NATIONAL
ENVIRONMENTAL HEALTH
SCIENCE AND PROTECTION
ACCREDITATION COUNCIL
(EHAC)

Outcome Assessment Report 2012

AEHAP Staff Yalonda Sinde, Kathryn Mataya and Shane Martin

Background:

The EHAC Undergraduate Guidelines section VI. Reporting Obligations of Accredited and Pre-accredited Programs part D. Program Outcomes Assessment Survey states that:

> "At the time of re-accreditation, the institution shall survey program graduates and employers via the Council's outcome assessment tool. All graduates since the last accreditation shall be in the pool of those to be surveyed. The completed tools shall be gathered by the institution and forwarded to the Executive Director of the Council six months prior to the annual meeting of the Council. The Council will supply a summary of the information gathered to all accredited programs on an annual basis.
>
> The purpose of this survey is to determine the adequacy of the accreditation process to the needs of the professional practice of environmental health. The information gathered by an institution through the outcome assessment process will not be used as part of the self-study for re-accreditation purposes for a given institution. The Council will use the compiled information from all institutions undergoing re-accreditation to evaluate and modify the requirements of accreditation."

The outcome assessment tool consists of two surveys conducted through surveymonkey.com, one for graduates and one for their supervisors. It is distributed to the re-accreditation candidate Program Directors where they send the links to their graduates. The graduates then submit the supervisor survey to their supervisors.

The following re-accreditation applicants responded to the outcome assessment survey:

Table 1

EHAC Re-Accreditation Applicants 2013	Program	Next Accreditation Review	Initial Accreditation	Graduating Classes reflected on OA	# of Graduate Respondents	# of Supervisor Respondents
California State University, Northridge	Undergraduate	2013	1973	2006-2012	7	0
California State University, San Bernardino	Undergraduate	2013	1973	2006-2012	9	3
East Central University	Undergraduate	2013	1975	2006-2012	4	0
Illinois State University	Undergraduate	2013	1975	2006-2012	17	1
Indiana University- Purdue University Indiana	Undergraduate	2013	2006	2006-2012	0	0
Lake Superior State University	Undergraduate	2013	2007	2006-2012	0	0
Texas Southern University	Undergraduate	2013	2006	2006-2012	0	0

Undergraduate Skills

Listed below are core competencies in environmental health programs. Graduate (Undergraduate) respondents were asked to choose the option that most closely described their skill level. The percentages reflect 37 out of the 37 graduate survey respondents.

