

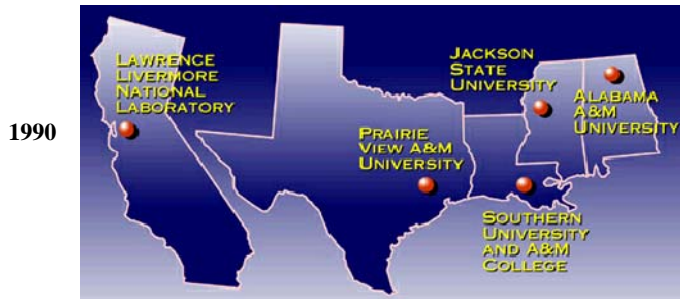


“Creating Access and Opening Doors of Opportunity”

OSER 2010
Consortium of Ocean Leadership (COL) Headquarters
Washington, DC
October 20, 2010

*Robert L. Shepard, Ph.D.
Founding Executive Director
Science and Engineering Alliance, Inc. (SEA)*

Linking with National Labs Since 1990 Has Help Strengthened SEA and Other Minority-Serving Institutions



Science and Engineering Alliance, Inc. (SEA)

Mission:

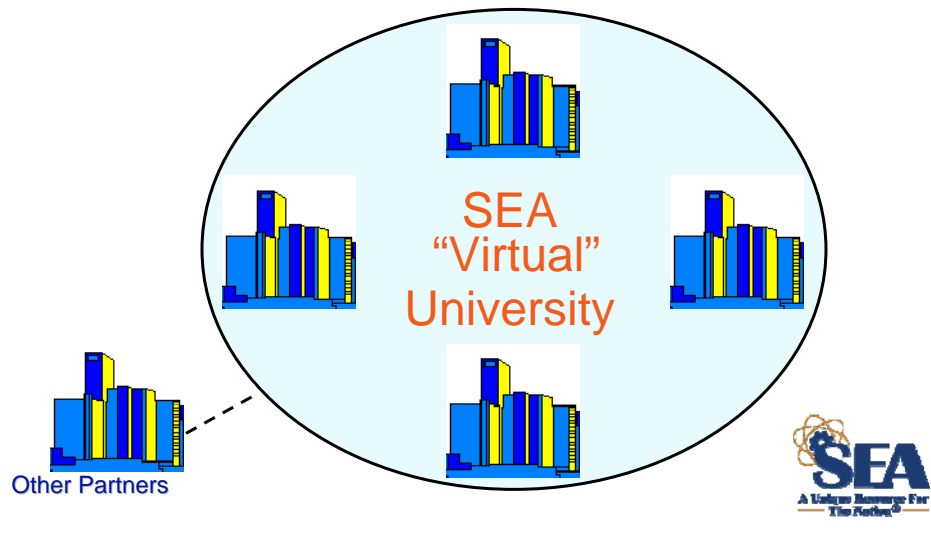
To increase participation of HBCUs and other MSIs in Federally funded R&D by creating access and opening doors of opportunity.

Benefits:

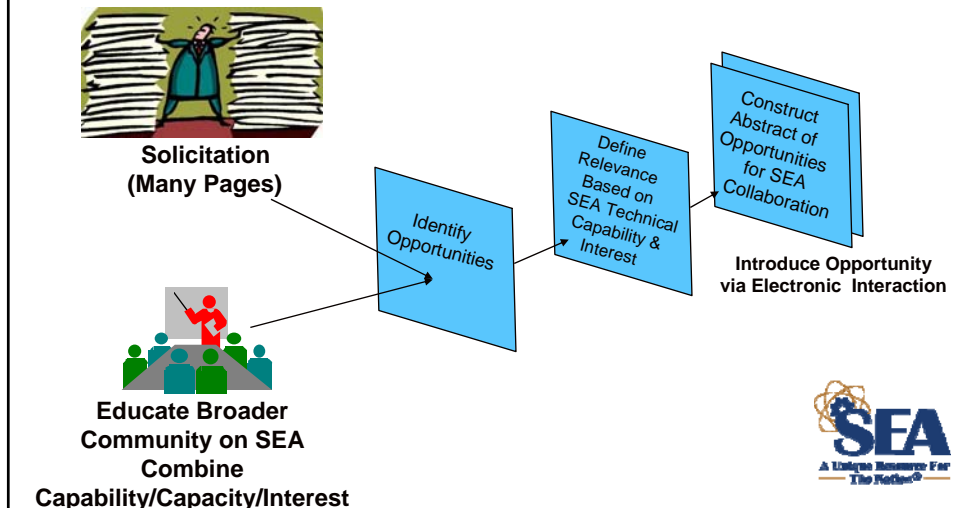
Enhancements in the combined research infrastructure and training capabilities of the academic partners that leads to increased participation in R&D projects with ***“greater payoff”*** and ensures continued production of globally competitive American scientists and engineers.



