

Marine Biotechnology and Bioinformatics

San José State University Foundation • California

<http://marinebiotech.net>



Background MBB is a professional development program that is a collaborative effort by faculty at Moss Landing Marine Laboratories (MLML), California State University at Monterey Bay (CSUMB), and San José State University (SJSU). MBB actively seeks science teachers in schools with historically underserved student populations. This ITES Comprehensive program features two components: a three-week summer workshop, and an academic year component. During the summer, teachers explore current marine science research while learning to incorporate stimulating, hands-on biotechnology and bioinformatics activities into their middle or high school science classrooms. Throughout the academic year, teachers meet six times to learn information technology tools and to work on lesson plans that are directly transferable into the classroom.

Teacher Participants Up to 20 teacher participants per year complete the 3-week summer intensive workshop on the California Central Coast. Teachers are recruited from middle and high schools with priority given to those that teach students from underrepresented groups.

Benefits to Participation

- Experienced authentic science activities
- Mastered new information and skills
- Implemented best teaching practices
- Increased self-confidence with marine biotechnology
- Experienced cutting edge techniques
- Developed a learning community

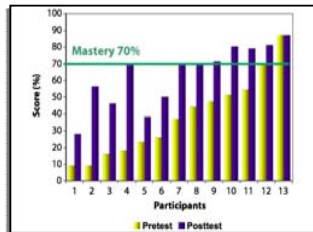


Lessons Learned

- Expand recruitment and find ways to compete with other workshops.
- Consider editing content to ensure that most participants master the essential content and activities.
- Consider the conflicting needs of student participants for their own development and learning and the teachers' professional development needs.

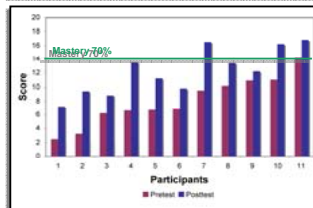
Findings

All Participants Improved their Science Content Knowledge

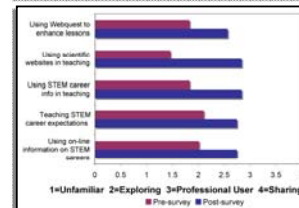
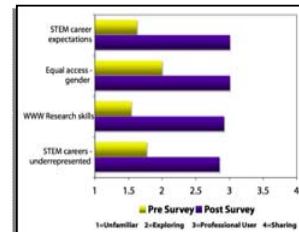


Year 1

Year 2



Participants Learned to Integrate Technology and STEM Careers



Project Staff

(left to right):

- Dr. **Henrik Kibak**, PI, CSUMB
- Dr. **Simona Bartl**, PI, MLML
- Dr. **Helen Cagampang**, Evaluator
- Dr. **Robertta Barba**, PI, SJSU
- Dr. **Steven McGriff**, Instructional Designer, SJSU



Student Participants Up to 20 students per year participate in a 1-week summer workshop. Approximately half of the students are recruited from **Upward Bound** (Coalinga, CA) a federally funded program to encourage low-income and potentially first generation college students. The other half come from the local **RISE** (Recruitment in Science Education) program which strives to enhance diversity in the sciences.

Benefits to Participation

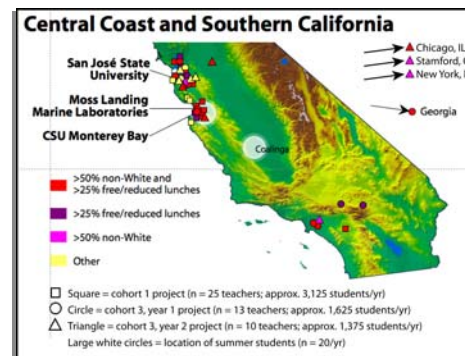
- Experienced authentic science activities
- Engaged in cutting-edge hands-on science and technology
- Developed a college-bound peer community
- Collaborated in peer teams to present their findings
- Experienced authentic assessment

Approaches to Connecting

- Teachers recruited from districts with high proportions of under-represented students
- MBB partnered with enrichment programs (Upward Bound and RISE) for under-represented high school students



Student Populations and Locations Served



Poster design and layout by Steven J. McGriff for ITES Summit, Washington, D.C., February 2008