Chart 1

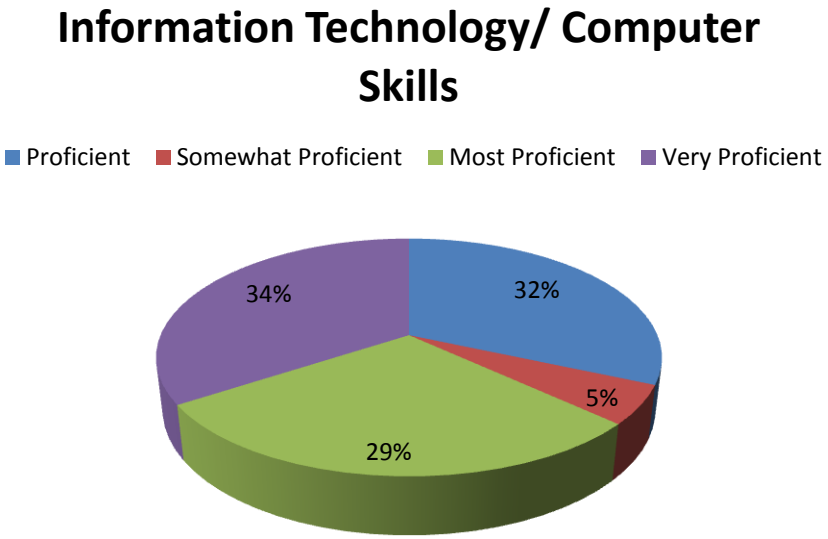


Chart 2

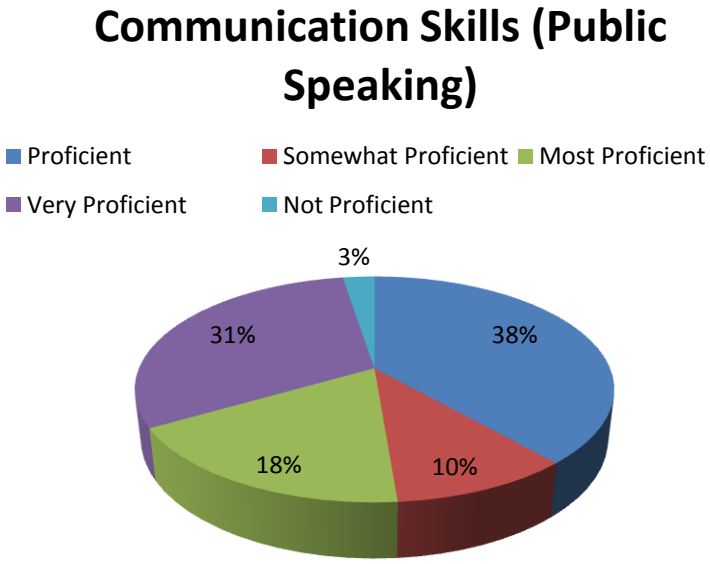


Chart 3

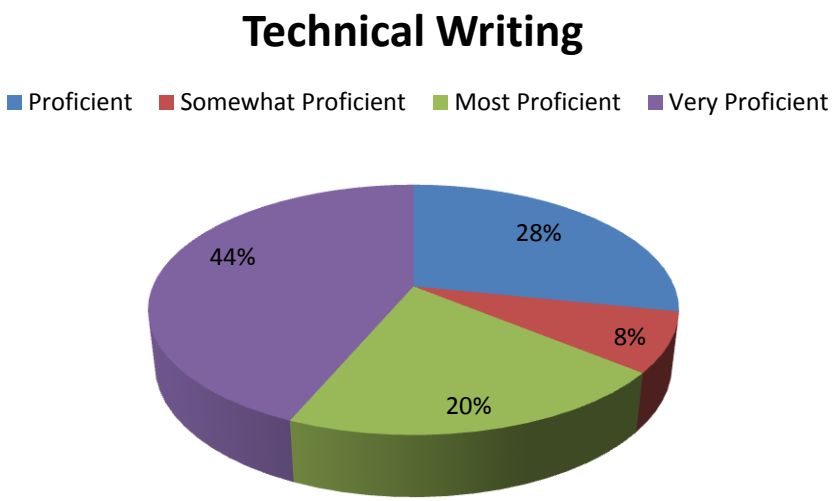


Chart 4

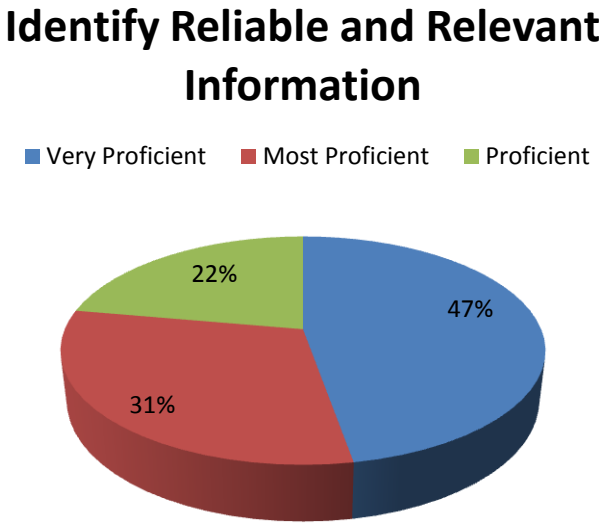


Chart 5

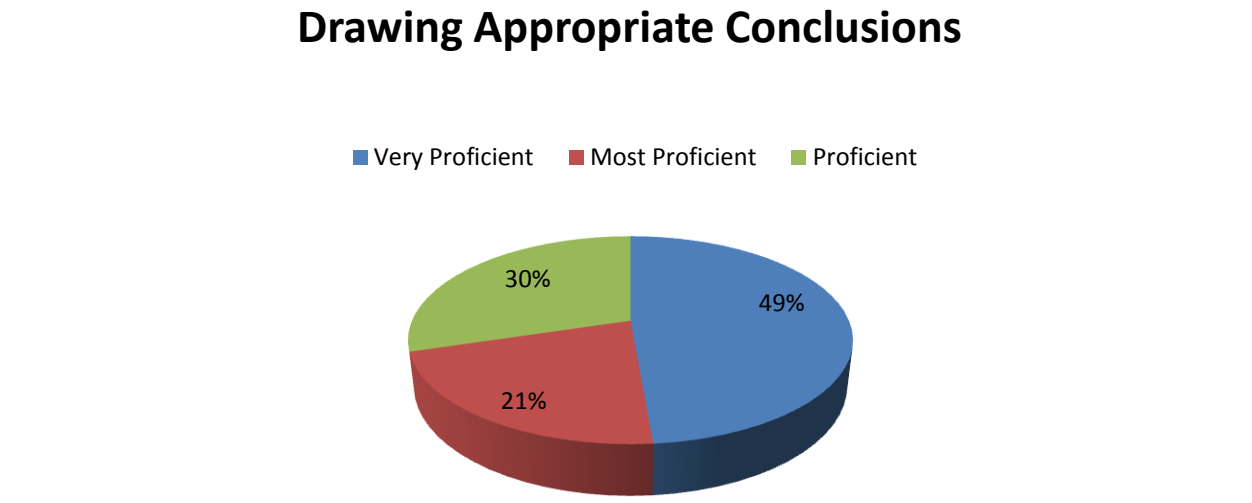


Chart 6

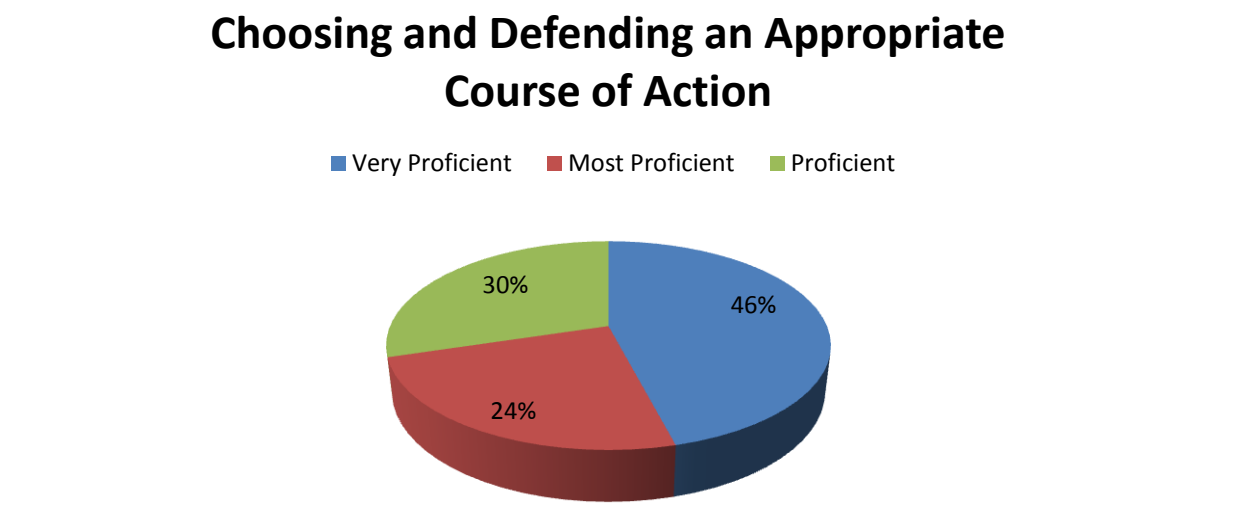


Chart 7

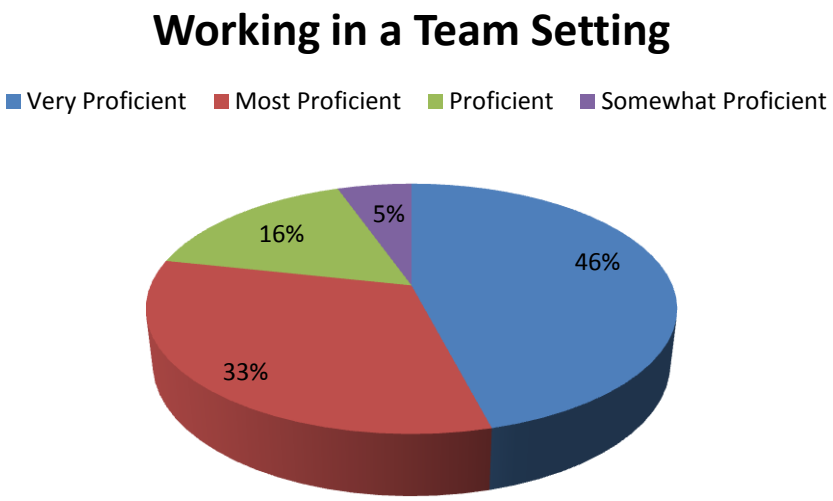


Chart 8

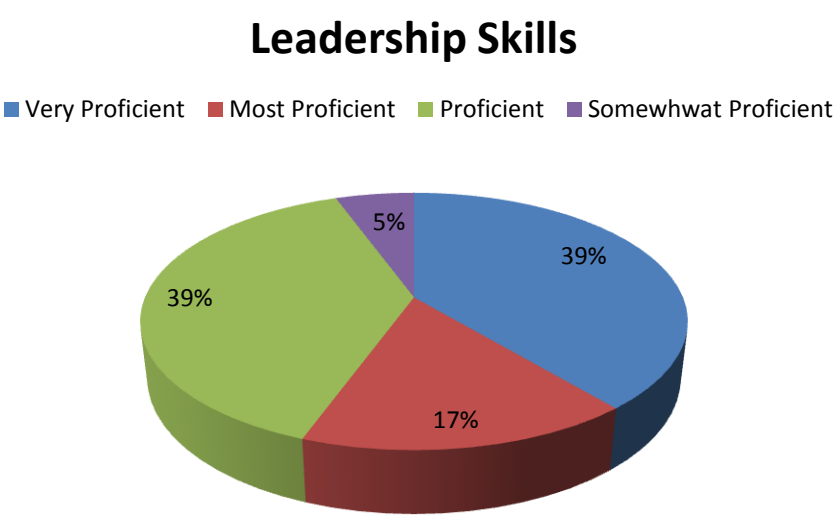


Chart 9

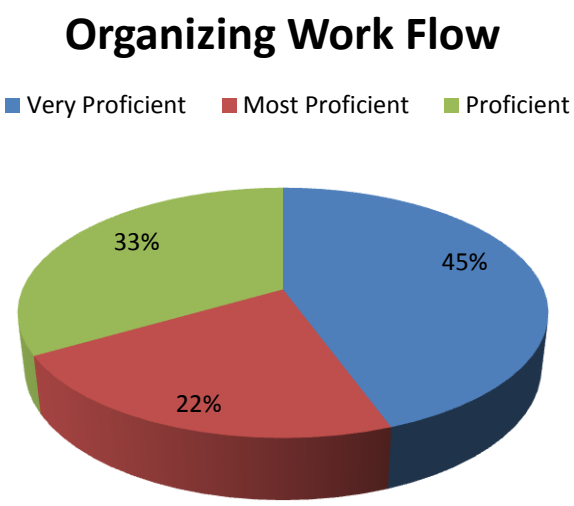
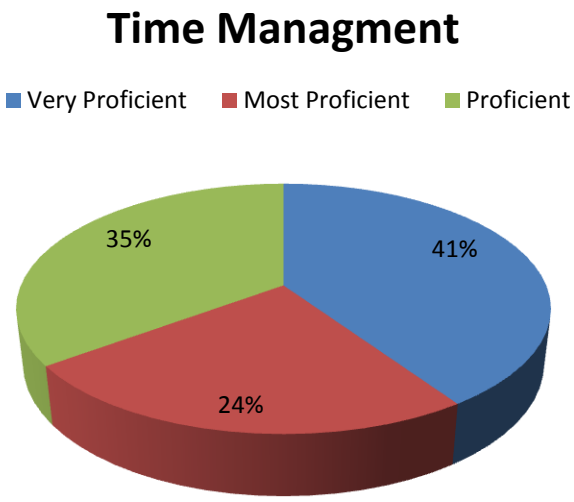


Chart 10



Respondents were asked to rate their skill-level (5=Best, 1=Worst) in the following areas:

Table 2
Graduate Skills-All Respondents (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skills	39	3.77
Public Speaking	39	3.38
Technical Writing	39	3.67
Identify reliable and relevant information.	39	3.92
Drawing Appropriate Conclusions	39	3.79
Choosing and defending an appropriate course of action	39	3.82
Conducting a statistical analysis and interpreting data	39	3.49
Applying Research methods and problem solving	39	3.72
Working in a team setting	39	3.95
Leadership Skills	39	3.62
Organizing work flow	39	3.79
Time management	39	3.77
Project planning and management	39	3.51
Epidemoiolgy	39	3.1
Toxicology	39	3
Risk Assessment	39	3.4
Risk Communication	39	3.6
Risk Management	39	3.3

Table 3