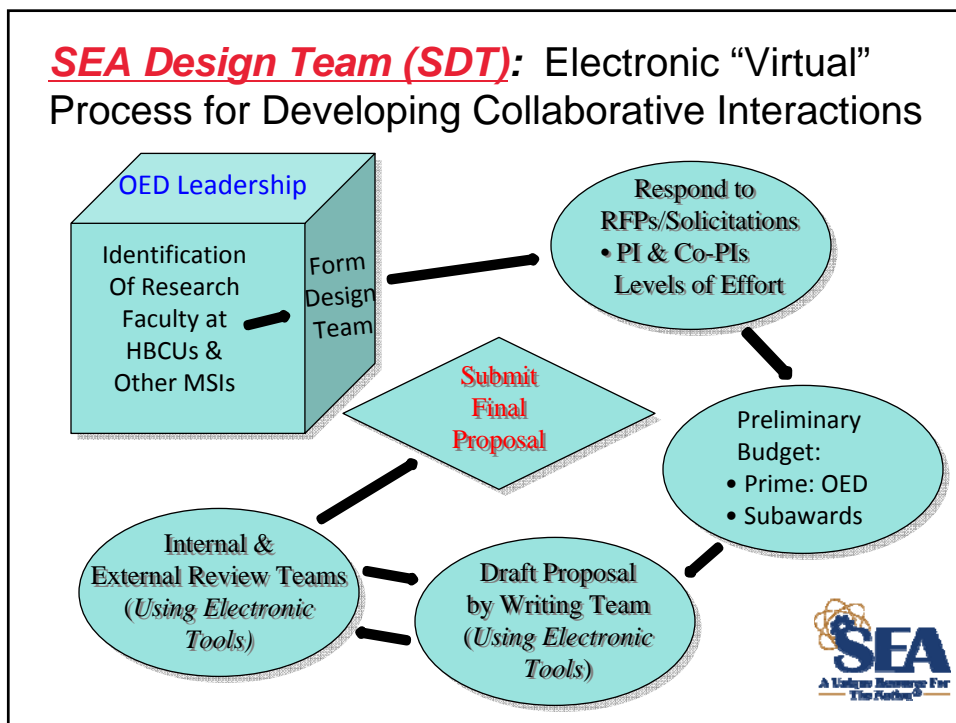
SEA Creates Public and Private Partnerships Using the Combined Technical Strength of its Members & Other Partners



Process/Practice for Creating Access and Opening Doors of Opportunity



SEA Design Team (SDT): Electronic “Virtual” Process for Developing Collaborative Interactions



**Assessing the Involvement of Historically Black Colleges
And Universities (HBCUs) and Other Minority-Serving
Institutions (MSIs) in Wildlife Science, Fishery and
Conservation Biology (WFCB)**

*Results and Recommendation from a Pilot Study
(Grant #: 2007132)*



**DORIS DUKE
CHARITABLE FOUNDATION**



Study Objectives:

Identification of HBCUs/MSIs with –

1. Formal WFCB as part of their curricula
2. Formal faculty relationships & student matriculation activity with non-MSIs that do have WFCB curricula
3. Interest in making WFCB part of their curricula
4. Graduates that go on to graduate programs in WFCB, irrespective of where that program is offered, e.g., MSIs or majority institutions



Methodology:

