



**NATIONAL
ENVIRONMENTAL HEALTH
SCIENCE AND PROTECTION
ACCREDITATION COUNCIL
(EHAC)**

Outcome Assessment Report 2009

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Background:

According to the EHAC Undergraduate Guidelines section VI. Reporting Obligations of Accredited and Pre-accredited Programs part D. Program Outcomes Assessment Survey, it 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 surveys closed on December 1, 2009.

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

Table 1.

EHAC Re-Accreditation Applicants 2010	Program	Next Accreditation Review	Initial Accreditation	Graduating Classes reflected on OA	# of Graduate Responders	# of Supervisor Responders
Benedict College	Undergraduate	2010	2004	2004-2009	3	0
Colorado State University	Undergraduate	2010	1973	2004-2009	40	14
New Mexico State University	Undergraduate	2010	2006	2006-2009	2	1
Ohio University	Undergraduate	2010	1982	2004-2009	23	1

Graduate Skills

Listed below are core competencies in environmental health programs. Respondents were asked to choose the option that most closely described their skill level. The percentages represent 68 survey respondents.

Chart 1.

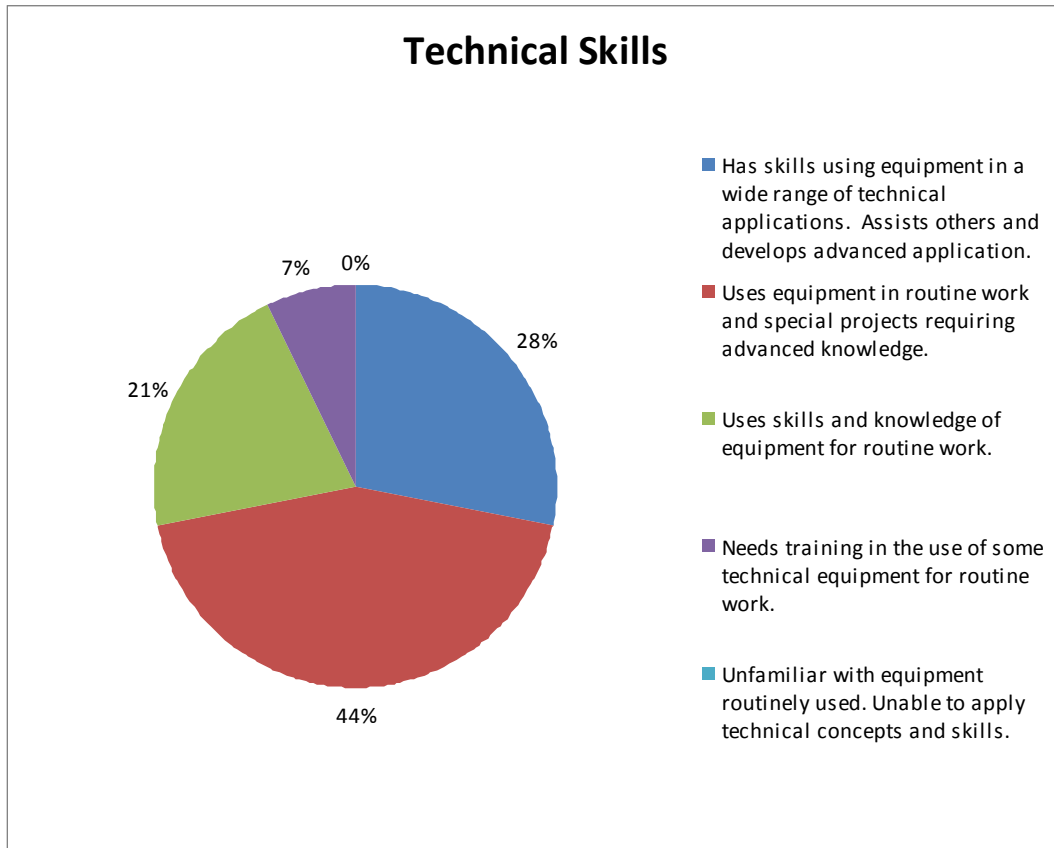


Chart 2.

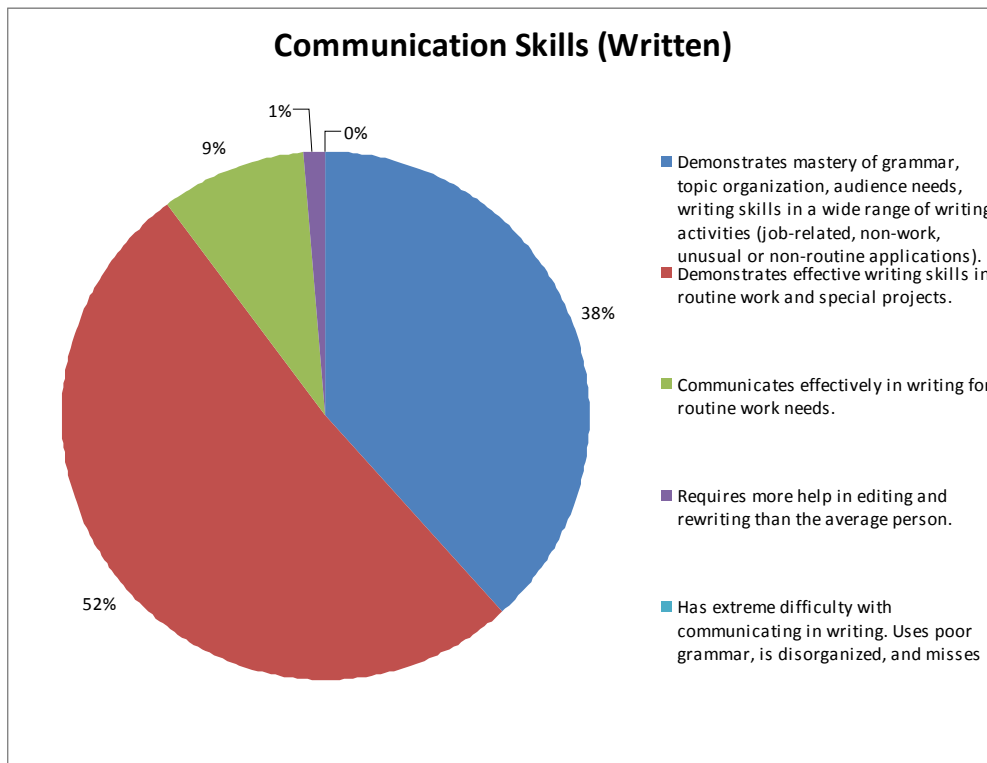


Chart 3.