Graduate Skills- California State University Northridge (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skills	7	3.57
Public Speaking	7	2.71
Technical Writing	7	4
Identify reliable and relevant information.	7	3.71
Drawing Appropriate Conclusions	7	3.57
Choosing and defending an appropriate course of action	7	4
Conducting a statistical analysis and interpreting data	7	3.14
Applying Research methods and problem solving	7	3.71
Working in a team setting	7	4.43
Leadership Skills	7	4
Organizing work flow	7	4
Time management	7	4
Project planning and management	7	3.86
Epidemoiolgy	7	2.86
Toxicology	7	2.86
Risk Assessment	7	3.43
Risk Communication	7	3.57
Risk Management	7	3.43

Table 4
Graduate Skills- California State University San Bernardino (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skills	9	3.33
Public Speaking	9	3.11
Technical Writing	9	3.22
Identify reliable and relevant information.	9	3.56
Drawing Appropriate Conclusions	9	3.56
Choosing and defending an appropriate course of action	9	3.44
Conducting a statistical analysis and interpreting data	9	3.44
Applying Research methods and problem solving	9	3.56
Working in a team setting	9	3.56
Leadership Skills	9	3
Organizing work flow	9	3.22
Time management	9	3.33
Project planning and management	9	3.11
Epidemiology	9	3
Toxicology	9	3
Risk Assessment	9	3
Risk Communication	9	3.11
