

Diversity Panel  
NAML Fall 2001 Meeting  
Hatfield Marine Science Center, Newport, OR Oct. 4-6, 2001

Foreword

The Southern Association of Marine Labs (SAML) has maintained a keen interest and involvement in increasing diversity in marine science careers, in general, and at marine labs, in particular since its founding in 1985. During the late 1980's SAML received an NSF grant to determine possible ways of increasing diversity, and during the 1990's produced two videos for encouraging minority participation in marine sciences. Drs. Matt Gilligan and Sue Cook of Savannah State University and Harbor Branch Oceanographic Institution, respectively, led in the production and distribution of these videos.

When National Association of Marine Laboratories (NAML) President, Dr. Lavern Weber (2000-2001), expressed that one of his goals during his presidency would be to focus on marine education, I thought as SAML President (2000-2001), that we should share our SAML diversity expertise at the NAML Biennial Mtg. After SAML Board of Directors and Membership discussions, Matt Gilligan, SAML Education Committee Chair, accepted the challenge. He subsequently formed a blue-ribbon panel of diversity experts for the meeting at the Hatfield Marine Science Center in Newport, Oregon, 4-6 October 2001. The panel presentation was entitled "Marine Education Diversity, Retention, and Recruitment", and panelists included: Dr. Benjamin Cuker, Hampton University; Dr. Judith Vergun, Oregon State University; Dr. Brian Bingham, Western Washington University; Dr. Dionne Hoskins, NMFS, NOAA, Savannah State University; and, Dr. Brad Brown, NMFS, NOAA, Miami, Florida. SAML funded the travel for these five national diversity leaders to the Oregon meeting.

On behalf of SAML and NAML, I gratefully acknowledge and thank Dr. Matt Gilligan and all five panelists for their participation and documentation of this significant issue.

Wes Tunnell  
SAML President  
(2000-2001)

## Transcript

### Gilligan:

Thanks, Wes. I'm happy to be here to moderate this panel discussion on strategies to increase minority participation at marine laboratories and in marine sciences. We have an hour this morning and we will have a half hour after lunch for the session. It is our hope that perhaps the presentations this morning can be used to help focus discussion groups, chaired by panelists during lunch. Since we won't have a lot of time for much discussion this morning, I ask you to save questions until lunch or the afternoon session. The panelists will summarize the lunchtime discussions during the session after lunch. The proceedings are being taped and we hope to turn it into a report for the membership. What you have in the handout are literature and other resources that this panel has helped put together. It includes the SAML video on CD ROM entitled "Bridging the Gap: Minorities in Marine Science". It was a very popular item at a National Marine Education Association meeting and is distributed directly to teachers and others, especially to places that do not have staff in Marine Science, Ocean Science, or Natural Science areas by Savannah State University. It includes Ben Cuker's recent article in the ASLO bulletin "Steps to increase minority participation in aquatic Sciences", and a 1996 article by me, "Promoting Diversity in Fisheries Profession". Also included are highlights from the most recent Expanding Opportunities Conference at Jackson State University coordinated by Ambrose Gerald. Reports from all of the annual conferences can be obtained through him, at the NOAA Fisheries Northeast Science Center in Woods Hole. Finally, two emails are included: one from Sue Weiler who has put together a Minorities in Aquatic Science (MAS) database and web page at the ASLO website and one from Kelly Clark, at Morgan State University who is putting together a website on minorities in marine and environmental sciences.

Our distinguished panelists today include from right to left, Dr. Benjamin Cuker, Hampton University; Dr. Brian Bingham, Western Washington University; Dr. Bradford Brown, NOAA Fisheries and President of the Miami-Dade chapter of the NAACP; Dr. Judith Vergun, Oregon State University; and Dr. Dionne Hoskins, NOAA Fisheries, Galveston and Savannah State University. With that very brief introduction, I now ask each of the panelists to address the issue from their perspectives responding, specifically, to some of the questions that are on in the handout.

### Brown:

I am with NOAA Fisheries Service and currently serve as the Senior Advisor to the Director of National Marine Fishery Service and this includes a series of areas of special responsibility, one of them being the Fisheries Service's responsibilities in NOAA's Minority Serving Institution Initiative. Prior to that I served for over a decade as the Director of South East Fisheries Science Center, National Marine Fishery Service which is the equivalent of the North West Center which has a unit here in Newport. Prior to that, I was the Deputy Director and before that I spent most of my career in the National Marine Fisheries Laboratory in Woods Hole where I dealt with stock assessment issues. I also spent 5 years as assistant professor of Zoology and Assistant Leader of the U.S. Fish and Wildlife Service Cooperative Fisheries Unit at Oklahoma State University. And in all of that time, I have been involved in efforts to increase diversity in fisheries.

I would like to let you know some of the background of today's efforts and also some of the things that have not changed. As far as I know, the very first African American summer hire at a Federal marine fisheries lab was in 1962. He came the same year I started with the then Bureau

of Commercial Fisheries. In those days, summer hires in Federal Laboratories were political referrals. This referral came from the newly elected President John F. Kennedy who had an interest in the marine area. As you may remember he watched his inaugural parade and saw an all white Coast Guard Unit, as a result, he made sure he got folks into the Coast Guard Academy. He also saw that we had a summer hire at the Federal Marine Fisheries Laboratory in Woods Hole, a student from a very distinguished family, graduated from a private school and heading on to Harvard. The interesting thing, and I think often it is still true, the only person he visited with outside of the laboratory, in that entire summer was me. He had a lot more money than I did right out of graduate school. I was still with my orange crate furniture and bookcases, but never the less I was the only one in that entire laboratory that reached out. The opportunity to have gotten him interested in going on into marine science was basically lost because of that.

I want to jump ahead a little bit; this is not the first panel I have been on regarding this subject. That was at the American Fisheries Society in 1981, and again at the Oceans 82 conference. I just want to read what I wrote in the Marine Technology Journal in 1983 (Hannaham, 1983), following that conference. "The fundamental principle regarding the role of minorities in marine affairs is the observation that while a number of minorities, Black Americans in particular, have had a long history of involvement in the maritime and marine sectors of the economy of the United States being represented in the merchant marine, on the docks, whaling vessels, in fish processing plants, etc., they have only miniscule representation in those areas in the marine sectors that involve professional and scientific management and marine policy. It is axiomatic that the lack of involvement at the latter levels of the economy have both robbed the United States of an important segment of potential talent needed to address critical problems but it also sets the stage for decisions to be made that may directly or more insidiously indirectly adversely affect those components of society not represented at the table. Historically, minorities have not been welcomed in marine professions, or at many of the institutions which train people for these professions. Furthermore this history creates a vicious cycle that perpetuates itself both by ensuring that the incoming generation is made ignorant of the opportunities available in marine areas. This lack of role models can become critical".

I dare say this is not outdated, even though it is 20 years old.