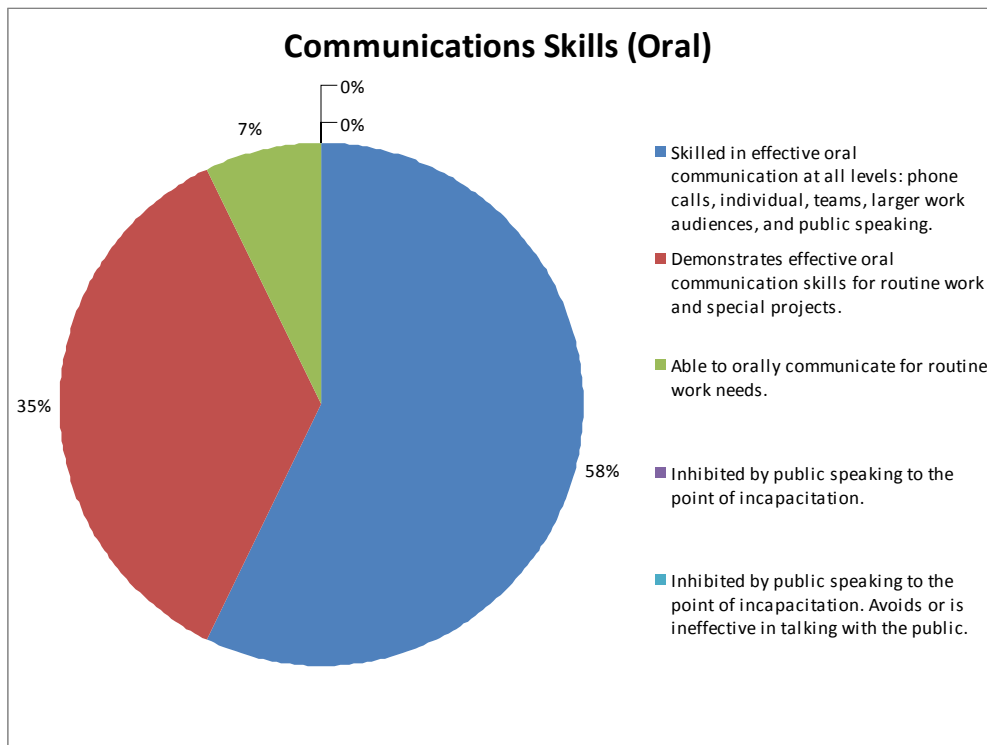


Chart 4.

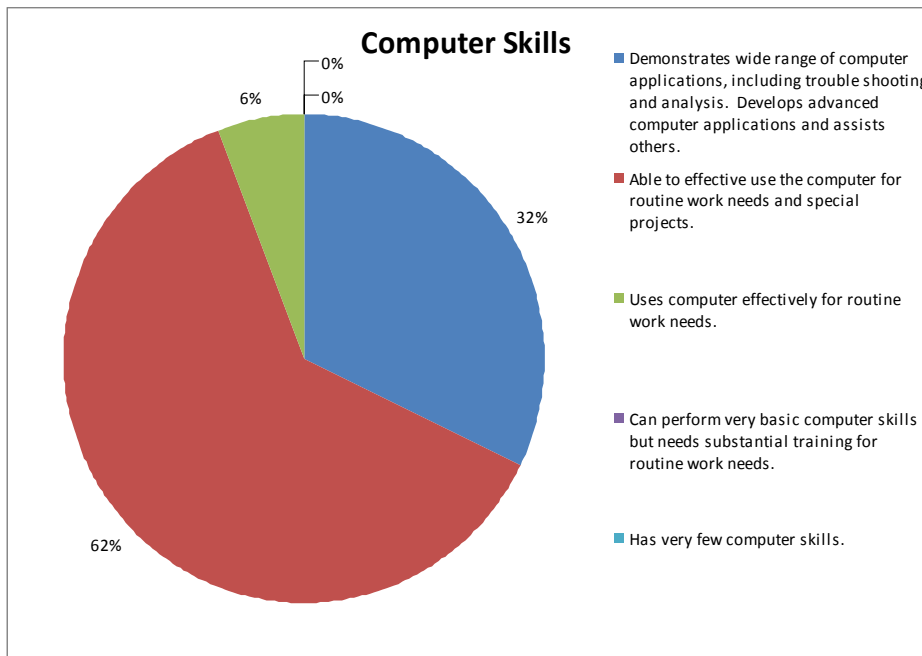


Chart 5.

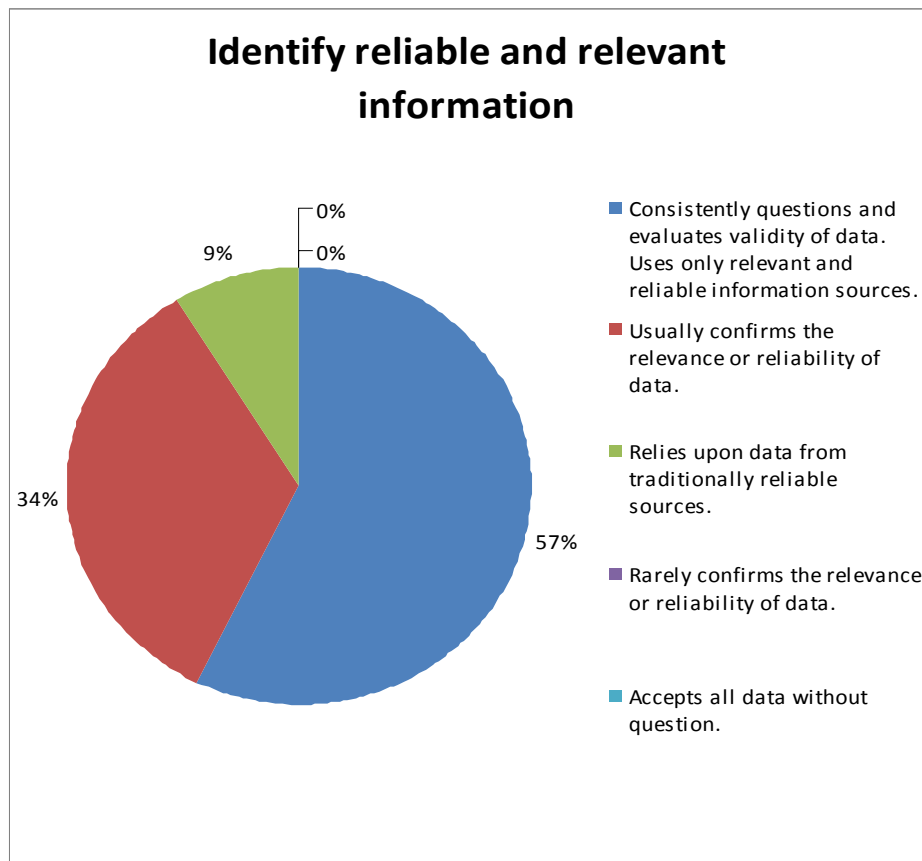


Chart 6.

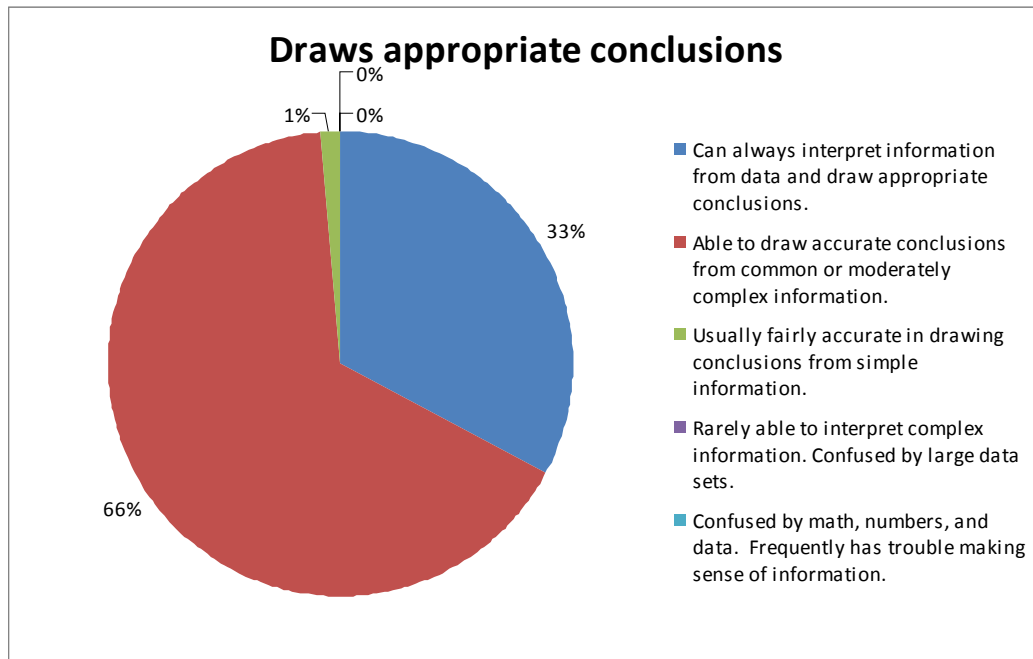


Chart 7.