Risk Management	9	3

Table 5
Graduate Skills- East Central University (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skills	4	4.75
Public Speaking	4	4.25
Technical Writing	4	4.25
Identify reliable and relevant information.	4	4.25
Drawing Appropriate Conclusions	4	4.25
Choosing and defending an appropriate course of action	4	4
Conducting a statistical analysis and interpreting data	4	3.75
Applying Research methods and problem solving	4	4
Working in a team setting	4	4.25
Leadership Skills	4	4.25
Organizing work flow	4	4.25
Time management	4	4.25
Project planning and management	4	4.25
Epidemiology	4	3.5
Toxicology	4	3.5
Risk Assessment	4	3.5
Risk Communication	4	4.25
Risk Management	4	4

Table 6
Graduate Skills- East Carolina University (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skills	1	5
Public Speaking	1	4
Technical Writing	1	4
Identify reliable and relevant information.	1	4
Drawing Appropriate Conclusions	1	5
Choosing and defending an appropriate course of action	1	3
Conducting a statistical analysis and interpreting data	1	2
Applying Research methods and problem solving	1	3
Working in a team setting	1	5
Leadership Skills	1	3
Organizing work flow	1	5
Time management	1	5
Project planning and management	1	4
Epidemiology	1	5
Toxicology	1	2
Risk Assessment	1	4
Risk Communication	1	4
Risk Management	1	4