I just want to give a little more history. Not so long ago, I took a look at the Class of 1958 year book from Burke High School in Charleston, South Carolina, the historic Black High School. The Valedictorian and the Salutatorian, both were listed as wanting to be scientists, both of them ended up being high school science teachers. When they graduated from South Carolina State University (SCSU) in the early 60's, they were never informed that the only requirement for getting a job with the Federal Government as a biologist was to fill out a form and send in your transcript. And in those days we had a shortage of fishery biologists! We were grabbing people to come into the field who had general biology backgrounds. With a fisheries background and a master's degree, I got written job offers from maybe 10 laboratories spread throughout the country. Many others who were hired didn't have a fisheries background. All the SCSU students were told was that they could take the Federal Services Entrance Exam and go into Administration probably in D.C. So we deliberately kept people out at a time when it would have been so easy to bring persons into the system.

If we look at current imperatives, I think we need to be sure that we are honestly aware of the population demographics changing in this country. It is true in our professions we have a long lag time, as we are not hiring persons right out of high school. Thus the time the population changes impact people getting PhD's is a long time after the shifts we see in the public school

system, but never the less, it is coming. We already are seeing it, in the changes in Congress and State Legislatures.

I would like to tell another story of the first African American woman who was hired by Fisheries to go to sea in Miami. As soon as she was hired, she was taken aboard an old vessel, shown a common living space with an open shower and told if she did not like it, she ought to quit right then. When she complained about this treatment it was suggested that she take a non-sea going job. When she was sent to her location assignment, her new supervisor suggested that the job was boring and they were never able to keep scientists at it, but if he was ordered to take her he would. So that is the history that we come from not too many years ago.

We are seeing changes of course, particularly in the political structure. I see it very clearly in some of the efforts that I am involved in South Florida's ecosystem restoration in which we are planning to spend 8 billion dollars to "Restore the Everglades Ecosystem". The local people have to vote for it. We have had a system that has been driven primarily by white environmentalists often opposed by agriculture, developers and the power and water supply folks, etc., and yet you have virtually no representation of our large African American and Hispanic groups in this process and one questions how successfully will support for restoration be maintained unless we make a major effort towards inclusion. Those who are looking for legislators and for others to be sympathetic towards ecological concerns and receiving their political support need to break through the diversity barrier for success.

In a presentation made to the American Fishery Society back in 1992 right after the release of the 1990 Census, Essie Duffie and I said that anyone who looks at candidates running in this years election realizes that we are living in a era where women are seeking office in impressive numbers and that the recent redistricting greatly increases the representation of African American and Hispanics in the legislatures. How are fisheries agencies going to fare? How are natural resources going to fare, especially if our presentations to elected officials are made by mostly white males?

Today we have made a break through to a significant degree where we at least can send white females out from many Federal agencies. But we still send all white delegations. Well we have got to change some of our strategies, we have got to get people on our staff or our issues will be in peril if we don't.

The cardinal thing that we have to do is realize that (I am speaking specifically about African Americans now,) potential employees are available. This is different from what the situation was not too many years ago, thanks to the work of people like Dr. Gilligan and Dr. Cuker. But there are not enough available to saturate the market so that in order to make breakthroughs you have to essentially find a position for a person rather than a person for the position. If we wait until we advertise for the position, the chances are, we will not find anybody on the application list. What I mean by the first is that if I ask somebody in one of our laboratories, say Galveston, to list what new staff they need, they would come up with probably at least a 50% increase in their scientific staff that they absolutely have to have to be able to meet the demands that are placed on them by the fishery managers. However they have limited funds so they are filling only one position. If you were to say that if we find an African American, or a Hispanic, who can make a significant contribution in one of those other positions that are further down the list of priorities but are still needed in the system, and hired them, we could dramatically increase the representation in the work force. It does not take much to dramatically increase it. If one brings in new people who can reach out and involve other people previously left out, there is a cascading effect.

There is also the availability of African and Caribbean marine scientists coming to our institutions particularly at the graduate student level. I have talked in Africa to people who are fascinated by, and have great interest in Black America yet when they come here they never see anybody because they are completely isolated. You have got to be able to find, and make the opportunities so those links can be made. There are many individuals who would be grateful for that link to individuals in the Black communities of this country.

Finally I want to say that we have got to take advantage of the NOAA Minority Serving Institute (MSI) Initiative. NOAA has just released funding for Science Centers, 2.5 million each. The plan is that if the money is renewed in Congress it will go for 3 years and probably be renewed for another 3 years at the same schools. These are in Atmospheric, Remote Sensing, Marine Environment and Living Marine Resources. The schools that are involved in the in the last two are Hampton, Savannah, University of Maryland Eastern Shore, Delaware State, Jackson State, Morgan State, South Carolina State and Florida A&M Universities. They are basically the schools that had taken a step forward in this area, and now they are getting a significant infusion of funds. One can piggyback those activities. NOAA also has an Environmental Entrepreneurship Program which is giving \$300,000 grants each, to about 12 schools. This is an annual program and provides another opportunity for linkages.

One of the places to look for a model of success is the National Council for Minorities in Engineering, (NACME). I will end with a conclusion from one of NACME's studies giving the requisites for progress. "Strong institutional commitment as evidenced by attitudes of faculty and staff, integral minority engineering programs and allocation of resources". This further points out that you need support at the top but you have got to avoid the sabotage down below. Efforts all along these lines are needed for science to diversify.

#### Bingham:

I am here because of my connection with the Minorities in Marine Science Undergraduate Program (MIMSUP) administered through the Shannon Point Marine Center. The program was started in 1991 by Dr. Steve Sulkin. He can provide advice on how a marine center can get such a program launched.

In the short time I have, I would like to tell you about our program and some of the lessons we have learned over the past 11 years. MIMSUP is unique for a couple of reason. First, it is an academic year program rather than a summer internship. We recruit students out of their home institutions and invite them to come to Washington State for 5 months. This can raise difficulties because students are generally in an academic track working through predetermined course sequences. They have to be willing and able to jump out of those tracks for two quarters.

The second unusual feature of MIMSUP is that we are running a program for underrepresented groups in an area that doesn't have a large resident minority population to draw from. We have to attract students from other institutions and have faced the recruiting challenges shared by many people working with underrepresented students. Some believe that there are simply not enough qualified people to fill the positions. We have faced some significant challenges, but have seen great success with our students. I would like to share some ideas with you, focusing on what has worked, and not worked, for us.

MIMSUP is 2 full quarters long, running from January to June. In the first quarter we work to accomplish four things:

1. We give the students coursework in basic marine science. This is accomplished through a focused oceanography course that includes lecture and lab with an active experiential field component.
2. We work on remediation with participants who may not be completely prepared for our courses. We focus on math and writing, using a tutorial approach, to get them up to speed. They need to be prepared to successfully step into senior-level courses during the second quarter.
3. We work with them to build up their resumes/CVs. When students leave MIMSUP, they have things on their CV that make them competitive for REU programs or graduate school. As part of the CV building, the students complete an independent research project that is structured as a mini-graduate experience. The process includes interviewing potential advisors, developing a research proposal and carrying out a project.
4. We give them a realistic view of what marine science really is and what job opportunities are available. We take them to potential employers in all sectors including government, academia, private consulting, non-governmental organizations and aquaria. Over the years, we have developed a group of supportive individuals who will sit down and frankly tell the students what is good about the job, what is bad, what the salaries and benefits are, how they prepared for their positions and what they wish they had done differently. When we are done, the students have a good overview of the possible places they can go with a marine science degree.