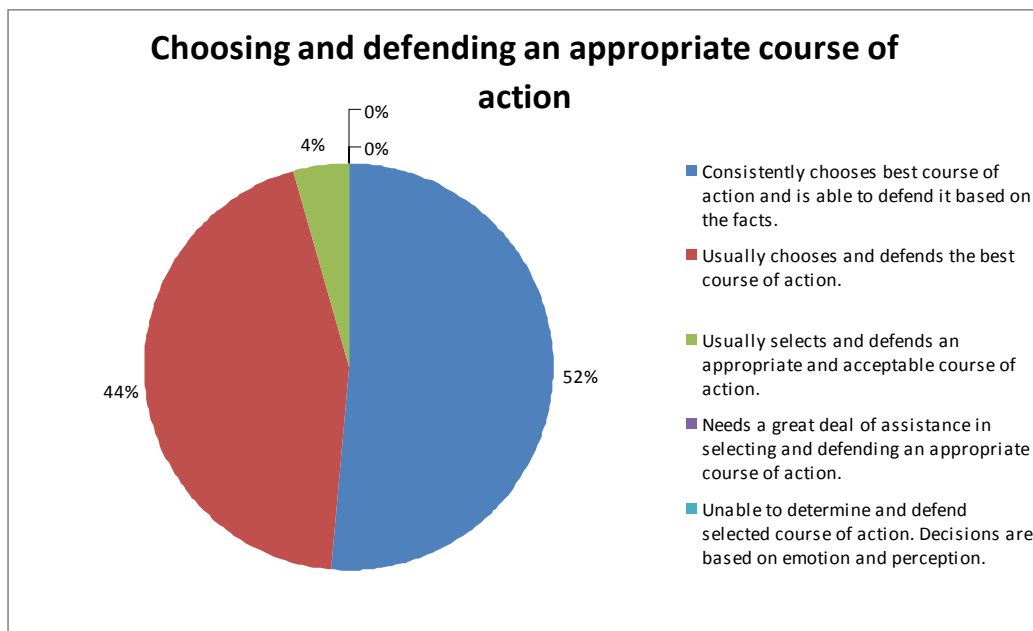


Chart 8.

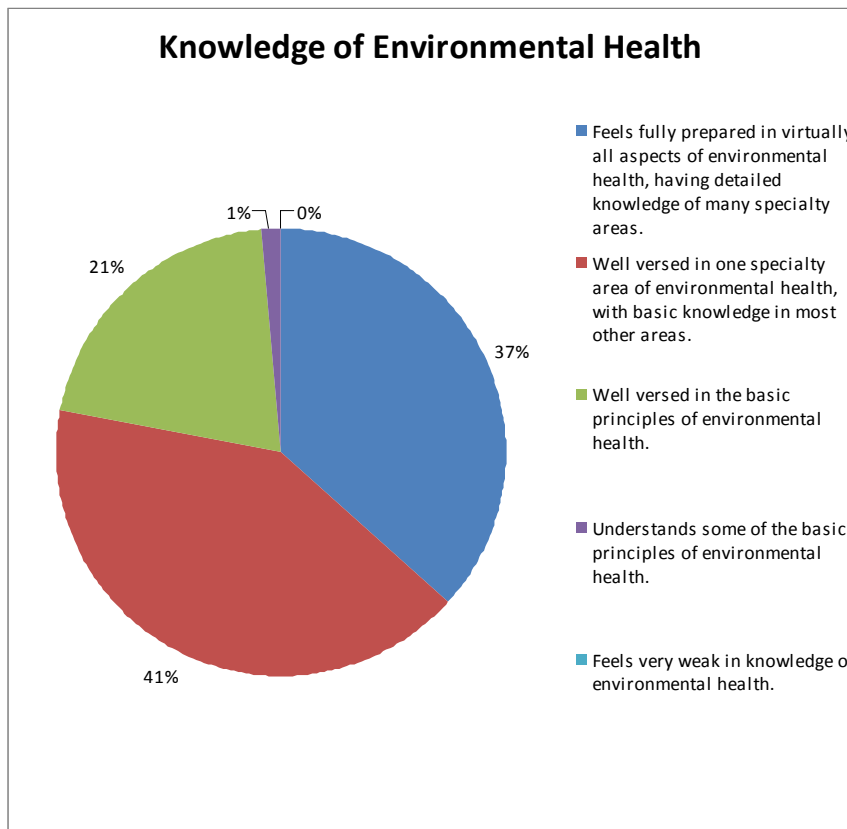


Chart 9.

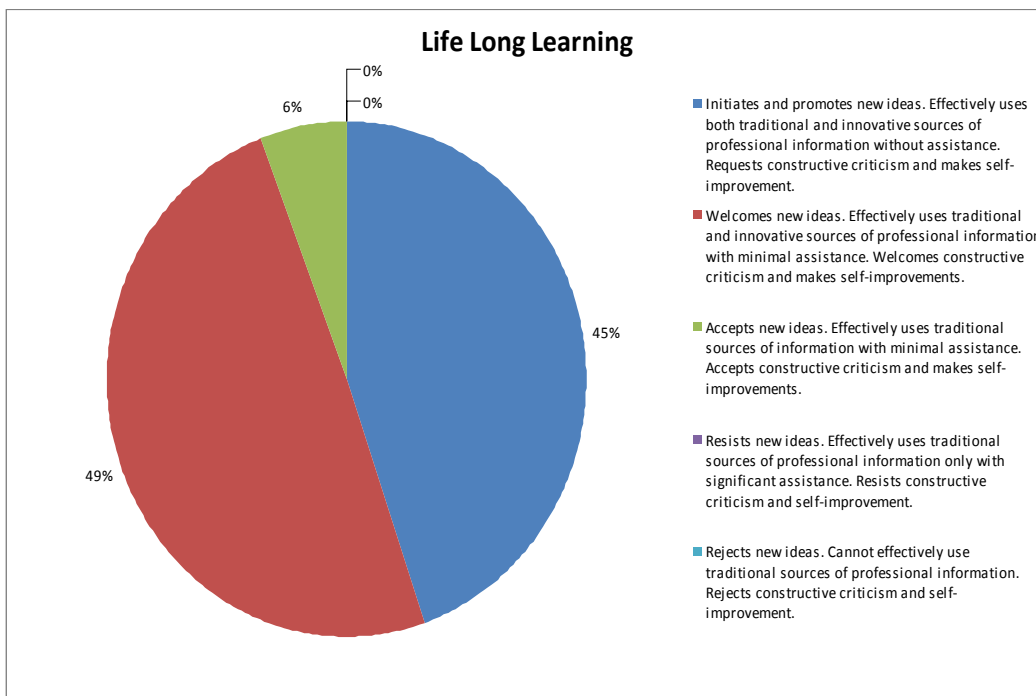


Chart 10.