Table 7
Graduate Skills- Illinois State University (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skills	17	3.82
Public Speaking	17	3.59
Technical Writing	17	3.65
Identify reliable and relevant information.	17	4.18
Drawing Appropriate Conclusions	17	3.88
Choosing and defending an appropriate course of action	17	4
Conducting a statistical analysis and interpreting data	17	3.71
Applying Research methods and problem solving	17	3.82
Working in a team setting	17	3.88
Leadership Skills	17	3.71
Organizing work flow	17	3.88
Time management	17	3.76
Project planning and management	17	3.41
Epidemiology	17	2.88
Toxicology	17	3
Risk Assessment	17	3.59
Risk Communication	17	3.76
Risk Management	17	3.24

Table 8
Graduate Skills- Old Dominion University (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skills	1	3
Public Speaking	1	3
Technical Writing	1	3
Identify reliable and relevant information.	1	3
Drawing Appropriate Conclusions	1	3
Choosing and defending an appropriate course of action	1	3
Conducting a statistical analysis and interpreting data	1	3
Applying Research methods and problem solving	1	3
Working in a team setting	1	3
Leadership Skills	1	3
Organizing work flow	1	3
Time management	1	3
Project planning and management	1	3
Epidemiology	1	3
Toxicology	1	3
Risk Assessment	1	3
Risk Communication	1	3
Risk Management	1	3

Course Relevance

Respondents were asked to answer yes or no if their job required knowledge in the following areas found in environmental health. The last two columns to the far right represent the respective percentages reflecting "knowledge required" and "knowledge not-required" in the jobs of all (39) survey respondents:

Table 9

My Job Requires Knowledge Of:	Individual Yes	Individual No	N/A	Total	% Yes	% No
Air Quality Control	21	14	4	39	54%	36%
All-Hazard Preparedness	22	12	5	39	56%	31%
Built Environment	14	20	5	39	36%	51%
Disease Prevention (e.g. vectorborne, zoonotic, ect.)	14	19	6	39	36%	49%
Disease Prevention	16	17	6	39	41%	44%
Environmental Health Planning	18	14	7	39	46%	36%
Food Protection	10	23	6	39	26%	59%
Geographical Information Systems (GIS)	6	27	6	39	15%	69%
Global Environmental Health	12	21	6	39	31%	54%
Hydrogeology	8	25	6	39	21%	64%
Injury Prevention	24	10	5	39	62%	26%
Institutional Health and Safety	8	25	6	39	21%	64%
Radiation Health	14	19	6	39	36%	49%
Recreational Environmental Health	12	21	6	39	31%	54%
Risk Analysis	23	10	6	39	59%	26%
Soils	10	24	5	39	26%	62%
Solid and Hazardous Material and Waste	22	13	4	39	56%	33%

Management						
Vector Control	8	25	6	39	21%	64%
Water and Waste Water	26	8	5	39	67%	21%

Specialty Area Knowledge & Program Preparation-All Respondents

Respondents were asked to answer yes or no if they were well-prepared in the following specialty areas in their undergraduate program. The last two columns to the far right represent the percentages of all (39) graduates who were well-prepared and under-prepared by their program:

Table 10

My Program Prepared Me:	Well Prepared	Somewhat Prepared	Not Prepared	N/A	%Well Prepared	% Not Prepared
Air Quality Control	13	11	1	14	33%	3%
All-Hazard Preparedness	15	8	1	15	56%	13%
Built Environment	11	6	1	21	28%	3%
Disease Prevention (e.g. vectorborne, zoonotic, ect.)	11	5	0	23	28%	0%
Disease Prevention	13	5	0	21	33%	0%
Environmental Health Planning	10	10	2	17	26%	5%
Food Protection	10	4	1	24	26%	3%
Geographical Information Systems (GIS)	3	4	5	27	8%	13%
Global Environmental Health	6	9	2	22	15%	5%
Hydrogeology	4	8	2	25	10%	5%
Injury Prevention	14	11	0	14	36%	0%
Institutional Health and Safety	8	3	1	27	21%	3%
Radiation Health	6	8	3	22	15%	8%
Recreational Environmental Health	8	7	0	24	21%	0%
Risk Analysis	14	10	0	15	36%	0%
Soils	5	7	2	25	13%	5%
Solid and Hazardous Material and Waste Management	14	8	1	16	36%	3%
Vector Control	10	4	0	25	26%	0%
Water and Waste Water	19	7	1	12	49%	3%

Graduate Work Place Data:

The pie chart below represents job sectors for graduates of the seven schools surveyed. Of the respondents, 37 are currently working, 2 were not working.