This all happens in the first quarter. It is an extremely focused and time-consuming effort on the part of the faculty and staff of the marine center. To be successful, a program like this has to be a priority for everyone. It helps enormously to have many people involved and contributing. With that kind of support network, you can accomplish great things with the students.

In the second quarter, the students take specialty courses with other students from the general Western Washington University student body; they are thus incorporated into a larger community. They also take a course where we teach them scientific communication skills, focusing on writing and speaking. We built the course around the research the MIMSUP students completed in the first quarter. When we have finished, the students have written up their research as a manuscript article, they have created and presented their work as a scientific poster and they have given a research talk in a mini-symposium. The culmination of their scientific communication training is a trip to a regional or national scientific meeting where they again present their posters and talks. This is an extremely important experience that demonstrates to them that they can participate in broad scientific arenas. At the same time, it is an important CV-building exercise.

That is a brief overview of what we do. I would raise a few helpful points we have learned. First, a small lab with no resident minority population can make a difference. It does not necessarily require a close connection with a minority institution or with a majority institution housing a large population of underrepresented students. All it really takes is a commitment on the part of individuals to spend serious time working with students. The outcomes can be outstanding. We are seeing many of our program alumni going into graduate programs in the marine and environmental sciences. I believe MIMSUP is making a difference.

Second, any program of this type is going to have enormous challenges. For example, student participants may have very different backgrounds and levels of preparation. Some, on paper, don't look very good and would not be competitive for jobs or graduate programs. Yet we find, when we work to understand the student's background and weaknesses, we can really take them places. Finding these promising students may require rethinking how we evaluate applications. Applicants for whom we can do the most good are not likely to be the 3.8 students with extensive marine experience. Instead he/she may be a 2.8 student who has never been out of southern Texas. In many cases, the students have simply never been in the right situation to realize their potential. When you bring them in, work with them and give them opportunities, you see amazing things happen.

Strengthening these students may require that we build some remediation into our programs. Our decisions to include more writing and math in what we do came out of our experiences in the first few years. We tried to give early participants a great program but they were simply unprepared to assimilate it. You can not teach a student oceanography without a good math base; we had to back up a bit and do some catching up.

A challenge we often see with our students is a simple lack of confidence. In reality, we can't teach confidence. However, we can give students the tools to make them successful. Success breeds confidence. Our students are isolated in the woods of northwest Washington in an environment that is totally foreign biologically, culturally, socially and academically. It can be a daunting challenge and not one that would necessarily inspire self-confidence. But, as our faculty and staff, who are genuinely interested in the students, work with them daily, helping them develop skills and building their resumes, we begin to see changes. They become more confident and motivated. It is a wonderful process

The major challenge to our program over the years has been recruiting. When people ask, "How do you recruit?" we answer, "Any way we possibly can". When we started the program, we took the logical, generally accepted approach of sending out mass mailings. In fact, that turned out to be the least effective way to find applicants. We continue to do mass mailings in the hope that the information will reach potential applicants, but it is not a terribly effective way to recruit.

What HAS worked for the past decade is to get on the phone and call our professional colleagues asking, "Do you have a student?" Successful recruiting requires someone to go out in the hall, the classroom or the lab, grab a student by the arm, pull them into the office and ask, "Have you thought of this?" Conversations with our alumni indicate that many had seen our flyers but thought, "Oh, I can't do that. My GPA is not high enough. I don't have any experience. I would never get in". Fortunately, we have found faculty champions in a few universities and marine labs who really make an effort to look around and encourage students. They are making a difference for our program and for these students.

Q: Do you have a website?

A: We have had a website for 9 years. It is a well-designed site with everything from program description and student research to student outcomes. We have not tracked the number of hits the page receives. However, this year we added an on-line application and found that our applications came in much sooner. We know, therefore, that we are reaching students. It appears that allowing students to apply on line is going to help our recruiting. We are still not getting large numbers of applications, but we do seem to be reaching people a little easier.

Q: So just having information on the website is important, but just as important is having the means to apply on the site?

A: Yes. That has been an important improvement for us.

Q: About how many students do you bring into this program?

A: We bring in 8 students a year. That allows us to work closely with individual students.

Q: Do you track to see what happens after students leave the program?

A: Yes, we track them very closely. Students in our program find themselves in a small field laboratory, generally far from home. In these circumstances, they really bond to one another and to the laboratory. We don't have to put a lot of effort into tracking them. They are our friends and friends stay in touch. We hear from most of them regularly; they have been very successful. Of our 87 alumni, 2 have completed PhD's and are currently in post-doctoral positions. Six more are currently working on PhD's. Twelve alumni have finished MS degrees and 17 more are currently in MS program. A number of the remaining students are still working on undergraduate degrees and several are currently applying for graduate programs.

### Vergun

I am a professor in the College of Oceanic and Atmospheric Sciences at Oregon State University (OSU) in Corvallis, Oregon. I am a scientist - a plant community ecologist. Most of the work I do focuses on Native American programs such as research in natural resources, education, and traditional ecological knowledge on reservations and ceded lands also working in Native America on the Mainland and in Alaska and Hawaii. The Native Americans in Marine and Space Sciences Program, our parent program began about 12 years ago because we were interested in increasing the number of Native students in Marine Sciences. Our initial and sustaining funding is from the National Science Foundation Ocean Sciences Division. When OSU became a NASA Space Grant institution and I became Oregon Space Grant Associate Director, we dedicated funds to expand our Native programs. What that really means is that we provide paid internships for Native undergraduates in all science, technology, engineering and mathematics disciplines - anything slightly wet, slightly salty, anything to do with the environment - which is just about everything!

Students in our program at OSU participate in full year research experiences for undergraduates. During the academic year, they are allowed to work up to 20 hours a week in a research experience of their own choice, with a mentor of their own choice then full time during summers and holidays, if they wish. This program is offered to Native students who are enrolled in Oregon State University but participate in programs in other institutions, especially Brian Bingham's and Ben Cuker's. This is one of the really valuable things - networking with other strong programs that support minorities. Please take a look at the sheet I've handed out to you. It is a description of our programs and a chart that shows our parent program, the Native Americans in Marine and Space Sciences Program, and the outreach in three areas: Pre-college Programs, Education, and Community Projects with links to our Pacific Traditional Ecological Knowledge Program for Native graduate students.

We developed this program network because it was immediately apparent, when we began our NAMSS program almost 12 years ago, that it didn't do any good to have a wonderful program for Native students at the university if almost no Native students were attending the university!

Therefore, we served the few students who were then attending OSU while we quickly developed an outreach strategy to bring more Native youth to our university.

Also important to remember, is that once students are enrolled in the university, they need to feel a sense of belonging. Students are not comfortable in a learning institution where their cultures are marginalized or invisible in the curricula. Therefore we design and continue to teach coursework that is culturally competent and that attains Native community 'buy in' to our post-secondary education. We continue to develop these courses through our Intertribal Programs Office in the College of Oceanic and Atmospheric Sciences to serve the whole university. Native undergraduates in our program are working with the Native youth in all of these outreach programs in many communities, therefore, they are visible role models. And we keep in touch with everyone - students and community throughout the years. In other words, we track our students beyond graduation at OSU.

