaction, engagement & collaboration between NERRS sectors
- Improves reserves ability to manage the impacts of environmental stressors in the face of climate change

2 3/22/14



Four years ago, we set out on a mission to determine whether a different approach to how coastal science gets done and how the results of that science is shared could result in better decision-making by those responsible for managing coastal resources. As we are only two thirds of the way through this program, we cannot provide you with the final answer to that today, but based on the data we have collected, I think we can demonstrate that we are on a positive trajectory for developing a toolkit of best practices for linking science to decision-making.

In 2008, NOAA wanted to explore how a competitive funding program could better leverage the reserve system to link science to decision making at a time when different pressures on the coast were increasing and resources to address these pressures are becoming increasingly limited. NOAA wanted a research program that would :

- Maximize the impact of reserve research funding in the NERRS
- Increase the interaction, engagement and collaboration between NERRS sectors, and
- Improve reserves ability to manage the impacts from land use change, habitat change, estuarine contamination and stormwater all in the context of climate change.

A Successful Program Would...

- Foster multidisciplinary, collaborative research
- Work with the NERRS
- Make available effective, science-based tools
- Catalyze collaboration across geographic and organizational boundaries
- Addresses barriers to the application of science

3 3/22/14



So, NOAA developed and released a Federal Funding Opportunity calling for a program that would focus on these issues while operating collaboratively with the NERRS. A successful program would :

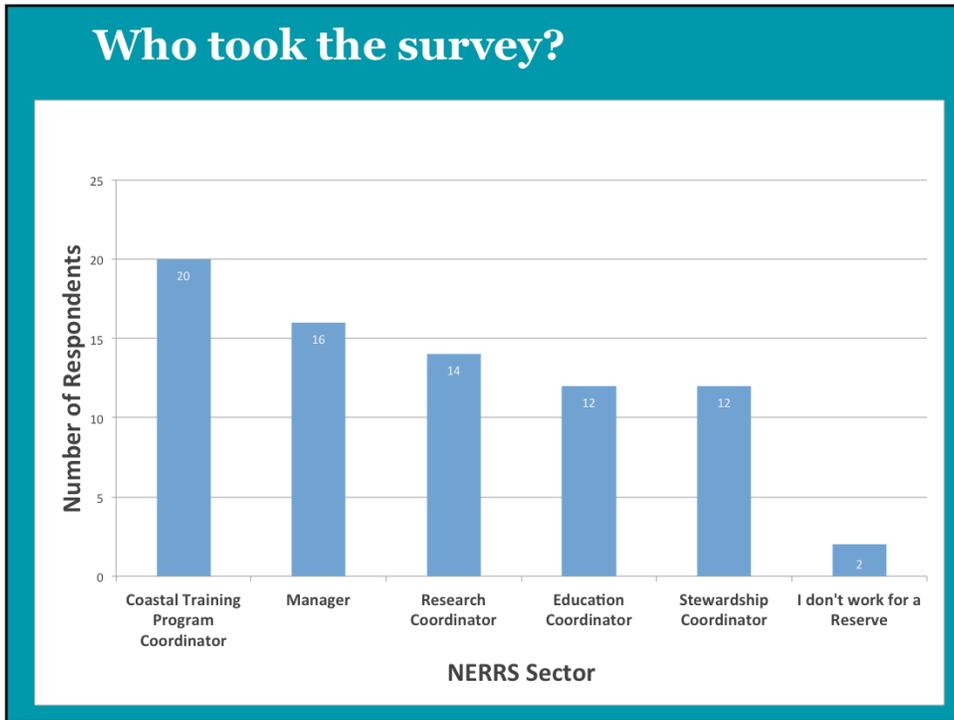
Foster targeted, multidisciplinary, collaborative research to understand the impacts of human activities on coasts and estuaries

Develop, demonstrate, and deliver effective and affordable technological solutions to address coastal management challenges

Use the system of 28 NERRS and state agency and university partners as living laboratories for research and development of science-based solutions to coastal pollution and habitat degradation

Catalyze collaboration across organizational boundaries, bringing local, state, and federal government, academia, cooperative institutes, and the private sector together to work on solutions to coastal environmental problems

Evaluate the barriers to the development and use of coastal and estuarine environmental technologies and ways to eliminate and overcome these barriers.



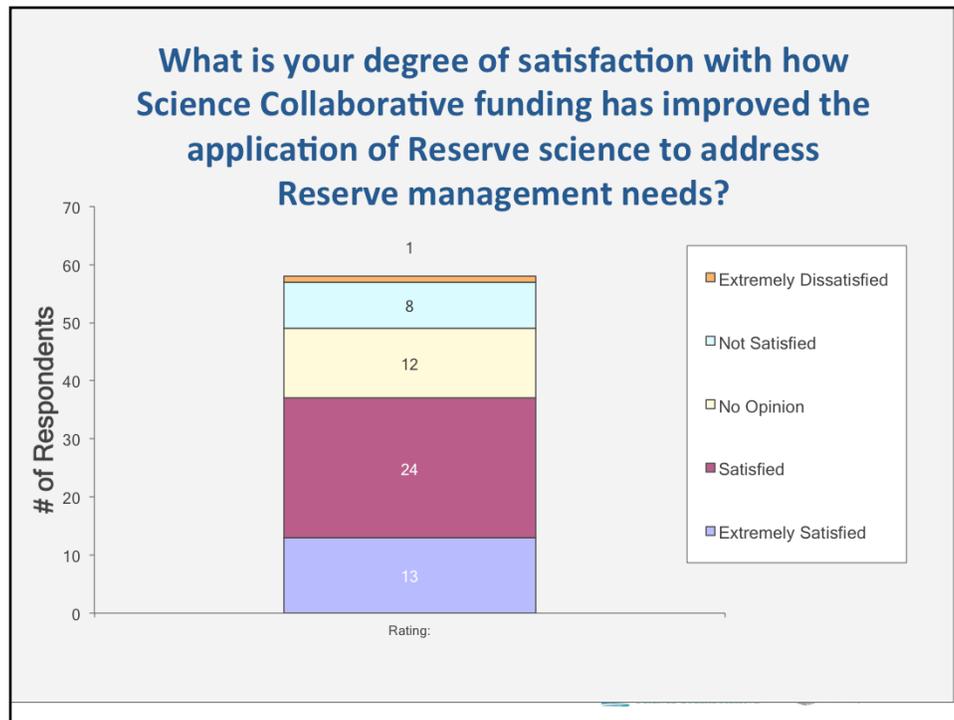
And out of this national competition the NERRS Science Collaborative was born. We've asked the Collaborative folks here today to share what they have been learning about the business of linking science to decisions in coastal communities and creating greater access to the research they fund. But before I turn the program over to them I wanted to give you an idea of how a key partner and customer, the NERRS, currently view the program.

Reserve survey responses:

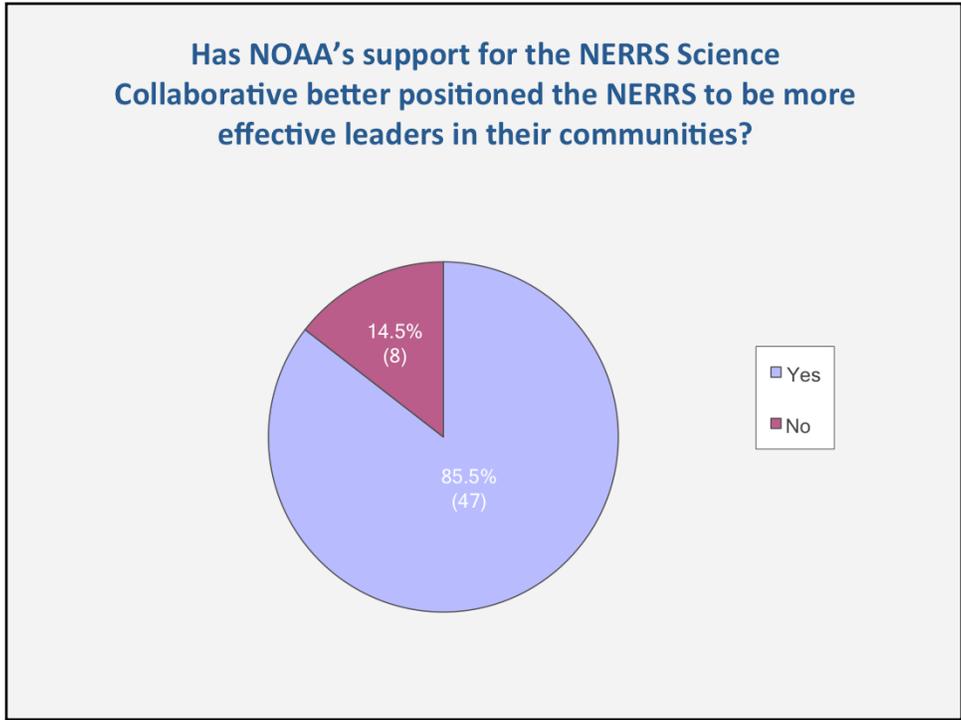
Who took the survey?