- 26-question electronic data collection survey (developed in consultation with a 25-yr expert working in the field at MSIs) (<http://www.surveymonkey.com/s/Q2LSQHD>)
- Goal: Rep. from HBCUs, HSIs and TCUs
- 75 institutions were targeted, with 55 institutions responding (73% response rate) – comprised of:
 - 42 HBCUs
 - 9 TCUs
 - 2 HSIs (1 large institution in CA and 1 medium-size in NM)
 - 2 not identified

Internet Data Sources:

- US Department of Education
- US Department of Education, Institute for Education Sciences
- White House Initiative on HBCUs
- White House Initiative on TCUs
- Association of Hispanic Serving Institutions



Findings:

WFCB subject areas grouped into 6 separate fields:

- Wildlife Science
- Fishery
- Conservation Biology
- Marine Biology
- Marine Science
- Environmental Science



Table 1. Distribution of Historically Black Colleges and Universities by State and Type

State	4-year Public	4-year Private	2-Year Public	2-Year Private
Alabama	2	7	6	0
Arkansas	1	2	0	0
Delaware	1	0	0	0
District of Columbia	1	0	0	0
Florida	1	1	0	0
Georgia	3	7	0	0
Kentucky	1	0	0	0
Louisiana	3	2	2	0
Maryland	4	0	0	0
Michigan	0	0	0	1
Mississippi	3	2	2	2
Missouri	2	0	0	1
North Carolina	4	6	0	0
Ohio	1	1	0	0
Oklahoma	1	0	0	0
Pennsylvania	2	0	0	0
South Carolina	1	5	1	1
Tennessee	1	5	0	0
Texas	2	6	1	0
Virginia	2	4	0	0
West Virginia	2	0	0	0
US Virgin Island	1	0	0	0
Total	39	48	12	5

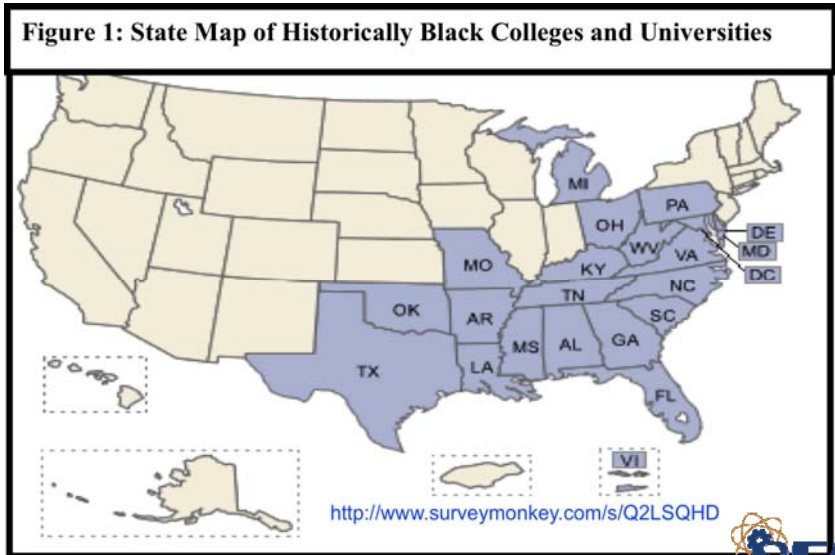
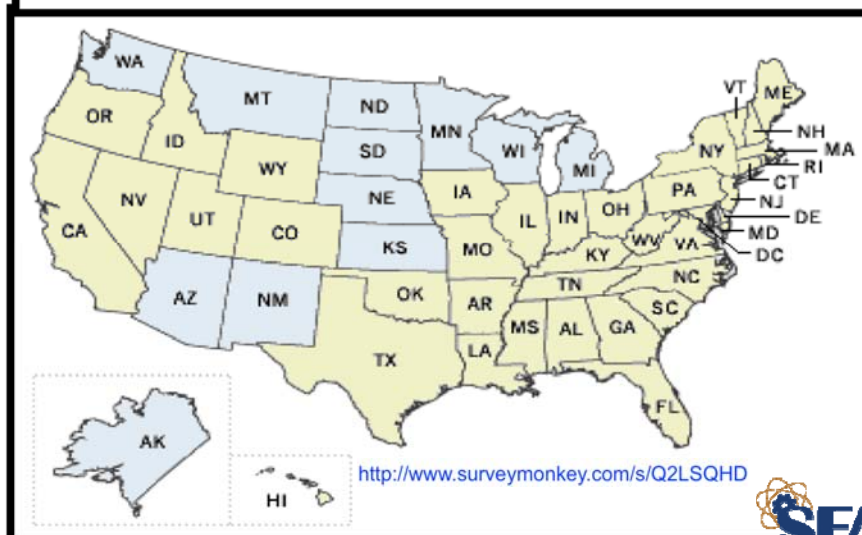