Also, we have mentors from not only the scientific arena and engineering at our university but also from Federal and state agencies and private corporations. We have a real breadth of opportunity for our students to understand what is going on out there in the world and get some ideas for their career choices - most students don't have an idea of what choices they have and, therefore, cannot make very good choices. They are limited in their own environment. To a certain degree, I think that this is true for most students but especially for Native youth from reservations or isolated, rural settings. They have a harder time because they see that life only and it is not always the bigger picture of the world and all the opportunities that exist. So that is why we have this huge network of programs and opportunities - to introduce students to a broad array of choices.

Many different foundations fund us and we are working with many different organizations to put this whole outreach program together and keep it running. We probably have approximately 400 people on staff throughout this whole network; therefore, we've provided a huge holistic network for K-12 and post-secondary and for communities. That is the main reason we have been successful. Statistically, in 12 years, 98% of more than 100 students have earned Bachelor of Science degrees within 5 years or less. Forty-seven percent have continued in graduate programs in science, technology, engineering and mathematics. Many of our students are now employed as senior scientists in their fields. Because we have this network of graduated NAMSS participants nation-wide, our current students have been able to participate in more and more opportunities nationally and go on exchanges to spend time with those peers. They become part of a bigger global family in a network larger than the one we provide in our home location. These programs have been so successful that our African American and Chicano/a families asked us to develop the same opportunities for their students. So we developed the Diversity Internship Program (DIP) which has been on the ground here for five years with the same results. It has been really exciting! A funny thing happened when we named the program. In our haste to name the program, we didn't notice that the acronym was DIP. So the students are DIPS! But we've made it fun by having a theme song "Dippity Do-Dah" and chip-dip contests and things like that. Effective programs need to be personal to create a family that works together and solves problems together.

My background? I have actually changed careers a couple of times. For 15 years I was in advertising, film and television. I made television commercials, was involved in movie making and that sort of thing. When my three daughters were very young, I decided I would like to change professions by going back to school and earning advanced degrees in something environmentally friendly, rather than continue to work in advertising all the products that were destroying the environment. And I wanted a nice, safe, comfortable, affordable place for my

children to grow up. I chose Oregon and we leased a farm near Corvallis, Oregon and Oregon State University. My temporary move here was in 1978!

I want to say something about growing up. I'm American Indian on my father's side and my Mother is Scottish and Welsh. My father was a Geologist and he would take me with him when he was working and he would tell me things about how to survive outdoors. He taught me how to find water and food. If you are really hungry in the winter, coyotes can help you hunt. I thought everybody learned that stuff growing up. I thought that was Geology and when you go to school and you take Geology you learn that. There are all those sorts of things that he taught me in addition to what is taught in mainstream schools. So when I went to school and we were out on some of our field trips, some people were talking about how they did not like the red ants. I said, "But they are good for finding water." And nobody understood what I meant. And I realized I was the only one who had the concept. Dad taught me to appreciate everything in nature, because everything in nature has its place. So if there is a red anthill in a very high dry desert area, you will find water underneath the anthill but you must not disturb their homeplace. Therefore you do not drill down through the anthill; you drill in diagonally at an angle that reaches just below their home. You respect their home, thank them for showing you where the water is and don't disturb them - and otherwise, you might get stung!

Here's what I learned about the coyotes and hunting in the winter: if you are really, really hungry, and you are out in a winter camp, and you hear coyotes, you listen to which kind of call they use. Are they teaching their young how to talk and how to communicate? Or are you hearing the sound of yapping because of a kill. You need to learn the different sounds and what they mean. If the coyotes have gotten a deer or something and they are not that far from you, you can sneak up very quietly and surprise them quickly, run and grab a hunk of meat and run away really fast and they won't bother you. You just take a small amount and they won't follow you because they have all the rest for themselves. You have caught them by surprise and have a short window of time to run in and get something and leave.

Pack rats carry a lot of interesting things to their dens like nuts and seeds and other plant materials. You can actually learn a lot about the ecosystem from this cache - or you can eat the nuts and the seeds! These are the kind of things that I thought everybody knew. When I got into formal science courses I learned not to mention these things because I looked kind of ridiculous in those classes and people thought I was weird. And the point of this is that, in fact, those things I learned from Dad are true. I grew up understanding science from that perspective. And it is also true that most of our science curricula still do not include that indigenous perspective. I see that our Native or minority students are marginalized or completely invisible in most current curricula or educational programs. For education, programs and organizations to be successful and diverse, different ways of knowing and thinking must be respected and incorporated in a relevant way. I just wanted to tell that personal story to demonstrate that how you feel about something or someplace is what's important. If you feel that you are silly or stupid, you don't want to stay.

### Hoskins:

My name is Dionne Hoskins, as Matt said I am a fisheries biologist with the National Marine Fisheries Service. I am permanently stationed at Savannah State University. I am not a temporary loan or a tenure-year track faculty; I am a permanent research scientist at a historically black serving university. I completed my dissertation at the University of South Carolina and am a benthic ecologist by training. I am particularly interested in the uptake of microbial

extracellular polymeric secretions (EPS) by deposit feeding invertebrates. That is my research area. My programmatic background is that I have participated in virtually every program that has been offered here except for Brian's. I am a graduate of Savannah State University- I was taught by Matt Gilligan. I was in the first cohort of students who participated in the Hampton-ASLO partnership that Ben does, and I have participated in that student program since 1989. I was a graduate assistant for the Bridge program that Savannah State offers with the NSF. I was a Southern Regional Education Board dissertation fellow. And I was a co-op student through Brad at the Charleston NOS laboratory. So I have participated in a number of these programs. And things that are geared to the success of minority students, and I think they work, for the most part.

Currently what I am doing at Savannah State, in addition to starting up my own research, is continuing to work on microbial EPS. I am focusing on a local cyanobacterial mat. I want to characterize the sugars present. But what I am doing programmatically is trying to increase the number of underrepresented minorities that get funneled into jobs into NOAA or into academia, or into other Government services. One of the grants I have received to do so is a Sea Grant sponsored program. It is an aquaculture program that we are doing in partnership with the South Carolina Department of Natural Marine Resources and with the University of Georgia Marine Extension Service. From that program we choose 4 interns per year, 2 interns go to MAREX UGA one stays on campus and works with me and one goes the Waddell Mariculture Center. On campus at Savannah State, to develop hands on learning in aquaculture, we have started a *Spartina alterniflora* greenhouse. Savannah State University is on the Marsh. Our back yard is total marsh, so what we are doing is using our back yard, and growing those plants, and cultivating them to get a renewable crop inside the green house that we can use for restoration.