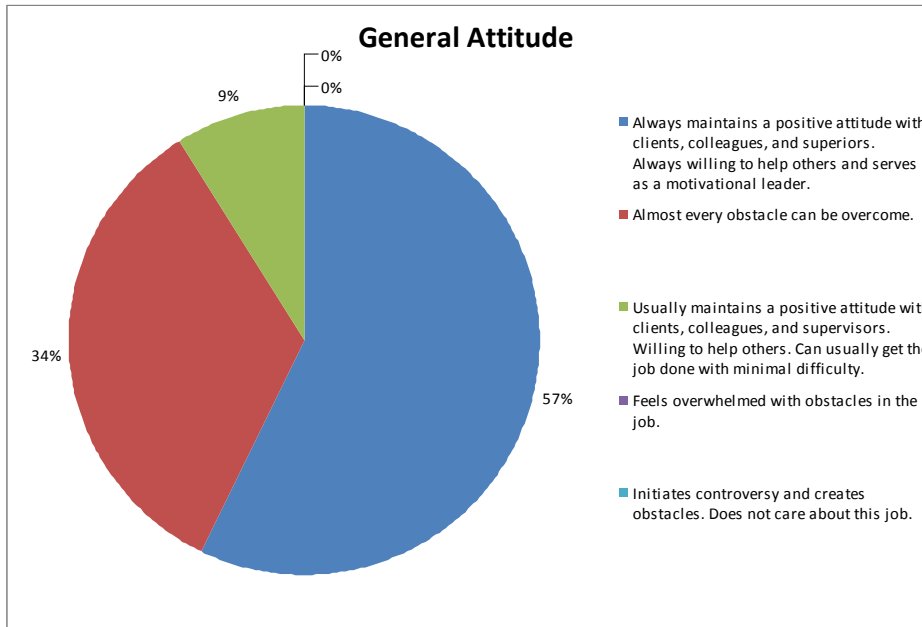


Chart 11.

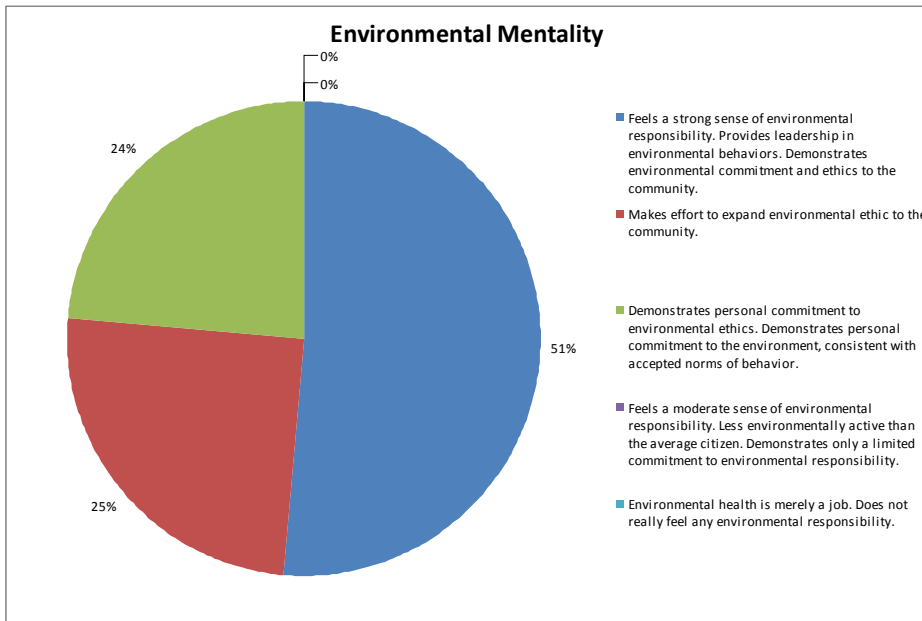


Chart 12.

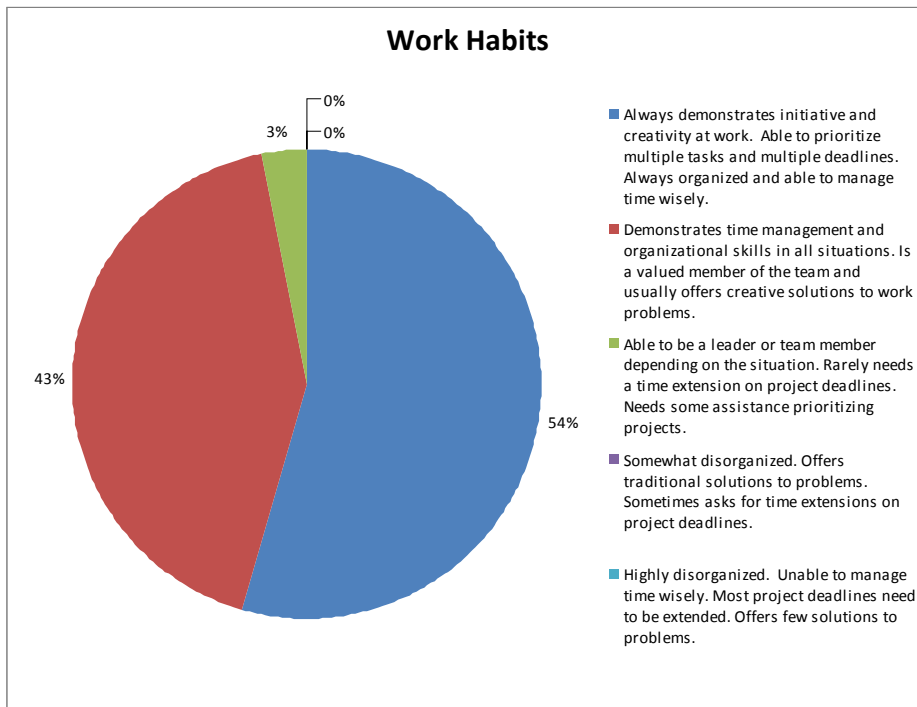


Chart 13.

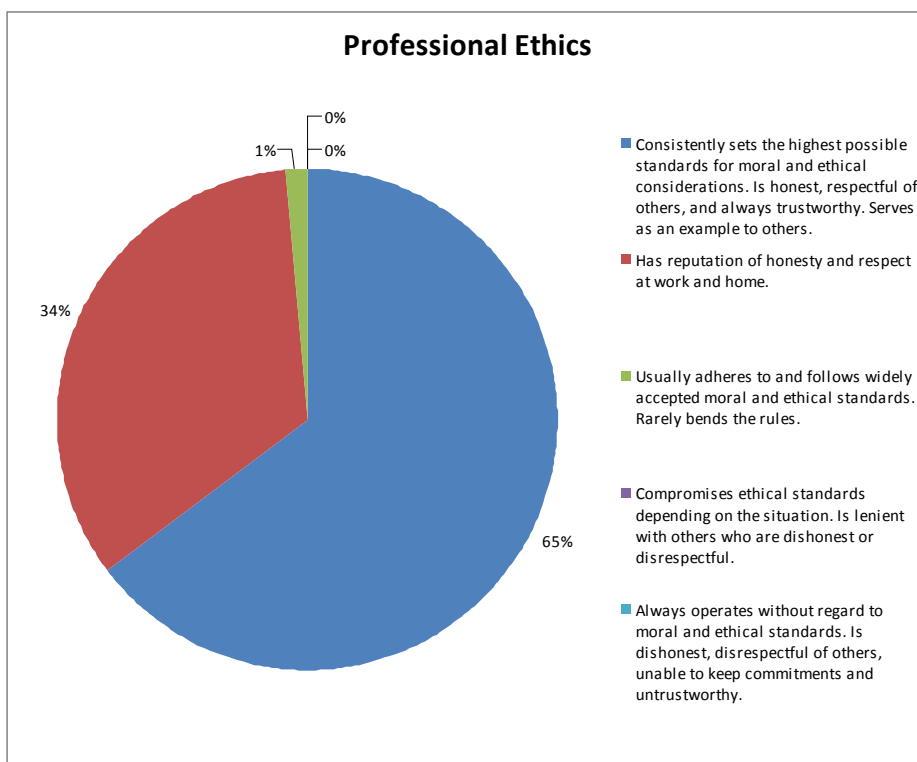


Chart 14.