What is your degree of satisfaction with how Science Collaborative funding has improved the application of reserve science to address reserve management needs?

Has NOAA's support for the NERRS Science Collaborative better positioned the NERRS to be more effective leaders in their communities?



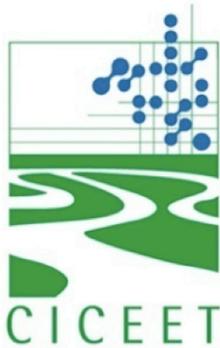
As you can see, of the 57 people answering this question, 37 of them were either satisfied or extremely satisfied with the program. 12 chose “no opinion,” and eight were not satisfied.



85.5 percent of those surveyed said that the Collaborative has better positioned the NERRS to be more effective leaders in their communities.

Now, I'll turn it over to the Collaborative to talk more about their story.

From CICEET to the Collaborative



How Research Funding Organizations Can Increase Application of Science to Decision-Making (April, 2011)

7 Sunday, October 3, 2010



We've been at this since 1998, first as CICEET (the Cooperative Institute for Coastal and Estuarine Environmental Technology) then as the Collaborative, starting in 2009. CICEET was also funded by NOAA to in turn fund science and technology projects to address pressing problems in the coastal zone. As CICEET, we were not satisfied with the amount of science that was getting linked to decisions and continually modified our approach to do better. Part of that was just what we heard from people, but then we went out and did a pretty rigorous analysis of how people were using our science, and the results corroborated what we sensed. Some used, lots not being used.

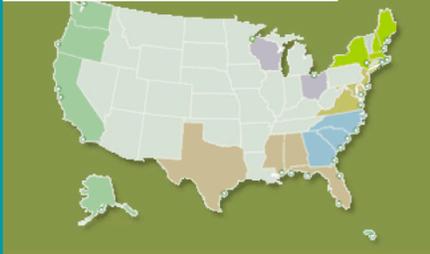
Becoming the Collaborative allowed us to make a pretty significant leap in how we go about linking science to decisions (LSD). To make that leap, we not only relied on the evaluation we did of CICEET, we also relied on what was in the literature on how funders could better link science to decisions.



In the last years of CICEET and as part of the proposal review process, we scoured the literature for what needs to happen to link science to decisions in the environment. The most relevant involved studies that looked at 15 year data sets from large scale natural resources projects (El Niño, great plains, etc), and it says there are three things required to link science to decisions...

- Sound
- Relevant
- Fair

NERRS Science Collaborative



Unfortunately for our poor brains...most of the work in that study involving 15 year data set was looking at large scale, long-term networks of research programs—not 3 year, discrete, place-based projects, like the ones we fund. So, there wasn't an exact ready-to-use recipe for how we would achieve this for our program.

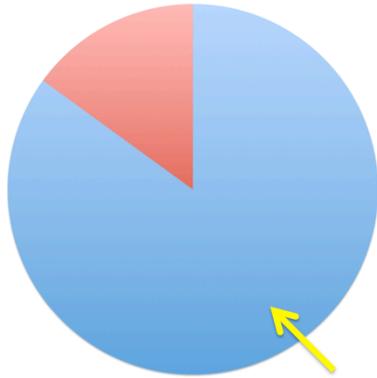
Science Linking to Decisions



“The collaborative process is a skill in and of itself, same way being a hydrologist is a skill. Same way you have to scale [the natural science] side, you have to scale the collaborative components. But you need someone who knows what that means in the process.”

How do you achieve this? Again, we combed the literature and reflected on our own experience. Quite simply, it has to be someone’s job to make sure this happens and that someone has to be part of the project. We are not talking about outreach; we are talking about someone with the skills to integrate biophysical science, social science, perspectives of stakeholders throughout the process. The key elements here that guided our planning process? This person has to have specialized training in being this integrator or “linker,” as we call them. And the person has to be paid just like the biophysical scientists are paid and they have to be involved from the get-go.

Competitively Granted Research (85%)



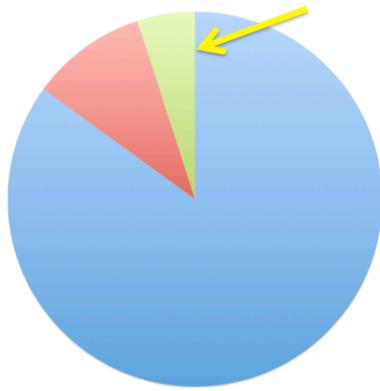
- Called for science gen methods and collaboration methods
- Made clear they were equally important
- Offered guidance on collab methods in the RFP
- Each proposal reviewed by 2 experts on science gen and 2 experts on collab

12 Sunday, October 3, 2010



What, specifically, did we do with this principle? With our competitive research program, we asked ourselves what would happen if we had an RFP that elevated collaborative methods to the same level of importance and scrutiny as biophysical and social science methods? What if the proposal were reviewed by 2 people who were experts in the biophysical or social science question and 2 people who were experts in linking methods? Would this transform traditional, research projects into short term, collaborative enterprises that are focused on linking science to decision? *On ppt or prezi, pie chart starts to build, show RFP wedge, budget.*

Transfer (5%)



- Program staff support research teams to share their work with specific, interested audiences around the country.
- Do this while the research is happening?
- Use principles of collaboration for broader ownership.

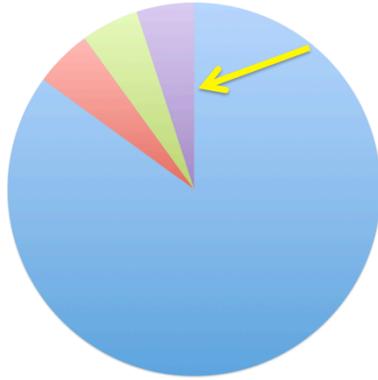
13 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

Next component...the transfer program. Have you seen RFPs where 5% of the review criteria asks applicants to transfer their findings to many different sectors? And teams meet that charge by saying they are going to write paper, go to a conference, create a DVD? With our transfer program, we asked ourselves what if instead of teams expecting to share their work with the universe, our program supported teams in sharing information about their work with specific, interested audiences in other parts of the country? What if we did it while the research was happening? What if we did this using collaborative methods so that people receiving this information have ownership? *Pie chart continues to build, show transfer wedge. Emphasize pilot scale.*

TIDES (5%)



- Professional Masters program focuses on integration of science and decisions, from project start.
- Internships at Reserves.
- Next generation of linkers, familiar with NOAA and coastal communities.

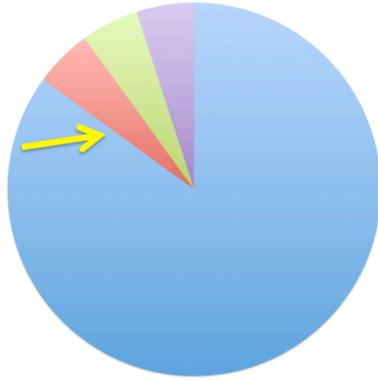
14 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

Finally, the TIDES component. TIDES is our Masters program at UNH, where we're hoping to train the linkers of tomorrow. TIDES stands for Training for the Integration of Decisions and Ecosystems Science. We've had conversations with other funders who are wrestling with these topics and a major question that comes up (Ginger) is that there no professional training for linkers. Career paths for social scientists, etc., but none for linkers. We decided to build an opportunity to pilot an approach for training the next generation of linkers. The key to this experience is coursework on ecology and participatory processes and a 6 month internship at a Reserve working with a Science Collaborative sponsored project.

Program Admin/Adaptive Management (5%)



- Lots of evaluation.
- Flexibility to innovate and modify course.
- Thanks to NOAA.

15 Sunday, October 3, 2010



We were testing a lot of new ideas—how would we know whether they were working? We knew we could not get enough information through progress reports and final reports, so we decided to do a lot of interviews, surveys, direct observation of our project teams and our process of working with them. We've been using what we learn to course correct our program design and adapt our program toward success. We are very grateful for the flexibility that NOAA has allowed us to adapt our approach toward becoming more effective. We'll tell you a little bit more about how our evaluation process works and how it's changed our program a little later.

The Essence of Today

What seems to be working...what's not...
and why?

16 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

The essence of today is talking about why some of these projects are tracking toward successfully linking science to decisions, and why some are not.

Lessons Learned

Interviews and surveys with...

researchers

Decision makers

Intern supervisors

linkers

panelists

applicants

TIDES students

Progress reports

17 Sunday, October 3, 2010




What the program has been learning and how: Transfer and TIDES

Objective: Participants understand the critical lessons learned with regard to TIDES and Transfer.