Additionally, I have started a Minority Mentorship in Science Seminar series (MMISS), a program to bring minority scientists that look like me to Savannah State University. One of the first things that I noticed when I got to campus was that the students were very hungry to not just see minority scientists but to see younger ones. You just don't know how entertained they were to see me to be in the lab, washing glassware, listening to the same music as they were. It was really, really interesting, for me to experience. So the MMISS program is designed to fly in at least one scientist per month. I have gotten such a strong response, even with limited funds, individuals are willing to come free, that it looks like I might be able to bring in 2-3 per month, between now and May. Another program that we have started is the academic computing facility. I got this program with a post doc who was at Savannah State University, Ashanti Johnson Pyrtle. And she and I were responding to the need for more technological growth for undergraduates. We developed a computing facility in which students can come in with raw data on paper from their internships or from classes, enter them into excel or access and analyze the data. If they have other types of geographical data they will be trained how to enter that into ArcView and use GIS. They can come in with raw data, perform the analysis and get the product. With a research poster, a power point presentation or anything of that nature, the purpose of this was to show students the beginning and the end of how science is done. We are really happy with that.

Part of what I wanted to offer as part of my participation in this panel, is what we have talked about, that there are minorities available, that there are minority scientists, and that 20-30-40 years ago this was not the case. We have talked about how there are programs that work in terms of preparing undergraduates to consider careers in Marine and Environmental sciences. And part of that is, what to do when someone has gotten an advanced degree, what do we do with them when they are ready to enter into the work force? How do we receive them so they have viability at a marine laboratory? How do you get them to stay and to flourish versus getting there and

getting turned off of research or getting there and feeling that it is an inhospitable environment? One of the first things I would say is that there should be recognition and sensitivity to cultural differences. That is very intuitive and often times difficult for a person to execute in a scientific community. It is pretty homogeneous. As a federal employee, one of the first things I noticed when I went to a federal lab is that diversity is assumed, it is automatically assumed, and that if you go to some academic institutions, diversity is ignored. People enjoy the homogeneity of having all these scientists focusing on a single area like the microbial group or the ecology group of professors, or the physical oceanography group of professors. We don't really see the recognition, much less the celebration of diversity in that group. But there should be recognition of the diversity and sensitivity that those individuals are bringing to a marine laboratory, and there should be an avoidance of the n=1 approach. I was looking for something else on the Internet and I bumped into an article that Dr. Clifford Poodry (who directs the minority outreach programs of NIH) had written about using n=1 as our sample size.

How we are going to handle minorities in a particular program? Sometimes someone like me is using her own personal experience to determine how she is going to develop programs. Or sometimes it's a laboratory or an academic institution that has only had one minority, or two minorities and they are using the experience of that minority to determine how they are going to handle others. And I personally have seen situations, where one graduate student comes in and that graduate student sets a tone or has an experience and the faculty member thinks, "I have a model. I am going to use what I have learned from working with this student and I'm going to work with the next students." Look at it from this perspective however, it is like having Denzel Washington as one student, and then Chris Rock comes in and you handle him the same way. It does not work, it can't. Sarah Bernhardt and Winona Ryder? You cannot use the same system. You can not use the same formulaic method to deal with those individuals. There has to be sensitivity to the growth that a faculty member or a lab may experience, by interaction with their first or first few minority researchers, but there is enough literature available on minority education in the sciences to give us an idea of what the broad-based strategy should be. And then you can tailor those strategies to proceed with a productive investigation at your laboratory. There is a dire need of intellectual engagement for minority scientists.

It's important that a researcher at any institution be engaged scientifically and not be placed in a situation where the only time that we [the minority] can talk to them [the peer scientists] when they have a new cutting social issue that they want to talk about. "Let's talk about affirmative action," "No, I want to talk about bacterial slime." Sometimes I do want to talk about the current issues that affect me, that affect the institution and are of national importance, but sometimes a scientist just wants to be engaged about his or her science. If you are not regularly getting that, then basically you are being passively ostracized. Not actively ostracized, because "I don't want to talk to you" but passively ostracized because you are being passed over when those kinds of conversations are happening. That is frustrating and it creates a hostile environment and you don't see yourself putting roots down. To yourself you say "ok, this is temporary- I will be here 2, 3 years. I will be in this post doc, for one year, and I will leave and I will not consider applying for a position here", or "I will just be a visiting teaching position." And then the minority scientist will leave, not feeling like a major contributor. And this leads into the fact that minority researchers, minority students and researchers, need the same kind of faculty membership and directional development that every other brand new graduate and Ph.D. is going to need. They are going to need advice, input and support by individuals who have reached that same professional milestone and have gone past it, to understand "How do you navigate your career?" and "How you engineer the career that you want to have?" And this maybe in the form of guidance on office and scientific politics. "What editor of what journal do you not want to send your manuscript to because they have issues?" Or "what journal, if you really need a

publication to come out this year, what journal do you not need to send it to vs. another journal because their turnover time is 6 or 9 months?" For things of that nature we need an individual, or persons to call on for lack of a better term- Frenorship, the friendship and mentorship that helps us grow and become the productive scientists that they want to be. This is a key to a person's sustainability regardless of their race.

I am going to add one resource to the list of books, texts and websites that is on the handout that was passed out earlier. The book is called "Succeeding in an Academic Career: A Guide for Faculty of Color" It was published in July of 2000 and was edited by Mildred Garcia (Garcia 2000). I recently read this and it is a chapter-by-chapter guide on how to navigate your career if you are a faculty person of color, especially if you are at a majority institution. It talks about issues of productivity and office politics; it also talks about issues of balance, if you are a person like me who is pulled in a direction to address issues of minority in sciences but is also very important to advance in the development of your own science. It also addresses times and places where you have the obligation or feel compelled to mentor the students who come to you at universities, especially if you are the only minority person in your area- as I am at Savannah State University. As some other faculty are at other universities. You get pulled in all kinds of directions to be that voice of diversity. This book has a chapter on how to be effective in being who you are, or how to continue to grow while at the same time contributing. I have asked that the Vice President of Academic Affairs give this as a gift to all incoming faculty, saying "Here use this guide, come to me with any questions." I would also like to say that I will be around for the rest of the meeting and happy to take questions.

Cuker:

I am Ben Cuker and I am from Hampton University. Hampton is a historically black college, it started its marine sciences program in early 1980's and traces its beginning to the efforts of Anita Hall a woman who worked on her Ph.D. at Scripts but never got it, because of the politics of the era. We have graduated over a 100 students now in Marine and Environmental Science all but 2-3 have been African American Students. Some have gone on for there Ph.D.'s and they are employed at the U.S. EPA and at several different universities and consulting firms. It has been a successful program. Another thing I do is run the ASLO (American Society of Limnology and Oceanography).

This well known program goes back to 1989. Prior to moving to Hampton in 1988, I spent 7 years working at Shaw University also an HBCU. When I used to go to ASLO meetings, the one or two black folks there would be visiting scientists from Africa. So I whined about it a lot and got up and complained about it a lot at the ASLO business meetings, and wrote letters to the leadership. Eventually one of the Presidents (and a former professor of mine from Michigan), Claire Schelske, appointed a committee with me as chair to address the diversity issue. SAML played an essential role in this, because SAML in 1989 had NSF money to address the diversity issue, so the politics of this is that SAML wanted some more support from NSF, so NSF said 'do something about diversity'. In response, they put together an excellent series of workshops. It seems we reinvent wheels all the time.