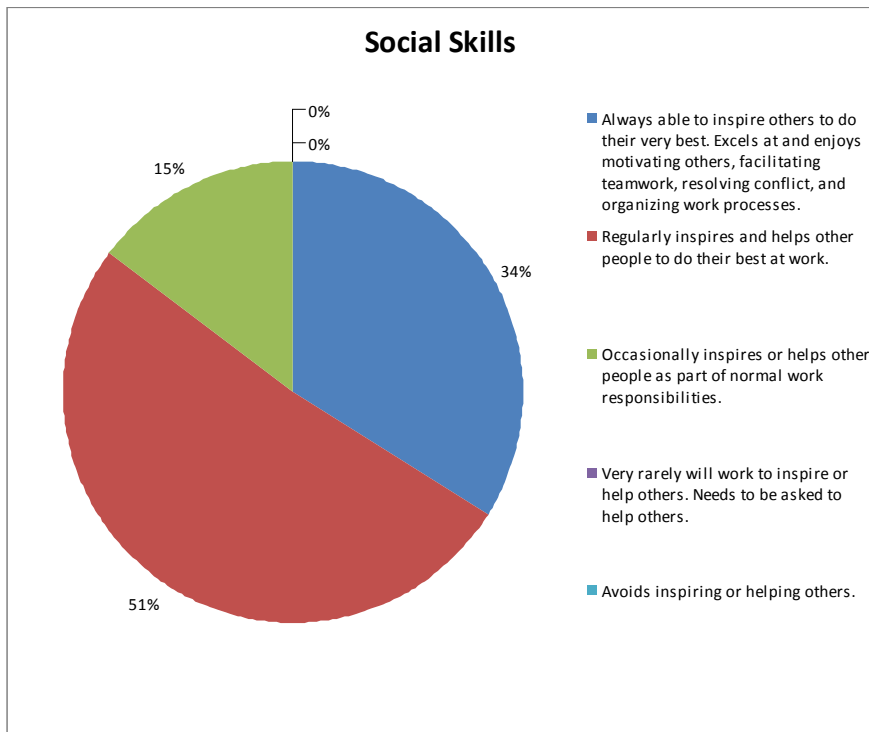


Chart 15.

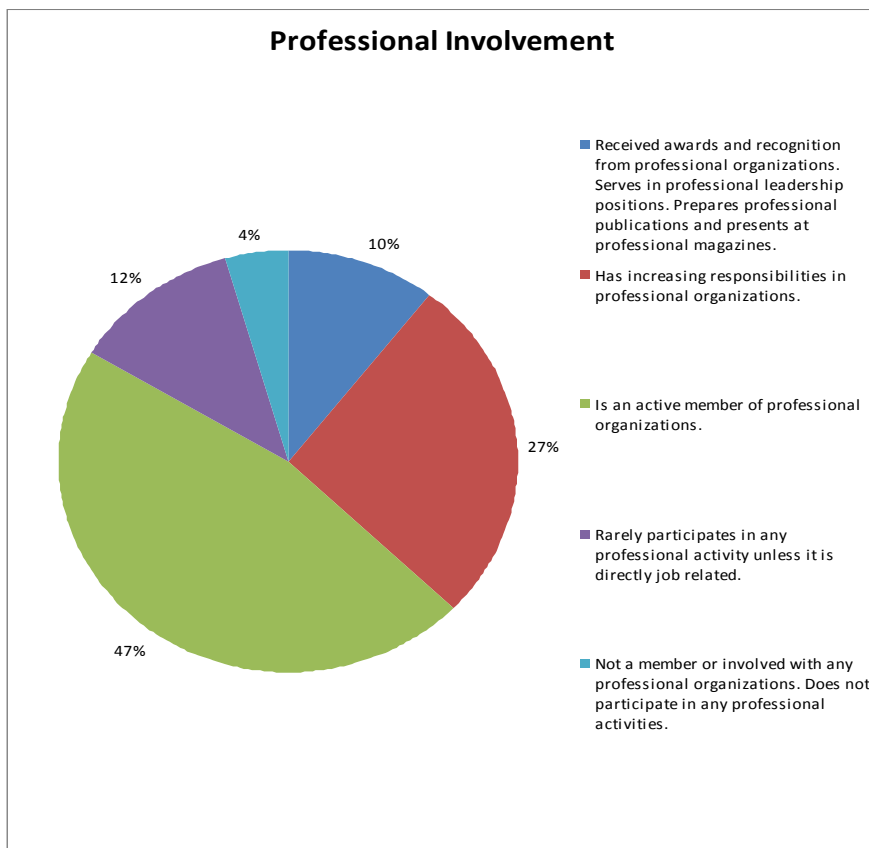


Chart 16.

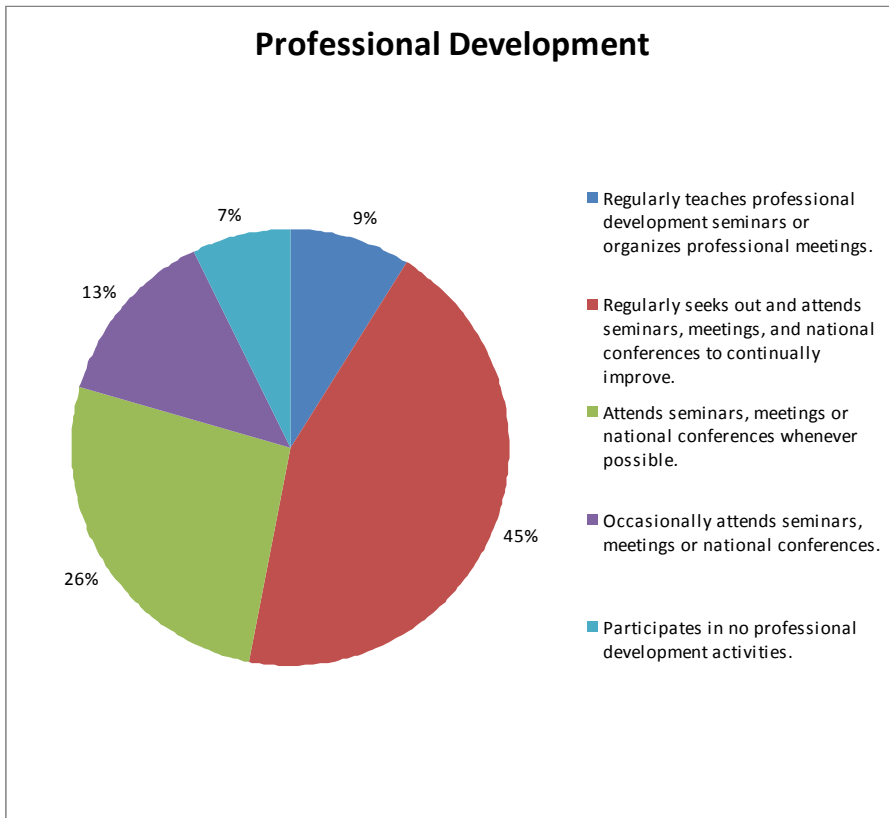


Chart 17.