Chart 11

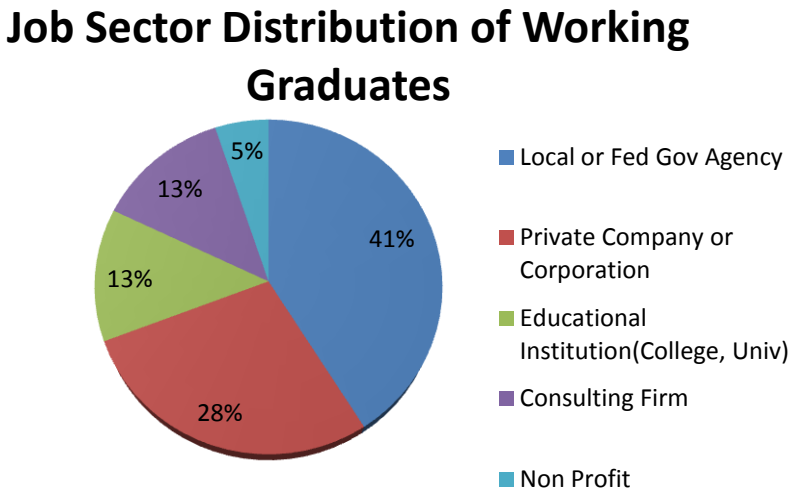


Chart 12

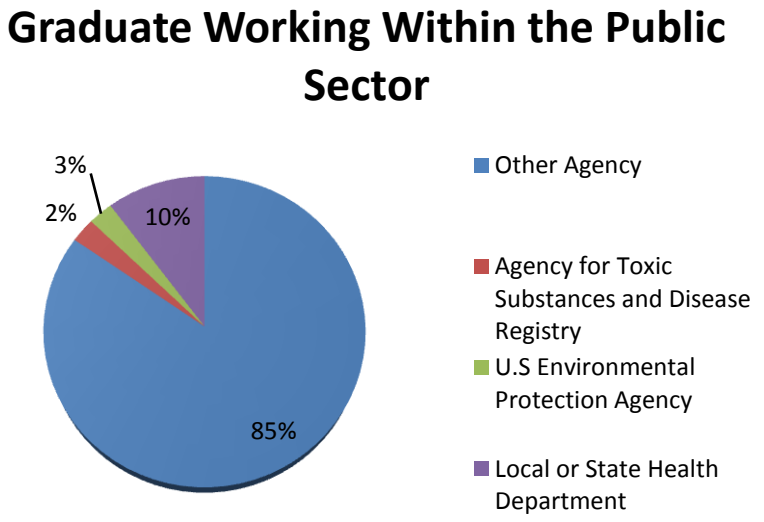


Chart 13

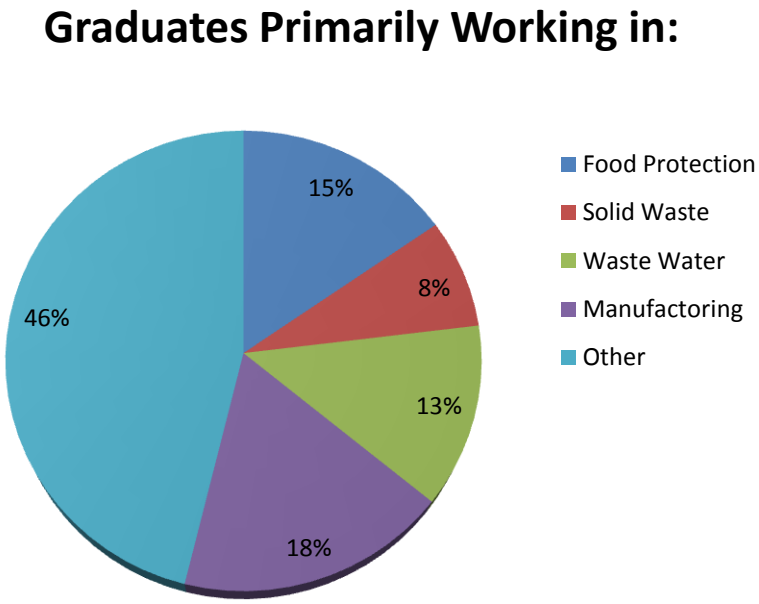


Chart 14

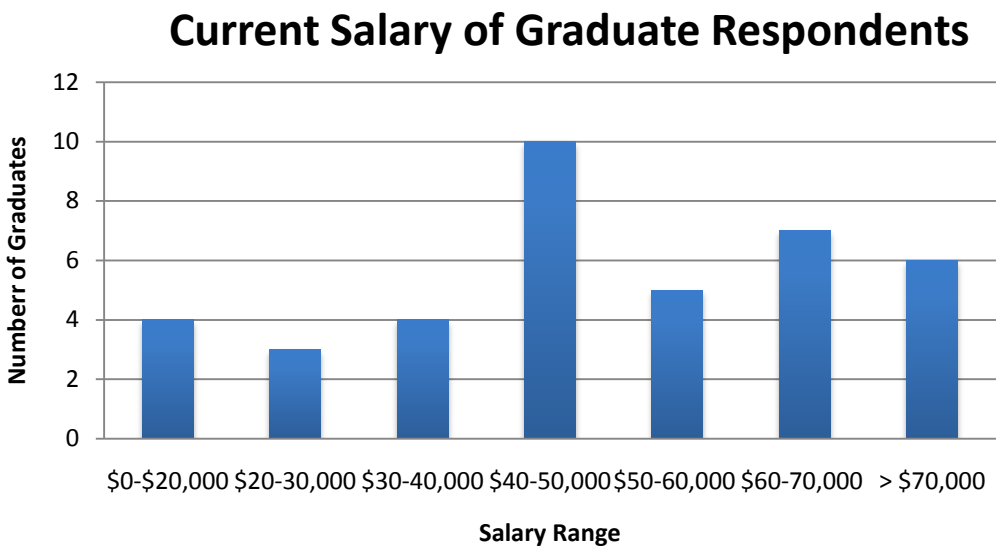
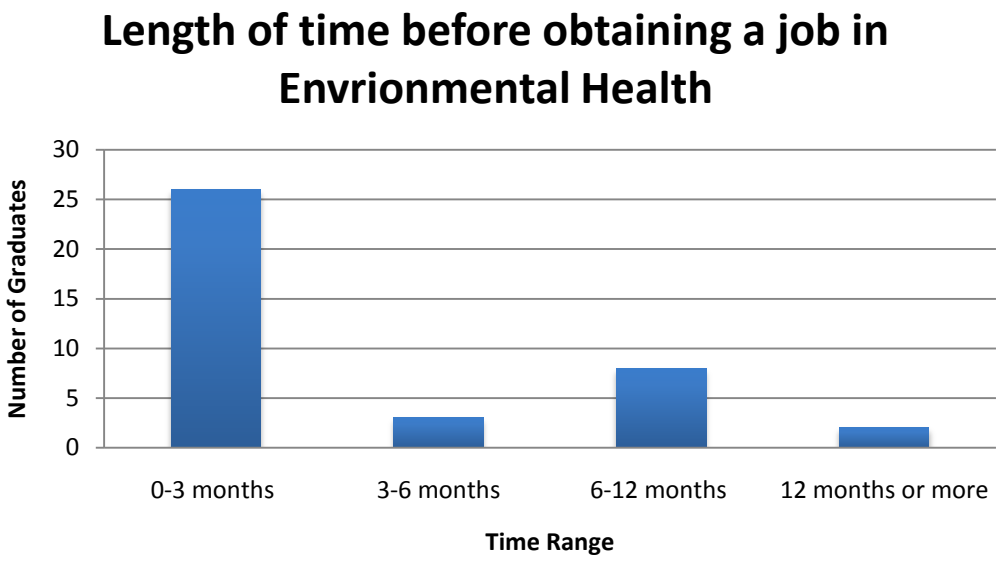


Chart 15



The following were listed as specific places of employment for 17 respondents indicating which one, other agency (please specify):

Table 11-

LA City Watershed Protection Division
Private school
Mojave Desert Air Quality Management District
3M
County Fire Agency
Riverside County Environmental Health
Local Air District
USDC NOAA
CITGO
US Department of Agriculture, US Forest Service
Healthcare
Hospital
University of California
Department of Energy
US Geological Survey
Oil and Gas Refining
Oklahoma Water Resources Board

Graduate Data on Continuing Education and Professional Development

The table below details the degrees completed by graduates after earning a degree in Environmental Health.

Table 12

Degree	Number of Graduates
Completed a Master's Degree	2

The following were listed as specific professional awards received by 6 respondents:

Table 13

Operation Healthy Street Recognition
Still currently enrolled in a master's program.
Million Dollar club ($1,000,000 in grants)
SEG (Similar Exposure Group) implementation at the Joliet, IL facility.
Abbott Environmental Health and Safety Professional Development Program
EPA Bronze Medal, Team of the Quarter

The following were listed as specific certificate or credentialing exams passed by 20 respondents:

Table 14

Passed part I of CHP exam, waiting on results of part II
REHS. Hazardous Materials and Waste Management