Table 3. Distribution of Tribal Colleges and Universities by State

State	Number
Alaska	1
Arizona	2
Kansas	1
Michigan	2
Minnesota	3
Montana	7
Nebraska	2
New Mexico	3
North Dakota	5
South Dakota	3
Washington	1
Wisconsin	2
All	30



Figure 2: State Map of Tribal Colleges and Universities



<http://www.surveymonkey.com/s/Q2LSQHD>



Table 4. Number of Hispanic Serving Institutions by State

State	Number
Arizona	9
California	77
Colorado	6
Connecticut	1
Florida	10
Illinois	4
Kansas	1
Massachusetts	1
New Jersey	4
New Mexico	15
New York	13
Pennsylvania	1
Puerto Rico	32
Texas	41
Washington	2
Source : www.hacu.org , 2009	



Table 5. Distribution of Student Enrollment in El Camino College in California by Ethnic Group

Ethnic Group	2006-2007	2007-2008
African-Americans	47.9	49.2
American Indians	.2	.2
Asian	2.9	3.0
Pilipino	1.7	1.9
Latino/Hispanic	36.6	36.8
Other	1.3	1.2
Pacific Islander	1.0	1.4
Unknown	6.6	3.6
White	1.8	2.7

Source: El Camino College Institutional Research, 2008, www.eic.edu, 2009



Table 6. Distribution of Institutions Giving Degree in the Subject Areas by the Type of Degree*

Subject Area	Associate	Bachelor's	Master	Doctoral	Total Institutions
Wildlife Science	33.3	50.0	50.0	16.7	6
Fisheries	42.9	26.6	57.1	14.3	7
Conservation Biology	0.0	100.0	0.0	25.0	4
Marine Biology	50.0	50.0	0.0	0.0	2
Marine Science	33.3	50.0	50.0	16.7	6
Environmental Science	30.0	73.3	36.7	13.3	30

*The percentages do not add up to 100. They are rates related to each degree among institutions giving degree in that area.



Table 7. Availability of WFCB Related Courses and Minors in sample institutions

Subject areas	Average Number of Undergraduate courses Offered	Average Number of Graduate courses Offered	Have minor %
Wildlife Science	3.0	2.5	11.0
Fisheries	3.5	2.0	11.0
Conservation Biology	3.0	2.5	8.0
Marine Biology	2.5	2.0	6.0
Marine Science	6.0	5.0	10.0
Environmental Science	7.0	5.0	37.0



Table 8. Percent of Institutions with 10 and More Graduates in WFCB Fields*

Subject area	Associate	Bachelor's	Master's	Doctoral
Wildlife Science	34.0	28.6	33.4	0.0
Fisheries	28.6	40.0	14.3	20.0
Conservation Biology	16.7	43.0	0.0	20.0
Marine Biology	16.7	20.0	20.0	20.0
Marine Science	16.7	44	26.0	20.0
Environmental Science	37.4	80	73.4	37.5

*The percentages are based on the institutions which reported they offer degree in WFCB.



Table 9. Average Annual Number of Graduates From the Subject Area by Degree Level

Subject area	Associate	Bachelor's	Master's	Doctoral	Total
Wildlife Science	2	16	1	0	19
Fisheries	2	3	2	1	8
Conservation Biology	2	22	0	2	26
Marine Biology	2	2	1	0	4
Marine Science	0	3	2	1	6
Environmental Science	5	6	5	2	18
Total	11	52	11	6	81



Table 10. Percent Distribution of Sample Institutions by Plan to Expand in WFCB areas

Subject areas	Plan to expand	Implement degree program
Wildlife Science	10.4	8.0
Fisheries	12.2	6.0
Conservation Biology	10.4	6.0
Marine Biology	6.3	2.0
Marine Science	10.4	2.0