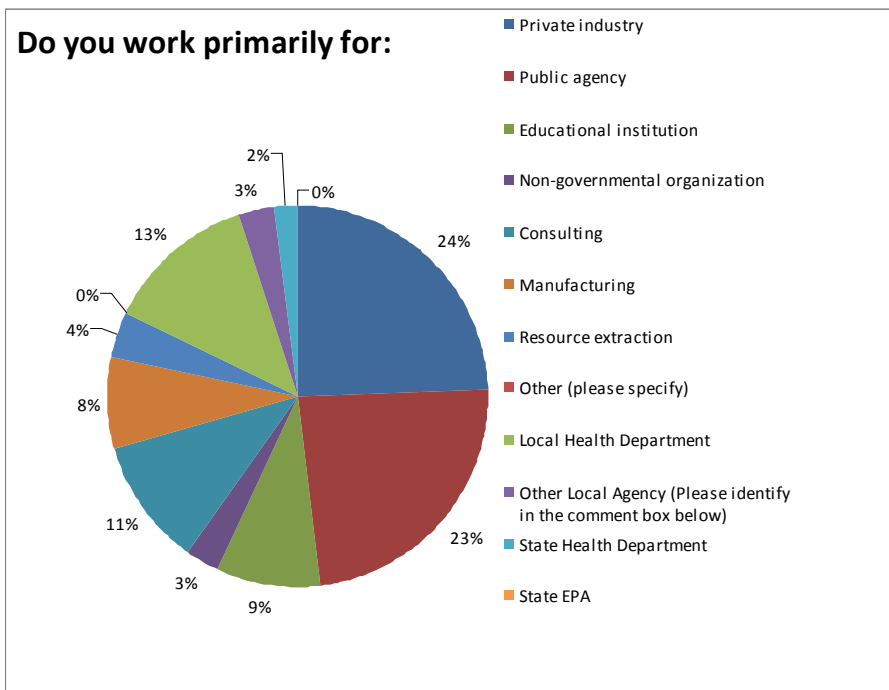


Table Key: 1-Best 5=Worst

**Table 2.
Graduate Skills-All Respondents**

Skills	Total Respondents	Average
Technical Skills	68	2.03
Communication Skills (Written)	68	1.74
Communication Skills (Oral)	68	1.51
Computer Skills	68	1.74
Identify reliable and relevant information.	68	1.53
Drawing Appropriate Conclusions	68	1.63
Choosing and defending an appropriate course of action.	68	1.56
Knowledge of Environmental Health	68	1.82
Life Long Learning	68	1.62
General Attitude	68	1.54
Environmental Mentality	68	1.71
Work Habits	68	1.49
Professional Ethics	68	1.37
Social Skills	68	1.79
Professional Involvement	68	2.68
Professional Development	68	2.66

**Table 3.
Graduate Skills-Benedict College**

Skills	Total Respondents	Average
Technical Skills	3	2.67
Communication Skills (Written)	3	2.33
Communication Skills (Oral)	3	1.67
Computer Skills	3	2.00
Identify reliable and relevant information.	3	2.00
Drawing Appropriate Conclusions	3	2.00
Choosing and defending an appropriate course of action.	3	2.33
Knowledge of Environmental Health	3	2.33
Life Long Learning	3	2.00
General Attitude	3	1.33
Environmental Mentality	3	1.67
Work Habits	3	1.67
Professional Ethics	3	1.67
Social Skills	3	2.33
Professional Involvement	3	3.33
Professional Development	3	3.67

**Table 4.
Graduate Skills-Colorado State University**

Skills	Total	Average
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	Respondents	
Technical Skills	40	2.18
Communication Skills (Written)	40	1.75
Communication Skills (Oral)	40	1.45
Computer Skills	40	1.73
Identify reliable and relevant information.	40	1.40
Drawing Appropriate Conclusions	40	1.65
Choosing and defending an appropriate course of action.	40	1.53
Knowledge of Environmental Health	40	1.78
Life Long Learning	40	1.53
General Attitude	40	1.45
Environmental Mentality	40	1.75
Work Habits	40	1.40
Professional Ethics	40	1.35
Social Skills	40	1.80
Professional Involvement	40	2.70
Professional Development	40	2.60

**Table 5.
Graduate Skills-New Mexico State University**

Skills	Total Respondents	Average
Technical Skills	2	1.50
Communication Skills (Written)	2	2.00
Communication Skills (Oral)	2	1.50
Computer Skills	2	1.00
Identify reliable and relevant information.	2	1.00
Drawing Appropriate Conclusions	2	1.00
Choosing and defending an appropriate course of action.	2	1.50
Knowledge of Environmental Health	2	2.00
Life Long Learning	2	1.50
General Attitude	2	1.50
Environmental Mentality	2	1.00
Work Habits	2	1.50
Professional Ethics	2	1.50
Social Skills	2	2.00
Professional Involvement	2	2.00
Professional Development	2	2.50

**Table 6.
Graduate Skills-Ohio University**

Skills	Total Respondents	Average
Technical Skills	23	1.74
Communication Skills (Written)	23	1.61
Communication Skills (Oral)	23	1.61
Computer Skills	23	1.78
Identify reliable and relevant information.	23	1.74

Drawing Appropriate Conclusions	23	1.61
Choosing and defending an appropriate course of action.	23	1.52
Knowledge of Environmental Health	23	1.83
Life Long Learning	23	1.74
General Attitude	23	1.74
Environmental Mentality	23	1.70
Work Habits	23	1.61
Professional Ethics	23	1.35
Social Skills	23	1.70
Professional Involvement	23	2.61
Professional Development	23	2.65

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 average response of all survey respondents:

Table 7.

My job requires knowledge of:	Individual Yes	Individual No	Total	Average (All) Yes	Average (All) No
Epidemiology	41	21	62	0.66	0.34
Statistical Methods	47	14	61	0.77	0.23
Toxicology	46	16	62	0.74	0.26
Environmental Economics	21	39	60	0.35	0.65
Environmental Health Management	44	17	61	0.72	0.28
Risk Assessment	55	8	63	0.87	0.13
Risk Communication	54	7	61	0.89	0.11
Air Quality Control (Indoor & Outdoor)	45	15	60	0.75	0.25
Environmental Chemistry	38	23	61	0.62	0.38
Environmental Law and Public Policy Development	41	19	60	0.68	0.32
Environmental Epidemiology	32	28	60	0.53	0.47
Environmental Microbiology	35	26	61	0.57	0.43
Food Protection	31	31	62	0.50	0.50
Global Environmental Health	24	37	61	0.39	0.61
Environmental Health Planning (Land Use, Transportation, Energy, Urban Development, Resource Conservation)	28	32	60	0.47	0.53
Housing	13	47	60	0.22	0.78
Hazardous Materials	55	7	62	0.89	0.11
Hydrogeology	16	44	60	0.27	0.73
Industrial Hygiene	44	19	63	0.70	0.30
Injury Prevention	52	9	61	0.85	0.15
Noise Control	37	25	62	0.60	0.40
Occupational Health and Safety	52	12	64	0.81	0.19
Radiation Health (Ionizing and Non-Ionizing)	32	30	62	0.52	0.48
Recreational Environmental Health	15	46	61	0.25	0.75

Institutional Health (Including infection control and infectious waste)	39	22	61	0.64	0.36
Soils	28	32	60	0.47	0.53
Solid Waste Management	36	26	62	0.58	0.42
Vector Control	31	29	60	0.52	0.48
Waste Water	38	24	62	0.61	0.39
Water Quality	36	26	62	0.58	0.42
Water Supply	29	31	60	0.48	0.52

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 or graduate program. The last two columns to the far right represent the average response of all survey respondents:

Table 8.