If one goes back to that original SAML report, it is clear that the road map for building diversity is there. The ASLO program brings about 70 minority students (undergraduate and graduate) and mentors to the annual meetings. We have a keynote speaker, a notable person of society help kickoff the pre-conference workshops. The ASLO president usually brings greetings too. We always have a field trip to an aquatic setting, and hold sessions on skill building for the students. The students are assigned to "meeting mentors" who help them navigate the sessions

and plan their participation. They have a workbook that they fill out to help in this process, and it includes places to critique talks and posters. There is a student symposium where the students present work from REUs, or a proposal for the research that they do. As the students grow they are expected, and do present their work in the regular sessions in subsequent years. LAST SENTENCE UNCLEAR

There is another program I created called MAST , Minorities At Sea Together. It's a program that I have run now for two years. I was fortunate enough to get a Pew Fellowship in Marine Conservation, basically for the ASLO work. And I use this to bring in a dozen minority students from all over the U. S. we sail up to the Chesapeake bay for 3 weeks on a 53 foot ketch. We do a combination of marine science, marine policy, African American Heritage on the water (I have now also incorporated some Native American Heritage as well), and of course sailing. We spend 3 weeks sailing the entire length of the Chesapeake Bay with stops at all of the major laboratories, museums, governmental agencies, conservation groups, and ports. Three of our hosts belong to NAML, The Chesapeake Biological Laboratory, Horn Point Laboratory, and the Virginia Inst. of Marine Science. All are wonderful hosts. I have a video made by a student who was a media arts major.

A lot of great points have been made so far. I want to bring up the issue of graduate school transition. Back when the original SAML meeting was convened we were really looking hard at getting undergraduates into aquatic sciences. But since then we have been very successful with programs like those run by Dr. Gilligan, Dr. Vergun, and Dr. Bingham, with of course all the behind the scenes work done by Dr. Brad Brown. We see a living example right here with Dr. Dionne Hoskins, who went through Dr. Gilligan's programs as well as the ASLO program. We are producing a substantial number of students who have environmental or marine backgrounds.

If you turn to page 19 of the article I had in the ASLO bulletin. If you look at table 2, the percentage of 12th graders scoring below basic proficiency in Math, note for whites it is 21% and for minorities it is 50% and over. So we know right away that when minority students are coming out of High School there are going to be deficiencies in the quantitative sciences and this of course is a bellweather for the sciences in general with quantitative issues. So programs must be prepared to address that when students come in. In table 3, Percentage of total college population, African Americans 11.1 % which is not bad, since the national black population is around 12%. What happens as we proceed through degrees, when we get down to a very low % of Science and Engineering PhD's, only 2.9 %. For whites, percentages hold strong all the way through the advanced degrees. So we know the students are going to college. Seven percent of Science and Engineering degrees and B.S. degrees are going to African Americans, that is not all that bad. These students are out there and they are poised to go on to graduate education, but we see it is really not happening in a big way. And the numbers repeat for Hispanics and Natives Americans as well.

What are we going to do about this? Well, a lot of the success and if you read Matt's article, on the success of his programs at Savannah State, a lot of it has to do with taking a focused approach. Also to quote Matt, "Traditional methods bring traditional results." If you keep on doing the same thing, we are going to keep on having the one "Dionne" here and there, but no real progress. So, let's throw the old model out the window. Brad said something important. When students come out, it is not a matter of finding a position available for the student. It is matter of creating a position that matches where the student is. This flies in the face of the "meritocracy" arguments. If you embrace the meritocracy arguments and you take the California, or Texas position you are saying, "When people apply we simply continue to take the

best," expect the same traditional results. The numbers of minorities will stay low. We have got to throw that out. Yes, all students accepted must be capable of completing the program successfully. But we have to look beyond traditional indicators of success. Universities are social institutions that need to serve the needs of the society. They do not serve these needs when they use admission policies that systematically block minority students. The people that pay the taxes to support the universities include minorities. What we need to do is produce students to serve the entire society. That means we need to get rid of criteria that try to sort out very fine differences, when what we really want to know is if a student can succeed in a program. Will they be a good scientist when they are done? The real question is not whether their GRE's or SAT's were higher than somebody else's, those are irrelevant in trying to produce students, it is can we find a program that can help them meet their full potential? So you have got to throw out the meritocracy argument, and say, if the student has the ability, (let them in).. You have got to work with your colleagues on that because it will always be, "well, he got that because of affirmative action." That residue stays there at all times. We have got to get rid of that because diversity is important for the success of any program. People like to affiliate. When 18-year-olds go to college, the first thing they do is find other people like themselves. People like to affiliate in groups and distinguish themselves from others. And that is just true. So when you go into these marine laboratory centers, what you find is people affiliate, like Dionne said, Microbial groups get together, fish people group together, people don't get invited to parties just because of that. This is the reality of the situation.

We have to move beyond this tendency to affiliate in exclusionary ways and instead embrace diversity. Diversity is a good thing for the success of the laboratory and the success of the science. We all know what happens when there is too much inbreeding in the science. The science does not go anywhere. This is where diversity will promote the success of the science. The argument for diversity is not based upon social engineering, but rather on the success of the science. When you bring people in with different perspectives then you will help the science grow in different ways.

One thing we really need is to have the same kind of atmosphere available for minority students in graduate school that they find at these undergraduate programs where there is concentration of other minority students. The University of Maryland, Eastern Shore (an HBCU) is in association with Horn Point Lab. They are starting to build a program. But their graduate program historically, even though it's a minority serving institution has been mostly white. They are working hard on changing that. The University of Puerto Rico has done some really great things, and we need to look at linking with them more closely. What really needs to happen is that more major institutions need to affiliate with minority serving institutions and create a focused program. To have a place where minority students will be brought in together for their Ph.D., I'm not talking about Masters degrees, I'm talking about Ph.D.s. If you look at the article on the next page, table 5, you will see results from a survey completed by the students participating in the ASLO program last February. I asked them straight out, if you want to go to graduate school, would you prefer to go to a targeted program where there are going to be other minorities students and there will be a program tailored to your success, and where there is going to be cultural competency built in for the faculty as well as for the students. If you look at the results it is overwhelming yes. Now this is not a model for every single minority student. There are minority students who have gone through the majority schools and they have made it through and it is going to continue to be that way. But the minority students are not coming through at a fast enough rate. It is time for us to try a concentrated model like this. I think we will have success. This is not my total invention here. Maryland has a program in Mathematics, which they have done like this, unfortunately they have lost their funding because of the whole meritocracy issue in Maryland. But once they hit critical mass, African American students go

there now because they know they are going to get through the program with an excellent degree and they are going to succeed. Now what this means is if you represent an institution that is not directly involved in this, you may think well, the minority students, are going to be siphoned off from your potential institution. Well tough, you have got to get out there and compete! Support this and then you can go out and hire one of these men or woman to come to your program. So I guess maybe a Woods Hole might feel slighted by this sort of program, but they will benefit by being able to hire faculty coming out of this program.