Table 11. Number of Students with BS or MS from the Institutions, who pursued Graduate Studies in the Subject Areas

Degree/Year	2005-2006		2006-2007		2005-0007 Total
	BS	MS	BS	MS	
Wildlife Science	3	3	1	3	10
Fisheries	3	4	2	4	13
Conservation Biology	2	1	2	1	6
Marine Biology	0	1	2	1	4
Marine Science	2	2	1	2	7
Environmental Science	15	13	16	12	58
Total	25	24	25	23	98



Table 12. Number of Students with Internship, Thesis paper, Master Thesis and Doctoral dissertation During the Last Two Years Prior to the Study

	2005-2006	2006-2007	Total
Cooperative Education	10	9	19
Internship	36	33	69
Undergraduate thesis	14	11	25
Graduate thesis and dissertation	14	15	29
Total	74	68	142



Table 13. Percent Distribution of Employment Sources for Graduates from the Subject Areas in sample institutions

	Employment source for graduate (%)					
	Academia	Government*	Federal Agencies	Non-Governmental agencies	Private	Other
Wildlife Science	10.0	35.0	35.0	7.0	5.0	10.0
Fisheries	25.0	50.0	21.0	5.0	31.0	20.0
Conservation Biology	10.0	30.0	50.0	10.0	20.0	10.0
Marine Biology	10.0	60.0	25.0	10.0	15.0	40.0
Marine Science	45.0	17.0	25.0	0.0	20.0	22.5
Environmental Science	20.0	34.0	26.0	25.0	30.0	35.0
Average	18.3	37.7	30.0	9.5	20.0	23.3

*Includes local, county and state



Results:

- Many biology programs that can expand to include courses and programs in WFCB.
- On average, 2-7 undergraduate & 3-5 graduate courses in WFCB.
- 11 to 37 percent of the institutions have minors in WFCB fields.
- 9% of the institutions plan to expand in the WFCB fields.
- 6% of the institutions plan to implement degree programs in WFCB.
- 19% of the institutions have research centers associated with WFCB.
- ~ 150 students are enrolled annually in various degree levels in WFCB.
- ~ 60 graduating seniors from these institutions pursue graduate programs in WFCB fields.
- WFCB graduates from these institutions are employed in governmental, non-governmental organizations, academia & private.



Recommendations:

1. Conduct demonstration project at two institutions from each group of colleges focused on further development of their WFCB curriculum.
2. Further WFCB res & training around existing infrastructure/activities.
3. Carefully plan & organize future activities based on detailed institution data serving the African-American, American Indian and Hispanic pops.
4. Information, promising strategies & best practices for expansion of WFCB programs should be sort from the schools W/successful progs.
5. Continue data collection for development of a comprehensive WFCB database on HBCUs, TCUs and HSIs and provide technical assistance to help in planning and developing programs.



Recommendations (cont'd):

6. Institutions going forward should organize a committee of faculty, students & administrators to collaborate in devel. & implementation of the WFCB expansion plan based on their institutional characteristics.
7. Engage a team of experts to guide & support each demonstration project at the selected institutions.
8. Disseminate “best practices & lessons learned” to other institutions for adoption & adaptation as experience of these demonstration projects emerge & mature.



Resource Information

Web Site: <http://www.sea2.org>

Email: shepard@sea2.org

Phone: (202) 842-0388

Fax: (202) 842-0403

Headquarters

1522 K Street, N.W., Suite 210

Washington, DC 20005

Acknowledgements

“Portions of this presentation was support by funds from the National Science Foundation (Grant #: DBI-0630524), National Ecological Observatory Network, Inc. (Award #: 04.08.C.0007), U.S. Department of Energy (Cooperative Agreement #: DE-FG01-04ED80454), U.S. Environmental Protection Agency (Grant #: X824851-01-1), National Aeronautics and Space Administration (Grant #: NAG5-12523), U.S. Small Business Administration (Grant #: 98-6101-72), W.K. Kellogg Foundation (Grant #: P0114723), Doris Duke Charitable Foundation (Grant #: 2007132) and a Private Donator.”