My program prepared me in:	Individuals Yes	Individuals No	Total	Average (All)	Total % Over-prepared	Total % Under-prepared
Epidemiology	59	2	61	0.97	0.28	0.00
Statistical Methods	53	8	61	0.87	0.10	0.04
Toxicology	57	6	63	0.90	0.21	0.06
Environmental Economics	24	37	61	0.39	0.16	0.10
Environmental Health Management	48	13	61	0.79	0.12	0.07
Risk Assessment	59	5	64	0.92	0.10	0.07
Risk Communication	56	6	62	0.90	0.06	0.07
Air Quality Control (Indoor & Outdoor)	59	4	63	0.94	0.22	0.06
Environmental Chemistry	52	10	62	0.84	0.24	0.04
Environmental Law and Public Policy Development	44	17	61	0.72	0.18	0.15
Environmental Epidemiology	46	15	61	0.75	0.19	0.01
Environmental Microbiology	52	9	61	0.85	0.26	0.03
Food Protection	52	9	61	0.85	0.32	0.04
Global Environmental Health	48	14	62	0.77	0.35	0.06
Environmental Health Planning (Land Use, Transportation, Energy, Urban Development, Resource Conservation)	38	23	61	0.62	0.24	0.10
Housing	21	40	61	0.34	0.18	0.07
Hazardous Materials	60	4	64	0.94	0.10	0.06
Hydrogeology	28	33	61	0.46	0.19	0.03
Industrial Hygiene	65	0	65	1.00	0.28	0.00
Injury Prevention	53	10	63	0.84	0.12	0.13
Noise Control	61	2	63	0.97	0.35	0.01
Occupational Health and Safety	63	2	65	0.97	0.16	0.01
Radiation Health (Ionizing and Non-Ionizing)	63	0	63	1.00	0.43	0.00
Recreational Environmental Health	31	30	61	0.51	0.26	0.03

Institutional Health (Including infection control and infectious waste)	52	9	61	0.85	0.26	0.09
Soils	31	30	61	0.51	0.21	0.18
Solid Waste Management	56	8	64	0.88	0.32	0.06
Vector Control	50	11	61	0.82	0.29	0.06
Waste Water	55	8	63	0.87	0.31	0.09
Water Quality	57	7	64	0.89	0.34	0.04
Water Supply	48	13	61	0.79	0.32	0.06

Are there other specialty areas that you feel are required for your job?

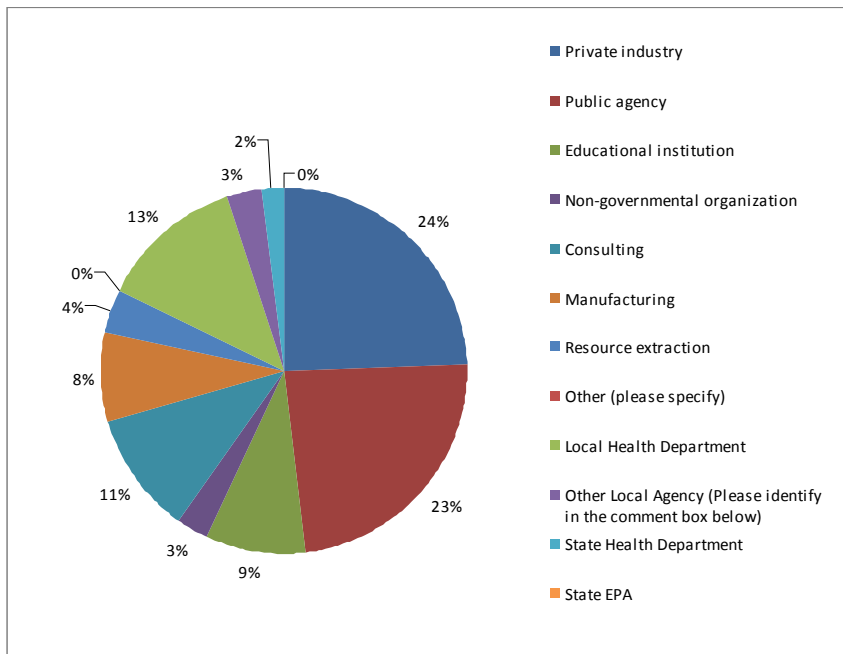
Table 9.

Food Microbiology
Effective control methods for Occupational injury prevention
Hazard Communication
Industrial Ventilation
A lot of hands on work with the CFR21
I'm currently a graduate student and I'm unemployed.
Plant Physiology and morphology
Safety, More Industrial Hygiene Principles and Practices
Regulation Compliance & Procedure Adherence
Grant process, flu planning, master planning, ethics
Ergonomics
Emergency Preparedness & planning
Regulatory framework of occupational safety and health
Safety and OSHA Compliance
more hands on experience in compliance assessment
Transportation of dangerous goods, electrical safety
Writing - public policy, information to the general public, web based writings
Health Administration
General admin skills
Preparing and presenting presentations, interviewing skills

Graduate Work Place Data:

This pie chart represents job sectors for 68 graduates of the four schools surveyed:

Chart 18.



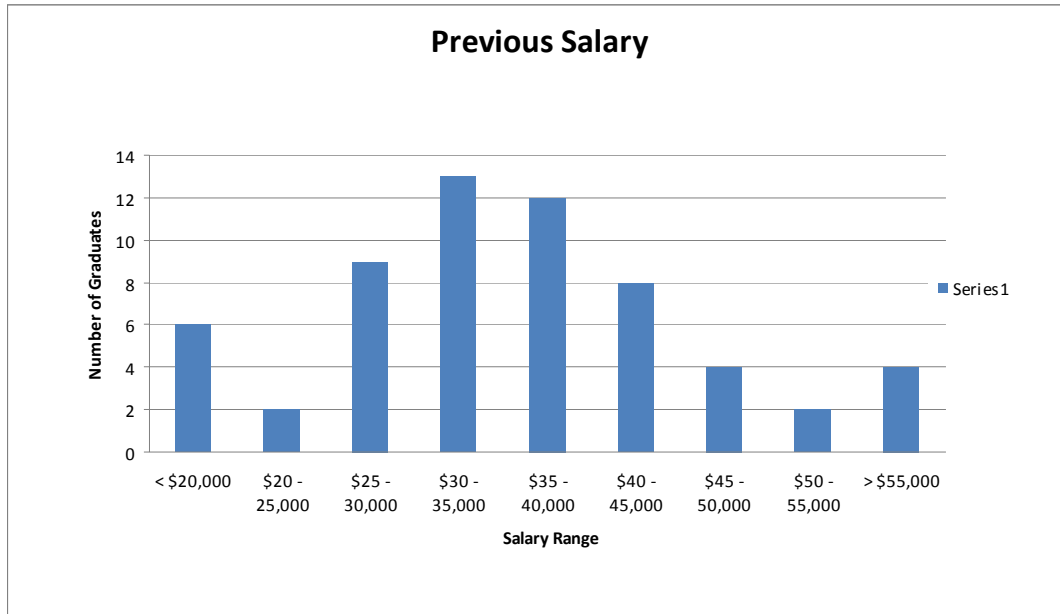
The following were listed as specific places of employment for fifteen respondents:

Table 10.