First we'll talk to you about TIDES, our grad program, and then Transfer...we'll pause for Q&A, then we'll dive into the largest part of our program...the competitive grants research.

Where do these conclusions come from? Here's how we collect our data, and this goes for the Competitive Grants portion of our work as well: We do direct observation of interactions between projects teams and stakeholders; we do semi-structured interviews with project teams and intended users of their work; we conduct surveys of reviewers, panelists, and applicants; we keep notes on all of our interactions with teams; and of course, we collect progress reports and final reports.

What Questions Are We Asking?

Is the science linking to decisions?

In most cases, it's too early to tell, although there are some exceptions, including from folks on this call.

18 Sunday, October 3, 2010



What are the questions we are asking? The big one is this—are we linking science to decision making? While it's a little premature to say that we are conclusively seeing that, we do have data to address some underlying questions...

What Questions Are We Asking?

Are people understanding what we're trying to accomplish?

Are they planning and executing accordingly?

Do they see benefit to our approach?

How would they improve our approach?

19 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

...do people understand what we want to accomplish, do they see benefit, and how would they improve our approach?

TIDES



Training for the Integration of Decisions and Ecosystems Science

The Take-Home Message for TIDES: By June 2014, we will have graduated 13 professionals who will have had a unique training and real world experience in linking scientists and decision makers together at every stage of a research project. The five students pictured above comprise our 4th cohort.

Take Home Message



- 13 new linkers tied to NOAA, coastal issues and the Reserves
- Program is providing value to both students and Reserves
- Focus isn't science and it's not policy...it's on how to bring the two together...on the ground
- Because linking itself is complicated, running the program has been challenging

Some Reserves—though not all, as you'll see-- that have had TIDES students have noted great benefit from having a person dedicated not to science, not to policy—but to the overlap between the two. But to really address the need linkers, there needs more programs like this and/or TIDES needs to be a bigger program, and because linking itself is very complicated, running a program like this is very challenging.

What's So Special about TIDES?

Other programs offer similar course opportunities... (e.g., ecology, policy)

Not required to take a focused subset of courses targeted at bringing scientists and decision makers together in the context of a place-based research project (e.g., "Getting to ecosystem based management," "conflict dispute and resolution")

Internship with the Reserves...

22 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

Just want to set the stage by reminding you again about what's special about TIDES. When you look at similar Masters programs around the country, such as Duke's Coastal Environmental Management program or Oregon State U's Marine Resource Management program, you will see that they, like TIDES, offer both natural science and social science courses. The key difference is in focus: as a TIDES student you are required to take courses related to working on the ground as a bridge between scientists and decision makers, such as a Conflict Resolution and Group Processes class. With those other programs, group process skills—which we consider absolutely critical to serving as a linker—are either not offered or they are an elective. The other thing that is special about TIDES is the six-month internship at a Reserve, working on a collaborative project.

What Do Students Think of the Program?

- 5 = Superior program; no significant suggestions
- 4 = Very strong program; only a few suggestions
- 3 = A good program but needs a lot of work
- 2 = A fair program; with some exceptions, needs work
- 1 = A poor program; did not get what I needed from it

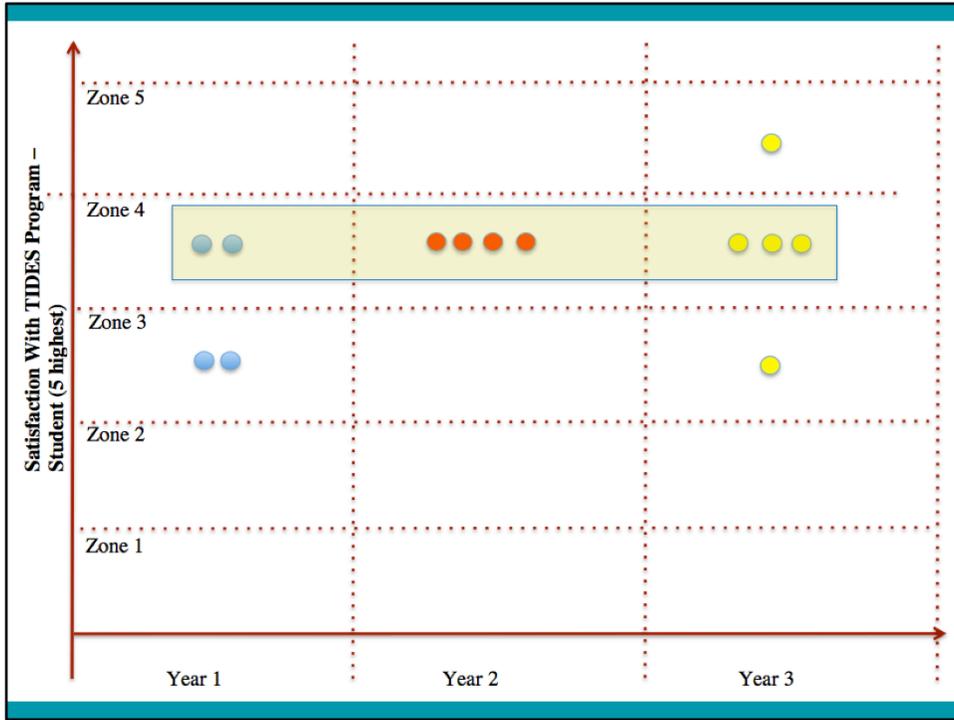
23 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

I'd like to quickly review some feedback we've gotten both from the students and their internship supervisors at the Reserves. First, let's talk about the students. We're talking about an N of 13 here because I included the five students who are in the midst of their internships...they started in June of 2013.

We asked students to score their experience one through 5, 5 being the best and corresponding to this sentiment: "Superior program and I can't really suggest any changes." 4 means they can suggest a couple of changes. 3 means they're split between benefits versus things that need to be addressed and so on.



What you see is that we have a lot of 4s; only one 5; and we have three people who only gave the program a three.

Student Feedback -- Improvements	
Suggested Improvements (n = 13)	
Course choices and schedule needs adjusting	5
Program expectations more clear	4
More professional development (for job acquisition)	3

25 Sunday, October 3, 2010




Let's look at what issues came up most in terms of required improvements. First, people suggested changes with regard to required courses. For example, people wanted more policy and more science communication...and less statistics. Secondly, we need to do a better job of clearly defining the expectations of these students. This quote sums that up:

“The academic expectations of the internship and portfolio were not very clear, but that is somewhat understandable as I was in the first cohort. Throughout my experience I had to put a lot of effort into ensuring that I was on the right track and that I was correctly informed of deadlines and expectations.”

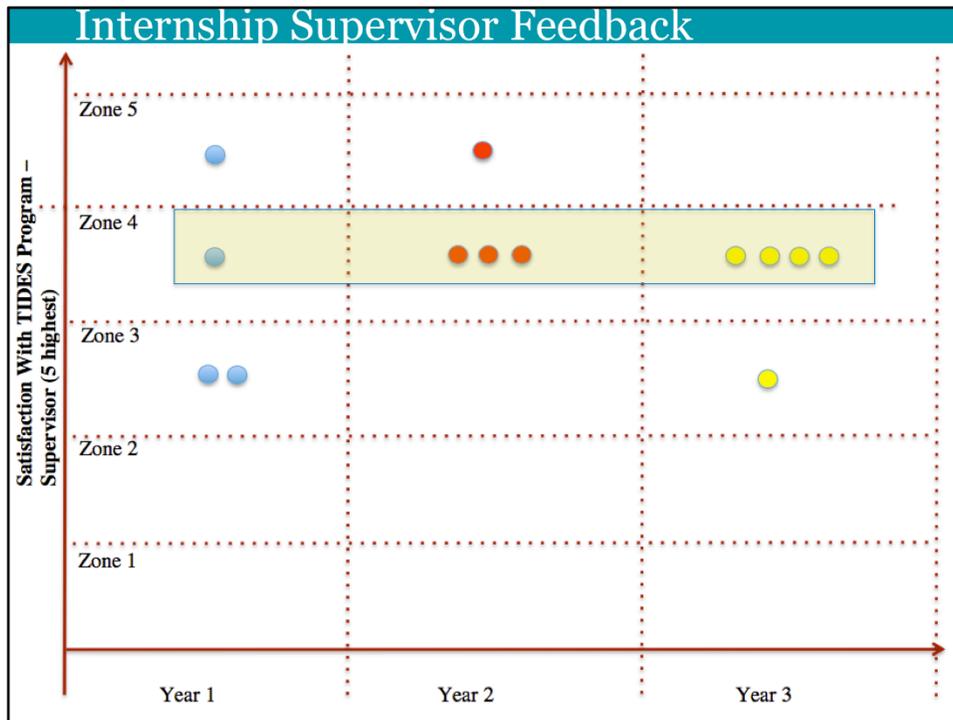
Student Feedback -- Benefits

Benefits	(n = 13)
Interdisciplinary nature of the program	6
Real-world experience (not referring to internship)	5
Practical skill-building (e.g., facilitation, proj. design)	4
Internship with a NERRS Reserve	4

26 Sunday, October 3, 2010




In terms of what people appreciated about TIDES, you'll see that students liked the interdisciplinary nature of the program; they liked opportunity to have real-world experiences...this isn't about the internship, by the way, but refers to our efforts to involve the students in community issues during their coursework time at UNH; they do like the internship as you see, and they also appreciate the focus on practical skill building...facilitation, meeting design, etc.,



Now, let's move on to what the supervisors of the interns say about their experience. Here the n is 12 because we're talking about 13 students but two of them were mentored by the same person. What you can see is that, similarly to the students, we have mostly 4s, with three 3s and two 5's.