Gilligan:

I offer a couple of examples of collaboration between Savannah State University, an historically-black unit of the University System of Georgia, and two marine science institutions that have significantly increased minority participation. The summer of 2002 will be the ninth year of a non-traditional collaborative research experiences for undergraduates program funded by NSF. It targets what Sue Cook, Harbor Branch Oceanographic Institution (HBOI), and I thought were some of the key issues in the pathways to science careers among minority students that needed to be addressed. The term "pipeline" has been overused and there is a couple of reasons for not using it: one, pointed out by Judy Gobert at a meeting at NSF, is that does not have positive connotations among Native Americans from Alaska (oil pipelines) and the other is that it implies only one 'correct' path and does not suggest that alternative route choices may exist or be necessary along the way, which is more the reality for folks from underrepresented groups. Our REU recruits nationally from early undergraduate ranks while they are still deciding on a major and gives them a 'bridging' experience from classroom to research environments by combining lectures, labs and field trips to research institutions for four weeks at SSU to more formal research projects at HBOI for five weeks.

In most REU programs, mentors and researchers want to get students who are farther along - rising seniors who have had all their sciences who are ready to be pre-graduate students. We take them from an earlier stage of their development with the expectation that they will acquire the skills and confidence enabling them to successfully compete for more typical REU programs which happens at a high rate. Also it's quite interesting to see the added extras that good experiences at a historically black college can provide for students from large majority institutions no matter their ethnicity.

The other collaborative program that we have is the Collaboration to Integrate Research and Education (CIRE) program with the Skidaway Institute of Oceanography (SkIO), a non-instructional unit of the University System of Georgia. Principally because of the close geographic proximity and complementary missions within the same state system, this project has been remarkably successful. Unprecedented numbers of undergraduates from SSU have participated in research, have become technicians after graduation, and some are applying to the new collaborative M.S. degree in Marine Sciences at SSU. I think the keys have been equity in terms of effort and commitment on the part of the administrations. Though principally undergraduate institutions, minority institutions don't deserve to be cast as junior partners in such collaborations such that they are viewed as only able to provide a nurturing environment for undergraduates in the classroom without capacity and desire to be research universities. Likewise, the majority research institution must be, and probably prefer to be viewed as, more than 'we'll take it from here' research experience provider in their laboratories. Many minority institutions, and most are small, have faculty who do research and provide research experiences for students even with limited resources. That number needs to grow to see more results. I don't think you will find a single small institution, minority or otherwise, that does not want to increase the access and exposure that their undergraduates have to research environments and

laboratories. Enhancing the capacity for research at minority institutions and support for education at research labs are important terms in the dynamics of collaboration. There must be real benefits to the research institution involved because there is a real cost of involving undergraduates in research. These costs are faculty and staff time, supplies, ship/boat time and wear and tear on facilities. Outreach, education and the integration of research and education at both kinds of institutions have real costs.

I think that there may be some misconception regarding the national talent pool. While the statistics show that minority institutions contribute disproportionately to minority graduates in sciences and that most minority Ph.D.s are earned by those who attended them at some point, there are a lot of minorities at majority serving institutions. Unfortunately, they may be mismatched to the institution if they have an interest in marine science but find themselves at an institution with appropriate support for their aspirations (curriculum, mentors, REU programs). I have learned this from the African Americans attending majority institutions who have participated in our summer REU program. Measurable changes in participation and granting of advanced degrees nationally will require that both pools be tapped and that greater demand for access among minorities in general be created by better public information. Since career conceptions are developed early, K-12 information is essential. SAML took the lead in that vein by agreeing to support the development of the 'Bridging the Gap; Minorities in Marine Science' video in 1994. CD copies of the updated 2000 version have been distributed here. It is available on both CD and VHS tape from SSU.

It hasn't been easy to grow a marine science program at SSU. Just ask Margaret Robinson who conceived the program at SSU in the late 1970s and Brad Brown who's been there all along the way. The results of the efforts have been phenomenal, though. Replicating the long term efforts that went into helping the administration and others understand what kinds of commitments are necessary to grow a programs and collaborations is necessary. New faculty given the challenge of developing a new programs or emphasis in aquatic sciences may be up against steep odds – it is important that they be supported.

### Follow up Discussion

Cuker:

A person should be designated with the responsibility to make sure that any program really works. Often programs are adopted, but nobody is brought to task to for whether or not they function and it has not been one of the major parts of responsibility. Maybe it is added on as something else with everything else that they do. The point is that in order to make a focus point work, someone really needs to be in charge and see it through. Our point is that the importance of peer support which is linked to critical mass. Students have to be brought in with peers, with whom they can connect and learn with. We learn as much from our near peers as we did from our professors. You run a program you are not going to bring in a minority student you are going to bring in students. And the importance of a structure approach. An example of a class that he had as a graduate student, this is how you put together a talk, this is how you prepare a paper, all those things that in those programs are not necessarily structured in there and are kind of taken for granted. A lot of people take a focused approach, which is kind of appropriate.

We hear this all the time, changing the award structure for faculty. It is one thing to encourage to take on minority students and to get that much more involved. Another thing to do is to recognize a reward system, a rewards system is 70% driven by publications and grants - teaching

and other work make up the rest. You can be rotten at the latter two and it really does not matter - we have all sat on these (promotion and tenure) committees. If we are serious about this, a faculty person may be faced with these. I am up for tenure in two years. Do I want to take on a minority student, who may be a perfectly good student on paper but maybe I am not connecting with them because I don't have the cultural similarities. Or am I going to take on a "Joe" who is just like me. That decision process goes on, and if we are going to expect faculty to try and move out of their own boxes, then we are going to have to structure award systems that has this sort of reward and recognition built in to its institutional values. In promoting diversity an institution has to be really behind it, not just in name but also in institutional resources. The institution should be proud of the fact that they are producing minority students and celebrate that rather than just some other box to check off.

#### Gilligan:

The same may be true to some extent for program managers and proposal reviewers at agencies. Proposal review criteria concerning the broader impact on society and diversity impact, though touted by agency and division directors, are not always put into practice by reviewers, managers and panels. The conviction to respect these criteria must reach both ways: bottom up from reviewers and top down from officials in order to end up in the critical places where funding recommendations and decisions are made. Accountability at performance review or promotion/tenure time will get attention and be incorporated into institutional values.

#### Hoskins:

The conversations that our group focused primarily on, "If I have a minority student, and I've never worked with an underrepresented minority and there are no other underrepresented minorities in my program, what do I start with what do I do?" And "How do we sustain a minority faculty member and how do we deal with the issues and needs that we have with diversity without over taxing that individual?"