Certified Asbestos Consultant (CAC) Registered Environmental Health Specialist (REHS) Associate Safety Professional (ASP) Certified Loss Control Specialist (CLCS)
HAZWOPER and CPR certified
CAOHC Hearing test administrator, Ergonomics specialist, OSHA Industrial Hygiene for inspectors, and other various training certificates I received from OSHA.
Registered Environmental Health Specialist
REHS; ICC-UI
Registered Environmental Health Specialist Certified Technician (Limited) qualified in: Terrestrial Invertebrate Vector Control
Visible Emissions Certification (U.S. EPA Method 9) 2010 - EPA/ARB Certificates of completion for courses: 101,299,310,302,222,190,287,202. 2011 - EPA/ARB Certificates of completion for courses: 100.1,100,251,287. 2012 EPA/ARB Certificates of completion for courses: 299,273,401,231,100.1(re-certification),252,200,231,268,340,246,303,302,300,290.7,190.
REHS- California Registered Environmental Health Specialist, CPO- Certified Pool Operator
-Illinois Department of Public Health Food Service Sanitation Manager's Certification Instructor -Hazardous Waste Management -DOT Hazardous Materials Training -Hazardous Materials 40 hour Technician -Illinois Department of Public Health Asbestos Contractor/Supervisor Worker License -OSHA 30-Hour Training -FEMA ICS 100, 200, 700, and 800 level training -FEMA 400/500 Incident Command System Command and General Staff 40-Hour Training
LEHP
FEMA 100, 200, 700
Asbestos Project supervisor Certified Healthcare Safety Professional Medical LASER Safety Officer
CHMM - Certified Hazardous Material Manager LSO - Laser Safety Officer RSO- Radiation Safety Officer
Registered Environmental Health Specialist, NEHA. Certified Hazardous Materials Manager, IHMM.
HAZWOPER 40 Hour EPA Method 9
Certified Food Manager
Hazwopper
Contract Management