Internship Supervisor -- Improvements	
Suggested Improvements	(n = 13)
Interns need clearer objectives	5
Clarify that intern supervision is resource-intensive	4
Intern value vs. investment not as high as hoped	3

29 Sunday, October 3, 2010



What did people most want to improve? It's clear that UNH and the Reserves have to work harder to set clear objectives for the students. Folks also note that it's important to understand how much work supervision is. As you can see, 3 people felt that their interns weren't really ready to contribute and needed a lot of help...

Internship Supervisor -- Benefits

Benefits of Internship Program	(n = 13)
Intern value vs. investment WAS as high as hoped	6
TIDES more integrated w/ Reserve than other (GRF)	3

30 Sunday, October 3, 2010



...On the other hand, on the positive side, you had six people saying that the interns really did contribute, and that they liked that the TIDES student was really integrated with the Reserve, unlike, for example, what happens with Graduate Research Fellows.

““When I think and compare TIDES to the GRF program: the GRFs produce a good quality science product with little outlaid cost, but tend to be less integrated with the system. TIDES adds a bonus of services at the Reserves when they are onsite and due to the instructional capacity, have a strong long-term connection to the system.”

31 Sunday, October 3, 2010



This quote sums it up really nicely:

“The integration did require a commitment by Reserve staff. Many of the TIDES fellows are new in their career and want/require instruction. This is of course a benefit but also an underestimated time commitment. When I think and compare it to the GRF program: the GRFs produce a good quality science product with little outlaid cost (time and money), but tend to be less integrated and therein have less of a long-term connection with the system. TIDES add a bonus of services at the Reserves when they are onsite and due to the instructional capacity, have a strong long-term connection the system. We have provided the graduate student stipend for the TIDES in both scenarios and I feel that it is money well-spent. As I said before, the students are the cream-of-the-crop and helping to support them is a no-brainer.”

TIDES: In Summary

Providing unique experience for next generation of linkers.

Most, but not all, participating Reserves see TIDES as providing an integrative value to the System.

Some wrinkles to iron out.

Looking to partnerships to bring additional support to program.

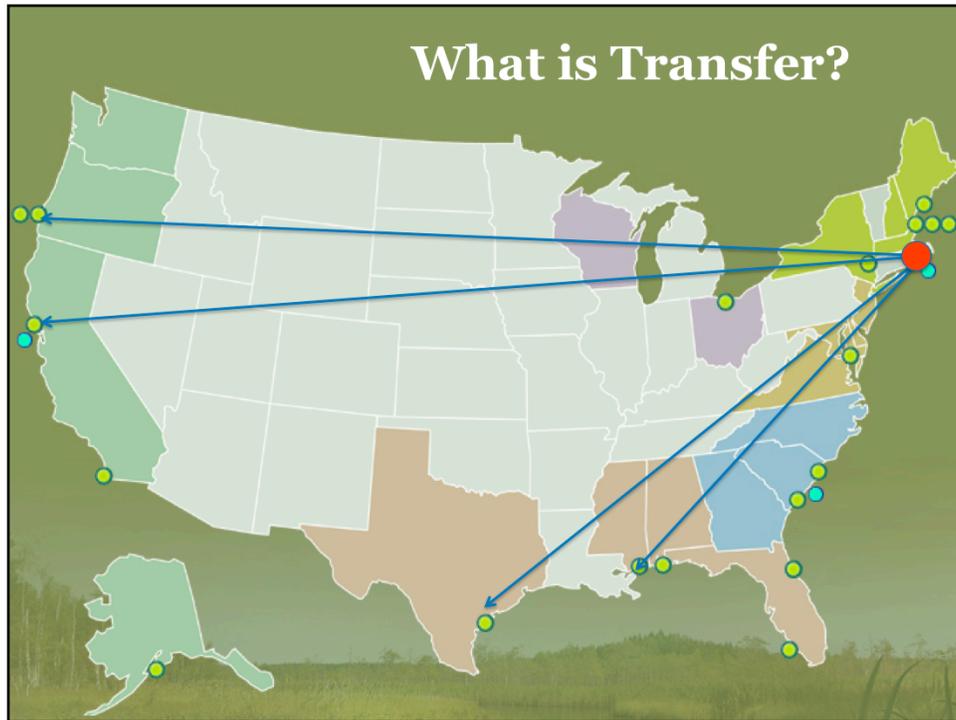


32 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

In conclusion, we have a lot of positive things going on here but a lot of wrinkles to iron out as well. It seems clear that TIDES is valued and will be more valued if it gets more support. If others agree that it should be continued, we would look at getting additional support from other partners at UNH and perhaps linking to other programs across the country.



Let's switch gears and talk about "Transfer," an important component of our program but one that is often misunderstood.

To recap, in a nutshell, the purpose of what we call "transfer" is to share information about the research we fund through the RFP with the Reserve System, using program resources (our time and money) and some of the collaborative principles mentioned earlier. You might be thinking I'm talking about traditional communications, and while we do include elements of that, we think of transfer more as a dynamic, inquiry-based partnership focused on sharing information.

As a component, transfer is a little younger than other parts of our program and our data to assess it is green and just starting to come in so we can't present a true analysis, but based on what we have seen so far...We've found that:

If you want to create access to place-based research so that it can be used by people in other parts of country...

if you want to connect the dots between Waquoit Bay's Blue Carbon project on Cape Cod with the West Coast and the Gulf...then we think transfer is a better model than an end of pipe activity as it so often happens. And we think it's better than asking investigators to do it alone as part of their research grant without real guidance or

We are seeing that...

- Transfer can strengthen the research
- People get to use the research sooner
- Everyone is more invested in outcomes

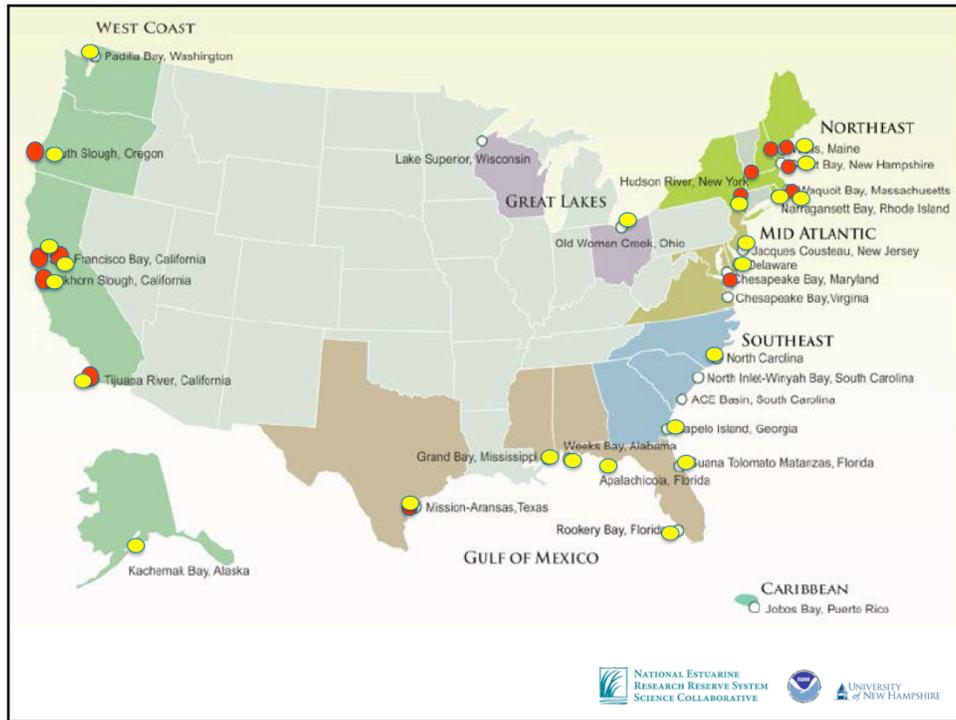
34 3/22/14



UNIVERSITY
of NEW HAMPSHIRE

More specifically, we are seeing that as a result of this approach, the place based research project can be improved, people from beyond that project's boundaries get to use aspects of the science sooner, and they have greater ownership in the idea of using it locally to meet their needs. That's what I would like to talk about today, and I'll put it in the context of those underlying questions referred to earlier...