The answer to the discussion that came out of the person asking about "how to help a minority student". My answer was to get them involved in the community- the community of underrepresented minorities who are in Marine, Environmental Sciences. The easiest way to do that is to get them involved in a program, like Ben's program which is the largest. That program, puts students together and builds an instant community. Because we are networked, once you get on the list for Ben's program and go to the ASLO program, you are automatically going to be on the list for anything I'm doing, or what Matt is doing or anything that Judith and Brian are doing. Get a minority student involved in the national community even if there is not a local community. Get them in contact with individuals who have similar concerns or are similar to themselves. And it makes them feel less intellectually isolated and less culturally isolated, even if they just happen to be culturally isolated where they are. They get on email and talk to a friend of theirs at VIMS that is having the same issue that they are having, and it also builds a connection and the ability for them to deal with other issues that will evolve as they advance as graduate students: whether or not to get married and have children in grad school, the concept of graduate student rights and how well they are respected at one graduate institution or at one marine lab versus another. And all of those are issues were those that I was really able to get a strong perspective on not only around the graduate students that attended my institution but also from students in that same community that was built out of the ASLO program. In terms of the sustainability of faculty researchers at a majority lab or institution a conflict exists if you only have one that is your voice of diversity. And so every single committee, every single council,

every single minority student that needs a mentor, you are sending them to that person's office and they are exhausted. And they can't or they are not always able to say no.

Cuker:

When I first went to Hampton in 1988 the typical student coming in was just like a majority student, they wanted to work with marine mammals. Around the mid 1990's after the publication of Brian's book on environmental racism we had a big switch. We had a lot of students who were coming in motivated about issues of environmental justice and environmental racism. It used to be that environmental concerns were strictly a white middle class thing. But it has emerged as an opportunity to develop a minority community's sense of environmental ownership. When presented to student, they say, 'Yeah, I'm living on this toxic coast and my parents have cancer. This is something that I am interested in studying.'

Brown:

There is still a hangover from the Tuskegee experiment. If you don't know what that is, you ought to read about it. There is still a very strong feeling within a large part of the African American community when it comes to the mistrust of science, even if it is a Black person doing it. After all, the people who interacted with the Tuskegee clients were Black, even though they were not the ones running it the experiment. I recently met with a mayor of one of Miami Dade county's cities, who was afraid we were going to have a disturbance after a police shooting, I told him about a case I just worked on of a man who was driving his wife's car, and his wife had a revolver in the glove compartment of her car, that was legally permitted. Guns are everywhere in Miami, legal guns that is. He got into an argument because he wanted the police officer to open the glove compartment. When they did open the glove compartment he wanted the police to put the gun back in the glove compartment, because he was afraid that they were going to kill him if he took the gun. The average white male would not be thinking that the police would use that gun as an excuse to execute him. It never had occurred to that Mayor before. We are very separate in the way we look at things in this country. If you don't do a little to figure that out, it is very hard to understand what somebody else is maybe going through. There are a couple of easy ways to do this today if somebody wants to. If you can get urban radio, listen to the Tom Joyner show in the morning. It is the largest nationally syndicated Black radio shows in the country, it's funny and the music is good, but they also have a lot of political commentary as well. Former President Clinton was smart enough to take Tom Joyner on his trip to Africa with him. Tom Joyner broadcast everyday from Africa on Clinton's trip, targeted to his audience. If you get BET, watch BET Tonight at 11 p.m. instead of the regular news. You will see that to those of us who grew up like I did things look differently than to somebody else. Just a little effort like that can go an awful long way to having some kind of understanding that somebody of color walking out into the community from one of our labs faces a different world than what whites experience.

Gilligan:

How can NAML labs attract more minorities at professional levels? I guess that answer lies with what individual labs in their own particular settings can do and with what NAML as an organization can do to create demand by and meet the needs of individuals that are non-traditional and underrepresented. I leave you with that thought and ask you to keep the spirit alive. Thank you.

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Diversity Panel  
NAML Fall 2001 Meeting  
Hatfield Marine Science Center, Newport, OR Oct. 4-6, 2001

Questions that the Diversity Panel was asked to Address

How can NAML labs attract more minority researchers (students, teachers, and parents)?

How can we better prepare minority researchers for research environments at marine laboratories?

How can we better prepare the environment of marine laboratories for the inclusion of minority researchers?

1. What are effective strategies that major federal employers been using?
2. What role does community activism play in the process?
3. What are effective undergraduate and graduate recruiting tools? How do you get underrepresented students to consider coming to a majority institution (marine lab) to study or do research?
4. What challenges do they face once they get there? How do you effectively mentor students who are in a culture and an academic/research environment that is completely foreign to them?
5. How can a small lab, one that isn't connected to a large research institution or an MSI make a difference?
6. Are there institutional obstacles to minority participation?
7. What things can we change?
8. How can multi-level and holistic approaches be successful?
9. What does it take to get a cadre of marine science students and establish a pattern of success at a minority institution? What are the advantages/disadvantages/potential of MSIs vs. majority institutions in terms of the 'talent pool'?
10. What does it take to make majority institution - minority institution collaborations successful?
11. How do you differentiate between the scientific culture and other cultural aspects of research environments?
12. What does the minority student or researcher bring to research laboratories (cultural differences, teaching models, preparation, baggage, fresh perspectives and ideas)?
13. What are the common disconnects that labs, students, and researches make?
14. What are bridges from undergraduate to Ph.D. level for minority students?
15. What are other 'key steps to increasing diversity'?

**Literature, Resources, Handouts\***

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### Minorities in the Aquatic Sciences Program

I wanted to thank you again for encouraging your minority students to register with the Minorities in the Aquatic Sciences, MAS, Program. The page is up now and I encourage you to take a look if you haven't already: <http://aslo.org/mas/> We have an e-mail distribution list set up so we can broadcast announcements about summer research programs, undergraduate and graduate school options, and job opportunities. Please send announcements to me at [weiler@whitman.edu](mailto:weiler@whitman.edu). Undergraduate and Graduate students are encouraged to register with the MAS Student Program and participate in the Student Directory: Register at [http://www.aslo.org/mas/reg\\_form.html](http://www.aslo.org/mas/reg_form.html)

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### Society of African-American Marine and Environmental Scientists

With Funding from NOAA, I am developing a website dedicated to minorities in the Marine and Environmental Science (MES). One of the features of the site is a section dedicated to Minority Serving Institutions (MSI) that have programs in MES. The section will provide a link to your institution's home page. We are also interested in collaborating with you to post additional information. Content suggestions have included; Links to specific program or faculty WebPages, Links to your newsletters and online catalogues, Photos of a research vessels or facilities, News of recent awards of internships, fellowships or grants and, Areas of possible research collaborations.

The website will serve several components of the community. For individuals investigating the field, the website will provide a springboard and a guide to career and educational opportunities. The website will provide descriptions of career choices, provide links to programs, highlight

individuals in the field, and provide 'how to' sections on investigating and applying to programs. For students, the site will provide a forum for discussing issues of common interest, which will assist in their professional development, and provide information on funding and other program opportunities. For professionals in the field, the site will facilitate access between programs and participants with a database of the names and research interests of individuals. Granting organizations, employers and other resources will use the database to target information to those faculty and researchers that will benefit most. The website will also include a searchable database of conferences, meetings, requests for proposal, job announcements and other professional opportunities. The website will work in conjunction with E. E. Just listserv. The listserv was created in the summer 2000 to provide a forum for African-Americans in the marine and environmental sciences to discuss issues of common interest and to assist in their professional development.

I hope that you can provide us with information on the opportunities available through your program. The information that you provide will appear underneath the link to your institution. You can email content to me at [Keltonclark@hotmail.com](mailto:Keltonclark@hotmail.com) or by mail at

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