The 21 graduate respondents indicated involvement in the professional organizations listed below:

Table 15

Health Physics Society (member), Southern CA Chapter Health Physics Society (member), American Academy of Health Physics (member)
AIHA, NEHA. Member Only.
ASSE, Member
NEHA
AIHA
CHIMA MEMBER
Registered Environmental Health Specialist
CAPCOA - Air Monitoring Group (member)
CEHA- member
Campus Safety Health and Environmental Management Association

IEHA member
AIHA-Member ASSE-Member
ASHE AHA NFPA
AIHA Prairie Section
AIHA NFPA NEHA member only in all
AIHA (member only), NEHA (member only).
Chicago AIHA - member
Air & Waste Management Association, Lake Michigan States Section - member
AIHA, member only
OSEHP member only
National groundwater association, geological society of America, Oklahoma groundwater association, Oklahoma society of environmental health professionals

Supervisor Survey Results

Background:
Four supervisors were surveyed on the skill levels of graduates.

Table 16
Supervisor Rating of Graduate Skills-All Respondents (5=Best, 1=Worst)

Skills	Number of Respondents	Average
Information Technology/Computer Skill	4	4.5
Public Speaking	4	4
Technical Writing	4	4.25
Identify Reliable and relevant information	4	4
Drawing appropriate conclusions	4	4
Choosing and defending an appropriate course of action	4	4
Conducting a statistical analysis and interpreting data	4	4.25
Applying research methods and problem solving	4	4.5
Working in a team setting	4	4.5
Leadership skills	4	4.25
Organizing work flow	4	4.5
Time management	4	4.5
Project Planning and management	4	4.25
Epidemiology	4	6
Toxicology	4	5.25
Risk Assessment	4	3.75
Risk Communication	4	3.75
Risk Management	4	3.75

Specialty Area Requirements of Jobs-All Respondents

Supervisors of graduates were asked to answer yes or no if the job required the following core competencies. The table below represents the responses of 4 supervisors:

Table 17

Job Requirement	Individual Yes	Individual No	N/A	% Well Prepared	% Under Prepared
Air Quality Control	3	1	0	75%	25%
All-hazard Preparedness	1	3	0	25%	75%
Built Environment	2	2	0	50%	50%
Disease Prevention (e.g. vectorbore, zoonotic, ect.)	0	4	0	0%	100%
Disease Prevention	0	4	0	0%	100%
Environmental Health Planning	1	3	0	25%	75%
Food Protection	0	4	0	0%	100%
Geographical Information Systems (GIS)	2	2	0	50%	50%
Global Environmental Health	1	3	0	25%	75%
Hydrogeology	1	3	0	25%	75%
Injury Prevention	2	2	0	50%	50%
Institutional Health	0	4	0	0%	100%
Occupational Health and Safety	3	1	0	75%	25%
Radiation Health	0	4	0	0%	100%
Recreational Environmental Health	2	2	0	50%	50%
Risk Analysis	2	2	0	50%	50%
Soils	1	3	0	25%	75%
Solid and Hazardous Material and Waste Management	2	2	0	50%	50%
Vector Control	0	4	0	0%	100%
Water and Waste Water	2	2	0	50%	50%

Specialty Area Knowledge & Program Preparation-All Respondents

Supervisors of graduates were asked to answer yes or no if graduates were well-prepared in the following specialty areas. The table below represents the responses of 4 supervisors:

Table 18

Graduate/Employee Preparedness	Well Prepared	Somewhat Prepared	Not Prepared	Not a Job Requirement
Air Quality Control	3	0	0	1
All-hazard Preparedness	1	0	0	3
Built Environment	1	1	0	2
Disease Prevention (e.g. vectorbore, zoonotic, ect.)		0	0	4
Disease Prevention	0	0	0	4
Environmental Health Planning	1	0	0	3
Food Protection	0	0	0	4
Geographical Information Systems (GIS)	1	0	1	2
Global Environmental Health	1	0	0	3
Hydrogeology	0	1	0	3
Injury Prevention	2	0	0	2
Institutional Health	0	0	0	4

Occupational Health and Safety	2	1	0	1
Radiation Health	0	0	0	4
Recreational Environmental Health	1	1	0	2
Risk Analysis	2	0	0	2
Soils	0	1	0	3
Solid and Hazardous Material and Waste Management	2	0	0	2
Vector Control	0	0	0	4
Water and Waste Water	1	1	0	2

Of the 4 surveyed supervisors, 0 indicated the following specific "other" specialty areas needed for the job.