Will people understand what we are trying to accomplish? Will they see benefit?
What would they improve?



First let's do the numbers so you have a sense of scale. So far, we've invested in 15 transfer projects, which have involved 12 collaborative research projects, and reached 24 Reserves. The red dots here are research projects and the yellow dots are Reserves that are engaging/or have engaged in transfer with them. Transfer has involved the development of two day-trainings, professional sharing workshops, webinars, demonstrations of distance communication technologies, online short courses, technical demonstrations, videos, needs assessments, Teachers on the Estuary Trainings—all inspired by the research we fund.

Do people get transfer?

36 3/22/14

NATIONAL ESTUARINE
RESEARCH RESERVE SYSTEM
SCIENCE COLLABORATIVE

UNIVERSITY
of NEW HAMPSHIRE

Now, let's look at the first underlying question: Do people understand what we are trying to accomplish through transfer? Do they get it?

Yes, with hands on learning



The answer is “yes,” but it takes hands on learning. It’s hard to get in the abstract, but we’ve found people get it when they participate in a transfer project. Even then they often don’t understand first and we have to help them along, but this is easy to do because we are very hands-on ourselves. Sometimes we are a core member or manager of a project team and sometimes we give them funding to do the work themselves through scaled funding opportunities we call “Transfer Requests for Ideas” (TRFI). In the case of the TRFI we use a flexible, iterative process that lets people ask questions, rejigger their approach, and ask for help when they need it. We’ve been conducting surveys on applicants and will be doing exit interviews to continue to refine the process, but we fell we are on the right track, because most of what we are hearing from people looks like this....

“It was a straightforward process, which we really appreciated. I think it's a great idea to create a space for the kind of fresh, innovative thinking that went into the two RFIs that I am working on. Nicely done!” —TRFI applicant



Now the second question: Do people see benefits to transfer? Again, it's early to say, but indications are that it will be "Yes" for this as well. For the transfer projects that have been completed, which include the collaborative learning training and the first cohort from our spring 2012 transfer funding opportunity, the response of all participants has been generally positive. In the interests of time, I'm not going to show you that survey data, but instead I'd like to focus in on specific benefits that people talked about in their feedback to us, some of which came as a surprise.



Transfer can inform the research....

Several investigators already have reported that transfer activities have had a direct benefit on their collaborative research project, giving them another set of perspectives they might not have had. The picture above comes from the Waquoit Bay “Blue Carbon” project. What they learned at the transfer workshop last spring is influencing the economic and policy analysis portion of their research; they are seeing that the methodology will be more cost effective to use for larger scale wetland projects and they’ve adjusted their project accordingly.

“Each of our projects is richer for the time and thought that we've been able to spend together over the past six months. And in addition to the direct impacts on OCOF and CURRV [their NSC projects], this transfer grant also brought about our California human dimensions mini-summit; a grant proposal; a talk at the National Adaptation Forum; and a few new collaboration opportunities that are being pursued...”

40 Sunday, October 3, 2010



Others designed their transfer projects with this in mind, as was the case with two California projects, one in Tijuana, one in San Francisco, both concerned with sea level rise. Here’s a quote from an investigator from the SF project.

We hoped for outcomes like these, but frankly did not expect them, because we had this assumption underlying that transfer would be a somewhat “altruistic” activity for investigators, that there would be less in it for them.

Builds capacity to communicate with funders...



Another benefit that people have expressed is that transfer increases their capacity to communicate about their work and their priorities to colleagues and their funders. This happens in many different ways. I'll use an example from the Waquoit Bay project.

Here's one of the investigator's on the team, Kevin Kroger, a geologist with USGS. Kevin has described working with the Waquoit NERRS on their blue carbon project as an "NSF broader impacts bonanza" that could help him land future grants. He's referring not only to the transfer projects by the way, but to the way the collaborative process engages stakeholders—from the collaborative learning training they held as a kick off all the way through.

It's also a capacity builder for people on the other side of the partnership. For example, Reserve staff working on proposals to bring information and expertise from that same blue carbon project to their Reserves have expressed appreciation for the ability to build their grant writing skills by working iteratively and directly with a funder on a submission like they have through our TRFI, we've had people call the TRFI "training wheels" for going after bigger grants..



Now for the last underlying question—what would the people we’ve worked with do to improve transfer? This is a question we’ve asked our partners from the beginning, they are not shy about telling us, and we’ve used their feedback in many ways to adapt our approach in keeping with our program management strategy. In the interest of time, I’ll just focus on the most overarching change inspired by their feedback:

Working Together to Get Things Done



Transformational pilot for transfer

The name of our first significant transfer effort—a Collaborative Learning training (Working Together to Get things Done) that reached 10 Reserves and 200 people— sums up our change in approach.

Our initial expectation for this project was that we would use the ADDIE model to develop a turnkey training that any appropriately prepared trainer could deliver. In the process we would learn a lot about working with Reserves to move a largish scale transfer product around the system. Turns out, we did learn a lot including a big surprise—even though people were really interested at the outset (we had 18 Reserves sign up immediately) the kind of training we had in mind was not what the investigator wanted to provide, nor was it what people were interested in bringing to their Reserves. What they wanted was our support in providing more of a consultancy/workshop model that helped people understand how collaborative learning could be applied to many different situations.

if we had held to our original idea, we would have spent a lot more money and time and the participating investigator and interested Reserves would have not had so much investment in the outcome. Instead, after the initial pilot, we reframed the project to be more like a partnership in which our role was to bring people together and then provide coordination and resources to make information sharing happen.

And that's been our approach ever since—to help people think through what they really wanted to know about, why they want to know it, and how best to share information on the topic at hand. They have to give us their input on all of these things—then we use our resources to boost their capacity to do so. This is what we mean when we say that transfer is a dynamic, inquiry based partnership.

What's next for transfer?

A lot more of it & evaluation that asks....

- How can we better prepare investigators?
- How do we share products more broadly?
- How do we scale up this process?

44 3/22/14



UNIVERSITY
of NEW HAMPSHIRE

In the next year, we will refine the plan for final evaluation of this component of our program, collecting a lot more data, and conducting a more formal analysis. As part of that, we will be asking

- How we could, in the future, do a better job of preparing and resourcing investigators to participate in the transfer process, which we feel is closely related to their ability to communicate with diverse stakeholders on Collaborative projects.
- How to plug scaled transfer projects and products into larger initiatives?

Could someone take what we have been learning about how to do transfer involving a few reserves and scale it up—not only to include more Reserves but other groups in coastal management? What would the obstacles be? Where would the opportunities lie?

Competitive Grants Lessons Learned: Take Home Messages



45 Sunday, October 3, 2010



Though early, it seems our model for funding science that links to decisions represents a significant step forward.

Competitive Grants Components: Take Home Messages



46 Sunday, October 3, 2010

NATIONAL ESTUARINE
RESEARCH RESERVE SYSTEM
SCIENCE COLLABORATIVE

UNIVERSITY
of NEW HAMPSHIRE

We had no idea how deep and abundant the differences are in how people look at linking science to decisions...and I'm just talking about between different kinds of scientists and environmental communicators...I'm not even talking about stakeholders.

Also, we had no idea that even the people who managed our approach the best would still find it so difficult.

Competitive Grants Components: Take Home Messages



47 Sunday, October 3, 2010

NATIONAL ESTUARINE
RESEARCH RESERVE SYSTEM
SCIENCE COLLABORATIVE

UNIVERSITY
of NEW HAMPSHIRE

There are a lot of ways to improve this approach. We are far from done in terms learning from and improving on what we've started.

What Questions Are We Asking?

Are people understanding what we're trying to accomplish?

Are they planning and executing accordingly?

Do they see benefit to our approach?

How would they improve our approach?