US FDA
US DOE National Laboratory
US FDA/ USPHS
Major Public Utility
US DOL OSHA
I worked for US CDC over the summer.
US DOE
County Solid Waste Management
Utilities - City
Memorial Hospital
USAP
IHS Hospital
Microbiologist
Sales
Contracted for the National Science Foundation

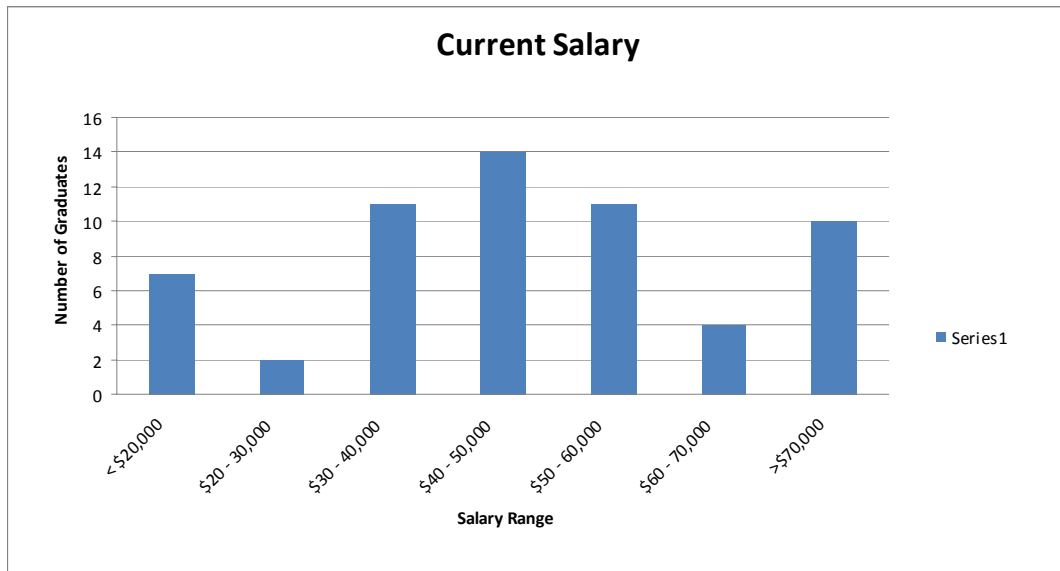
The following chart represents graduates salary range after graduation:

Chart 19.



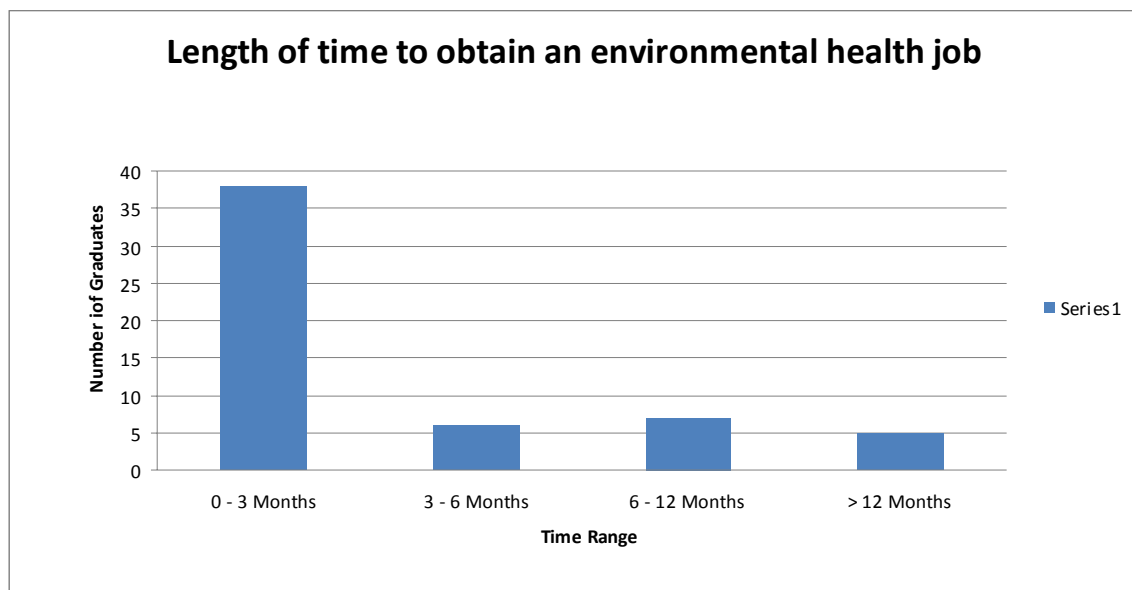
The following chart represents graduates current salary range:

Chart 20.



The following chart signifies the amount of time it took graduates to obtain an Environmental Health occupation:

Chart 21.



Supervisor Survey Results

Background:

Sixteen supervisors responded to the survey. Supervisors of graduates were asked if the job required the following core competencies:

Table 11.

Specialty Area	Answered yes	Answered no	Total	Average
Epidemiology	11	3	14	1.21
Statistical Methods	11	4	15	1.27
Toxicology	7	7	14	1.50
Environmental Economics	2	12	14	1.86
Environmental Health Management	7	7	14	1.50
Risk Assessment	11	4	15	1.27
Risk Communication	11	4	15	1.27
Air Quality Control (Indoor & Outdoor)	8	7	15	1.47
Environmental Chemistry	7	7	14	1.50
Environmental Law and Public Policy Development	6	8	14	1.57
Environmental Epidemiology	6	8	14	1.57
Environmental Microbiology	8	6	14	1.43
Food Protection	8	6	14	1.43
Global Environmental Health	3	11	14	1.79

Environmental Health Planning (Land Use, Transportation, Energy, Urban Development, Resource Conservation)	7	7	14	1.50
Housing	2	12	14	1.86
Hazardous Materials	11	4	15	1.27
Hydrogeology	2	12	14	1.86
Industrial Hygiene	10	5	15	1.33
Injury Prevention	7	7	14	1.50
Noise Control	4	10	14	1.71
Occupational Health and Safety	10	5	15	1.33
Radiation Health (Ionizing and Non-Ionizing)	7	8	15	1.53
Recreational Environmental Health	5	9	14	1.64
Institutional Health (Including infection control and infectious waste)	10	4	14	1.29
Soils	5	9	14	1.64
Solid Waste Management	3	11	14	1.79
Vector Control	7	7	14	1.50
Waste Water	6	8	14	1.57
Water Quality	8	6	14	1.43
Water Supply	3	11	14	1.79

The Supervisor was asked to rate the graduate's preparedness in the following core competencies:

Table 12.

Specialty Area	Answered yes	Answered no	Total	Average
Epidemiology	11	0	11	1.00
Statistical Methods	10	2	12	1.17
Toxicology	8	1	9	1.11
Environmental Economics	3	2	5	1.40
Environmental Health Management	5	3	8	1.38
Risk Assessment	12	0	12	1.00
Risk Communication	12	1	13	1.08
Air Quality Control (Indoor & Outdoor)	8	3	11	1.27
Environmental Chemistry	7	2	9	1.22
Environmental Law and Public Policy Development	5	1	6	1.17
Environmental Epidemiology	6	1	7	1.14
Environmental Microbiology	7	2	9	1.22
Food Protection	8	0	8	1.00
Global Environmental Health	3	2	5	1.40
Environmental Health Planning (Land Use,	4	4	8	1.50

Transportation, Energy, Urban Development, Resource Conservation)				
Housing	3	2	5	1.40
Hazardous Materials	10	3	13	1.23
Hydrogeology	1	4	5	1.80
Industrial Hygiene	11	1	12	1.08
Injury Prevention	5	4	9	1.44
Noise Control	5	1	6	1.17
Occupational Health and Safety	10	1	11	1.09
Radiation Health (Ionizing and Non-Ionizing)	6	4	10	1.40
Recreational Environmental Health	5	1	6	1.17
Institutional Health (Including infection control and infectious waste)	9	1	10	1.10
Soils	2	6	8	1.75
Solid Waste Management	3	2	5	1.40
Vector Control	7	0	7	1.00
Waste Water	6	2	8	1.25
Water Quality	8	2	10	1.20
Water Supply	4	1	5	1.20

Training Areas Needing Improvement:

*Note: Only sixteen supervisors responded to the survey of 68 graduates. Therefore, the following does not represent an equal representation of supervisors.

Table 13.

Areas to be improved:	Supervisors	Graduates
Environmental Health Planning (Land Use, Transportation, Energy, Urban Development, Resource Conservation)	50%	10%
Hydrogeology	80%	3%
Radiation Health (Ionizing and Non-Ionizing)	40%	0%
Soils	75%	18%
Injury Prevention	44%	13%
Housing	40%	7%