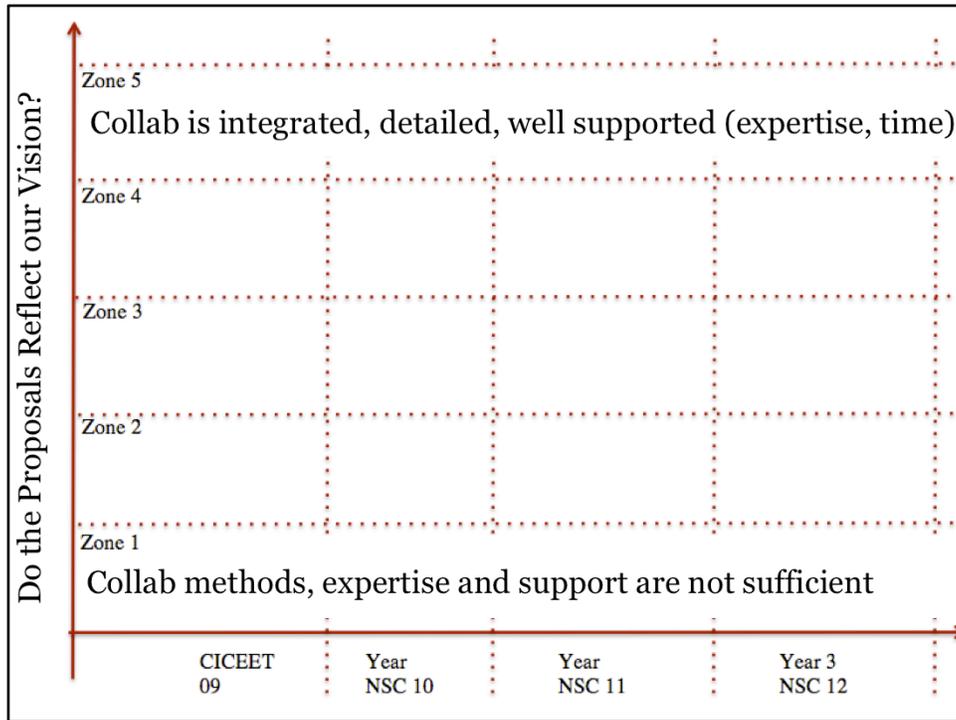
Let's take a second to revisit the questions we're asking with this formative assessment. Do people understand what we want to accomplish; do they see the benefit; how would they improve the research program?

What Questions Are We Asking?

Understanding =
planning and executing

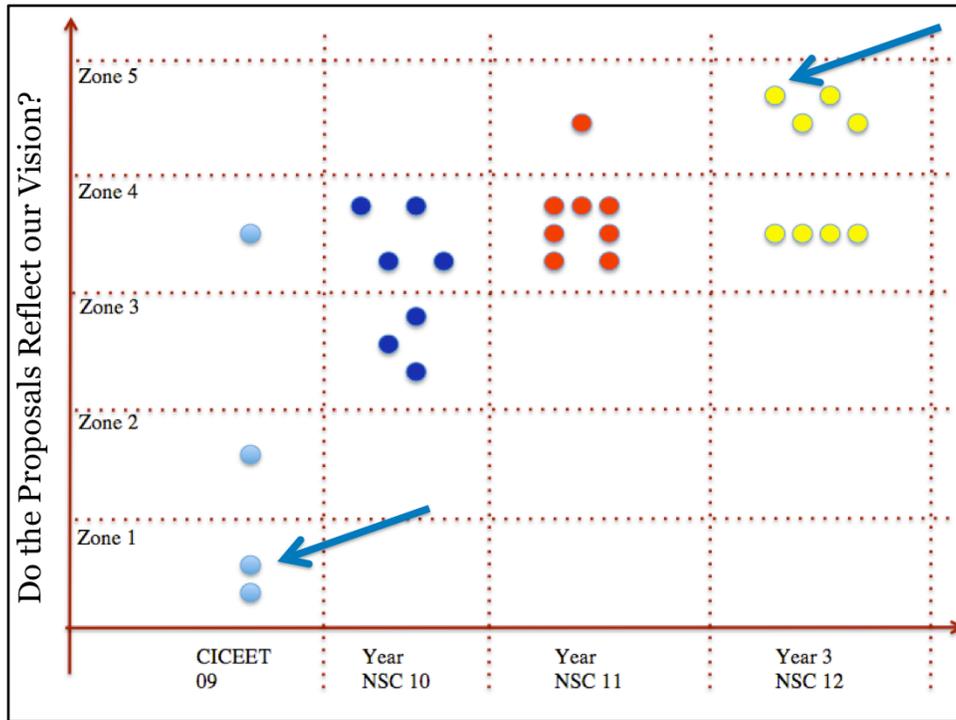


First, let's talk about if people are getting it. One way to get at this is to look at the proposals and another is to look at what happens in terms of the way the proposals are being implemented.



Alright...the proposals. We went through the first three years of the proposal process and applied a rubric to the proposals that were funded. In addition, we included the last CICEET round, which had four funded proposals, because we felt that the Collaborative was a significant step up from the later CICEET years, which to be fair, also put a fair emphasis on collaboration. But we wanted to see if the proposals were scored differently.

A note on the rubric. Again, a 1 is the lowest; 5 is the highest. This rubric looks at the level of collaboration in funded proposals. Numbers relate to the level of detail in describing collaboration methods, objectives and activities, collaboration expertise on the project team and the amount of budget support for collaboration activities and team members. So, a 1 indicates that the proposal is insufficient in all areas and a 5 indicates that the proposal is very strong in terms of methods detail, expertise on the team, time and money to accomplish goals. Note that this is not a judgment of empirical quality, but on whether proposal are including linkers and allocating resources to their work, according to what we had hoped.



Here's what we saw. What you see is that there does turn out to be a real progression in terms of the amount of resources and expertise allocated to collaboration as the years progress. To put this in perspective, one of those "zone 1" projects had an ecologist as the collaboration lead and only 1% of the budget went toward outreach. In contrast, one of those Zone 5 projects—this one deals with sea level rise on Deal Island out in the Chesapeake Bay—has 23% of the budget going to collaboration and they've got several people helping with collaboration, including a PhD anthropologist and a PhD environmental educator.

Why Is This Happening?

A clearer, more demanding, more helpful RFP.

A review process that puts collaborative experts on the panel and gives them equal say as compared with biophysical and/or social scientists.

A more interactive Collaborative staff, giving people advice during the proposal development process.

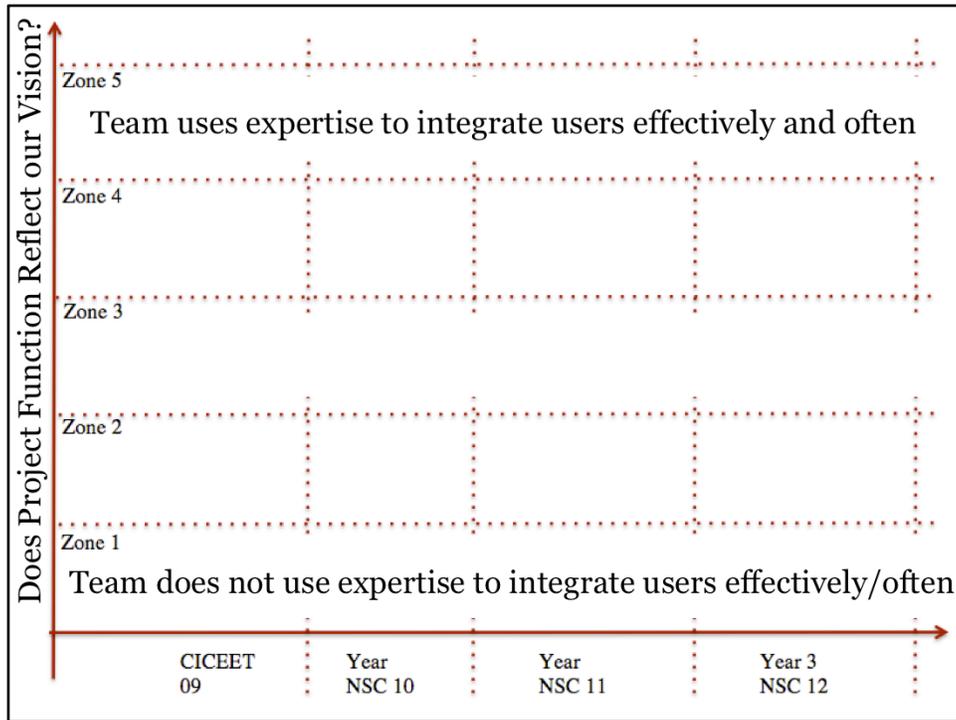
52 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

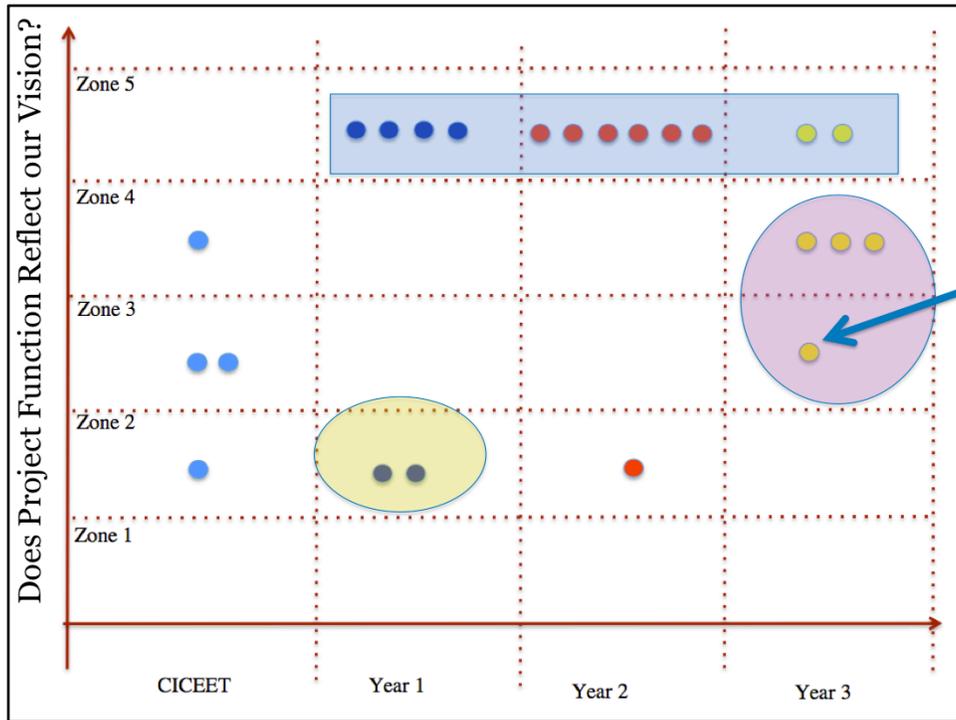
The evidence from interviews and other feedback is that this progression is related to three things: 1) a clearer and more demanding RFP; 2) a review process that gives equal weight to collaborative reviewers and 3) a more interactive review process where we at the Collaborative can give people advice during the proposal development process, or even post-award.

Now, does this mean that the graph on the previous page also applies to how these projects function? We'll take a look at that in just one second.



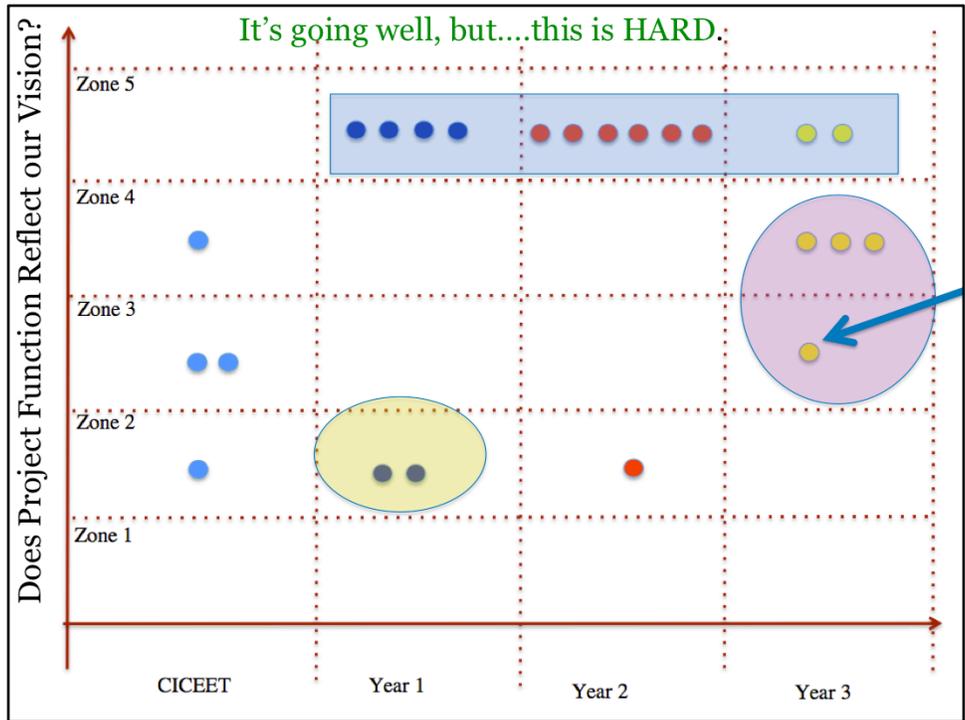
The rubric for how a project functions on the ground is solely related to our direct observations and the many conversations we have with project teams. Our direct observation protocol involves fairly standard qualitative procedures, where an observer (show picture) monitors event with a template directing him/her to note certain observations. In our case, we're interested in facilitation and evidence that the meeting is affecting the three attributes: sound science; relevant science; done in a fair way.

In this case, the 1 through 5 rubric has to do with how effectively the project team is facilitating conversations between scientists and stakeholders, and how much opportunity different participants get within meetings and the project as a whole to weigh in on the project approach.



As you can see, the patterns are similar but not identical. Now, we could chase some rabbit holes about how these patterns compare...For us, the point is that we want as many fives as possible. The rectangular box at the top of the slide emphasizes that 12 of the 19 projects are in Zone 5. But in our last year, we've got three 4's and one 3.

Let's talk a little bit more about what these numbers mean to us. A five would be like the Waquoit or Hudson River projects you've heard about today. For those of you, who weren't here this morning, both these projects invest a lot in facilitation and in bringing in users to do more than listen...to actually contribute to the science. A three would be this project (indicated by the blue arrow), which has to do with climate change and is struggling with bringing the different disciplines within the projects and its stakeholders together. But, the project has improved how they manage group processes—they've brought in other people to help—and we feel confident that they'll improve.



The twos are from year 1 and are a result of a flawed review process, which some of you have heard me discuss before, and an RFP that could have been clearer. So, in both cases, there wasn't enough money and power vested in the linking role, and not enough of a commitment to bring in a diversity of intended users throughout the process. That said, we were able to intervene, and both these projects have made significant improvements. I want to reiterate that our scale is fairly ambitious—even if we hadn't intervened, observers of these projects would have considered them very strong applied research projects with even more than the usual commitment to involving intended users.

So, as the Program considers this formative assessment data, we want to figure out what we can do to get those up into the five zone. And there's a second question... virtually every one of these projects that received a five rating is telling us..."Wow, we didn't know this was going to be so hard. We could use more support." So, we want to address that.

It's going well, but....this is HARD.

Why?

It's complicated and it's new, and it's not how we've been taught to work.

It's Worth It



Why are we getting this comment that this approach is so “hard”? The feedback we’ve been getting is that this approach is simply much more complicated, and involves many more moving parts than a traditional research project.

That said, interviewees have been fairly consistent that this approach IS worth it, from what they can tell at this early juncture.

1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
				distinctly beneficial		
				positive		
				negative		

The other questions we had were: are people seeing this process as beneficial? And what improvements are they suggesting? To answer that, let's look at our interview data. For each project, following our direct observations, we conduct interviews with two people from the project team—one more concerned with knowledge generation, the other more concerned with knowledge linking—and then we talk to four people who are considered stakeholders or intended users. For 16 projects, we interviewed 92 people from three cohorts. The interview asks open ended questions like: What did you like about the meeting, if anything? What would you improve, if anything? How does this experience compare with other experiences you've had? The data were then analyzed qualitatively, where you essentially code the ideas into bins, such as "We need more time to interact with users," etc. These bins are not created beforehand; they arise from the data, which is one of the aspects that makes it qualitative.

1	Yellow	Yellow	Yellow	Green	Yellow	Yellow
2	Yellow	Green	Green	Yellow	Yellow	Green
3	Yellow	Yellow	Yellow	Green	Green	Green
4	Yellow	Yellow	Green	Green	Green	Green
5	Green	Green	Black	Yellow	Green	Yellow
6	Yellow	Yellow	Green	Green	Green	Yellow
Blue separator						
7	Green	Yellow	Green	Yellow	Green	Green
8	Yellow	Green	Green	Green	Yellow	Green
9	Yellow	Yellow	Green	Green	Green	Green
10	Yellow	Green	Green	Green	Green	Green
11	Yellow	Yellow	Yellow	Yellow	Yellow	Green
12	Green	Yellow	Green	Green	Green	White
Blue separator						
13	Yellow	Green	Black	Green	Yellow	White
14	Yellow	Yellow	Black	Green	Green	Yellow
15	Green	Green	Green	Green	Green	Green
16	Yellow	Yellow	Green	Green	White	White
Legend						
			Yellow	distinctly beneficial		
			Green	positive		
			Black	negative		

On this slide, there are 92 squares, representing the 92 people we interviewed. Let me explain the colors. Yellow squares denote that the interviewee, at some point in the interview, noted that they felt that this project was not only beneficial, but distinctively so from their previous experience. Green squares denote interviews where the tone is genuinely positive but nothing is said about the approach being superior to other approaches. The three black squares are the three interviews out of 92, where people were mostly unhappy with the approach.

You'll also notice that towards the lower right corner, some squares are white; this shows that in those cases, we weren't able to interview all 6 people we had hoped.

First, let's talk about these three black boxes. We debated about how to code the top one, because it actually seemed that the user liked the intent of the approach...he was just very disappointed in the way it was implemented. In both of the other cases, the users really just didn't like that the scientists were ceding control to the users. It just flat out made them uncomfortable.

Digging Into the “Distinctly Beneficial”

Distinct Because...	(n = 37)
Users can impact questions/approach early & often	17
Intense focus on answering user questions	8
Extent of resources spent on user engagement	5
Flexibility to change in response to users	4

60 Sunday, October 3, 2010



To give you a sense of what this looked like in the interview data, I’m just going to show you three excerpts.

Users Impact Early and Often

“I don't believe I've ever really participated in anything really that is comparable to this in the past. Yes, our agency does sometimes have workshops but nothing that's gone to the extent that this project has to try to have broad-based support throughout the planning and inception stages.”

--Larry Wilson, NY Dept. of Environmental Conservation

61 Sunday, October 3, 2010



Users Impact Early and Often

“I don't believe I've ever really participated in anything really that is comparable to this in the past. Yes, our agency does sometimes have workshops but nothing that's gone to the extent that this project has to try to have broad-based support throughout the planning and inception stages.”

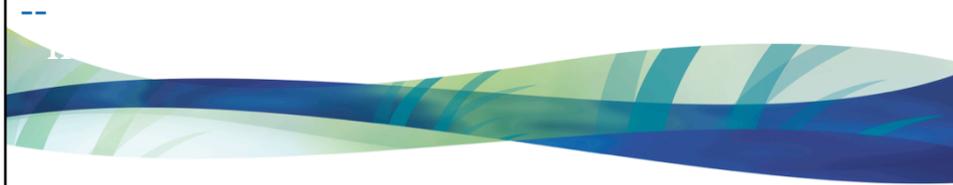
--Larry Wilson, NY Dept. of Environmental Conservation

Flexibility to Respond to Users

“First time I’ve ever been on a project like this—our user group can actually make substantive decisions about the science that we’re going to conduct.”



Tarla Peterson
Policy Scientist
Texas A&M



62 Sunday, October 3, 2010



UNIVERSITY
of NEW HAMPSHIRE

Flexibility to Respond to Users

“First time I’ve ever been on a project like this—our user group can actually make substantive decisions about the science that we’re going to conduct.”

What Questions Are We Asking?

How would they improve our approach?

63 Sunday, October 3, 2010



Finally, let's address that question of how people would improve the situation. As I noted earlier, one of the big lessons of this whole experience for us is that what we're doing is both very new and very unusual, but also very hard. You saw a quote earlier from Dr. Peterson of Texas A&M, who's been a linker for over two decades has never been on a project before where the users can ask for a change to the methods and the team actually has the flexibility to make that change. So this is new...but with the newness comes difficulties.

Making a Good Thing Better	
Suggestions for continued improvement (n = 92)	
Broaden the user group	26
Work harder to prep users in advance of meeting	21
Clarify connection of project to specific decisions	17
User more involved, not just listening	13
<p>64 Sunday, October 3, 2010</p> 	

When we coded all 92 interviews for “what should be improved” this is what we found:

This top point has been a huge lesson for us. When we started the program, we were not pushing this point at all, but our collaborative reviewers seemed to push it fairly constantly, and there was actually some tension here between the program and our panelists. But what we’ve seen in the interview data, quite often, is that they agree with the panelists: if we really want our science to impact society, we have to bring more people in to the process and a greater diversity of people, and that’s really challenging.

The third point...it’s one thing to talk about science that is policy-relevant or useable, but when you start billing your project as explicitly trying to link to decisions, people start pushing back and saying, “Exactly how is this going to happen?” and a lot of times project teams are not quite sure of how to respond to that.

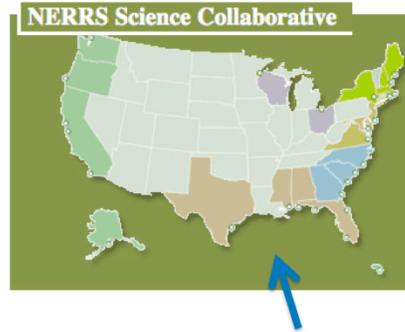
Competitive Grants Components: Take Home Message

This is hard...but it's worth it.

In some cases, already seeing links to decision making...

We believe we'll more examples of linking with our summative evaluation.

We hope to continue to learn and improve this model.



CREDIT!

What We Might Do Differently

- Staged approach to funding
-

66 3/22/14



You have heard this morning about some of the challenges we encountered over the past four years, and how we used our adaptive management process to make course corrections along the way. While we think we have made improvements in the way we operate, we still see some challenges that have not been 100% overcome. We can't assume that we'll have another shot at doing this in partnership with the NOAA Coastal Office, but regardless, we like the work we do and plan to form a Center for Collaborative Science in UNH's new School for Marine Science and Ocean Engineering with funding support from any source that will have us. So here's a few things we might do differently down the road.

We recognize that we are asking an awful lot from our applicants and project teams. First, we are asking that they come to us having already defined the problem they will be addressing with their intended users and stakeholders, which takes time resources if it is done properly and that most of the projects did not have enough prior to submitting their proposals.

We are also asking them to include science and collaboration plans and detailed budgets to support them, knowing full well either or both may change based on intended user input. While we allow them the flexibility to make internal budget changes, they can't add on additional funds if additional tasks are identified. Conversely, if they receive input that a planned task isn't necessary they may have already committed funds to a project team member and can run into problems trying to reallocate the funds. (Hudson River example).

One solution might be to fund the projects in stages, so that the teams can apply for funding for rigorous problem definition before they develop their science and collaboration plans. Might end up with fewer intended user drive changes to the project.

What We Might Do Differently

- Stress communications & project management
- Address challenges at some NERRS

67 3/22/14



Based on the proposals we have received, particularly in response to our last three RFPs, we think we have done a pretty good job clearly articulating the need for explicit science and collaboration plans in our RFPs. What we have seen, however, is that some projects are struggling with effective communications – both among the team as well as with intended users. We’re also seeing them struggle with project management. There are lots of scientists that are good at managing multi-disciplinary scientific research, but collaborative projects are an entirely different beast and require a different set of management skills. We need to figure out, how we can get applicants to pay more attention to those areas so they are prepared to deal with issues that might arise. Perhaps we need to call these areas out in the RFP the way we do for science and participatory processes.

A lot of work has demonstrated the importance of leveraging existing networks in linking science to decisions. It’s interesting how often people in our interviews referred to how critical it was to have the Reserves be a key player in a project because of all of the different activities that happened at that Reserve and their strong links to local stakeholders and other networks. If we really want to take advantage of networks like the NERRS to link science to decision making, we have to address the issues we have seen their ability to 1) have the time to put together a proposal for a complicated, multidisciplinary enterprise and 2) their ability to quickly receive and put federal money to work. Some Reserves have been set up to do this easily, while others have not. We would explore ideas like funding problem definition to address the former, and creating a more flexible process for deciding who receives the money and how they distribute it to other people in the project.

What We Might Do Differently

- Get funding to the right people
- More project involvement
- Expand Transfer component

68 3/22/14



We have seen cases where the leadership on the project and/or in the development of the proposal has resulted in the marginalization of the person or persons connecting the dots. We will continue to explore how to better position and resource linkers on projects so that they are not marginalized and other investigators understand the role and value of the individuals connecting the scientists with intended users. One way of doing this would be to encourage that the main recipient of funds from the Collaborative be a boundary spanning organization or individual. These entities could then bring in the appropriate scientists or other specialists as appropriate.

We have, as much as time and resources have allowed, tried to be more involved in competitive research and transfer projects than what you might typically find in other programs. We have learned a lot about what they are doing and how they are doing it and this has allowed us to share lessons learned with other projects and with the NERRS system. We see value in increasing this involvement though it would require more planning, staff time and resources.

With transfer we are testing the assumption that place based research can be relevant and useful in other parts of the country—if it is shared using collaborative methods and with direct program support. The positive response we've gotten from investigators and Reserves who participate in transfer supports that assumption; they are finding direct value in the exchange. That's encouraging, but it's limited to the participating Reserves for the most part. We are looking at the next step, which is how to adapt this pilot part of the program so that more Reserves, and other parts of coastal management, can benefit from the transfer process and the products it generates. That would take more resources at the program level and more coordination with our NOAA partners.

Thank You!

Questions?

69 3/22/14



NATIONAL ESTUARINE
RESEARCH RESERVE SYSTEM
SCIENCE COLLABORATIVE



UNIVERSITY
of NEW HAMPSHIRE