National Environmental Health Science & Protection Accreditation Council

Enhancing the education and training of students in environmental health science and protection

Undergraduate Outcome Assessment

2023-2024

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Chapter 1. Introduction

This report details analysis of the data provided by former undergraduates of programs seeking reaccreditation during the 2023-2024 academic year and a number of their supervisors.

Background

EHAC Undergraduate Requirements Section VI. Reporting Obligations of Accredited Programs Part D. Program Outcomes Assessment Survey states that:

> "At the time of reaccreditation, 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 evaluation review for reaccreditation purposes for a given institution. The Council will use the compiled information from all institutions undergoing reaccreditation to evaluate and consider changes to the requirements of accreditation."

The outcome assessment tool consists of two surveys conducted via surveymonkey.com, one for current employees and the other for their supervisors. It is distributed to the reaccreditation candidate Program Directors for distribution to former students. The graduates then provide the survey link to their supervisors for survey completion.

Chapter 1. Introduction

Survey Context and Summary

EHAC's core mission is to accredit Environmental Health (EH) Programs that provide a scientifically rigorous and practical based education, which prepares graduates to enter the EH field "work force ready" and prepared to problem solve using critical thinking skills acquired during their university education. Toward this end, EHAC is continuously identifying strengths and weaknesses related to graduates successfully entering and progressing in the EH field of their choice. Survey responses from both graduates employed in the EH field (employees), and their supervisors assist EHAC in assessing and adapting Undergraduate Requirements and Graduate Guidelines for accreditation to the ever-evolving arena of Environmental Health.

Questions for both employees and their supervisors focus on assessing the adequacy and effectiveness of an employee's knowledge, skills, and abilities related to their EH job, with employees conducting self-assessments and supervisors evaluating their current employees.

The following report provides a graphic representation of the results of the surveys. Table 1 presents the EHAC accredited undergraduate degree programs going through the 2023-2024 reaccreditation process, the number of employee responses, their dates of graduation, and the number of supervisor responses. There were 10 total employee respondents to the survey. Nine of these respondents are currently employed in EH-related professions. One respondent is in graduate school. Three supervisors of Undergraduate EH employees participated in the survey and their responses are included in this report, as well. However, only two fully completed the survey.

Chapter 1. Introduction

Survey Context and Summary

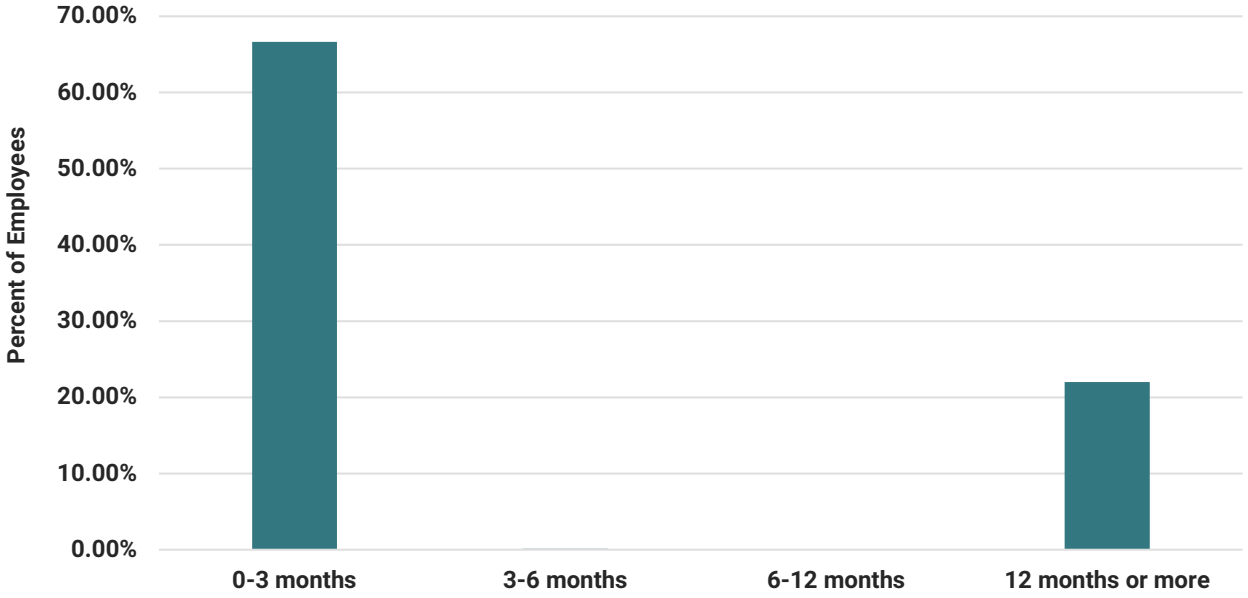
Table 1: 2023-2024 Outcome Assessment Respondents from Undergraduate Programs

Re-accreditation Applicants	Next Accreditation Review	Initial Accreditation Year	Graduating Classes Reflected	Number of EH Employee Respondents	Number of Supervisor Respondents
East Carolina University	2024	1974	2007, 2017, 2021	4	3
University of Findlay	2024	2012	2022, 2023	5	0
University of Washington	2024	1976	2020	1	0
Totals				10	3 (only 2 fully completed the survey)

Chapter 2. Undergraduate Employee Results

EH Employee Workplace Data

Chart 1: Length of Time to First EH Employment Post Graduation (N=9)



- More than 60% of respondents gained EH employment within 3 months of graduating.

Chapter 2. Undergraduate Employee Results

EH Employee Workplace Data

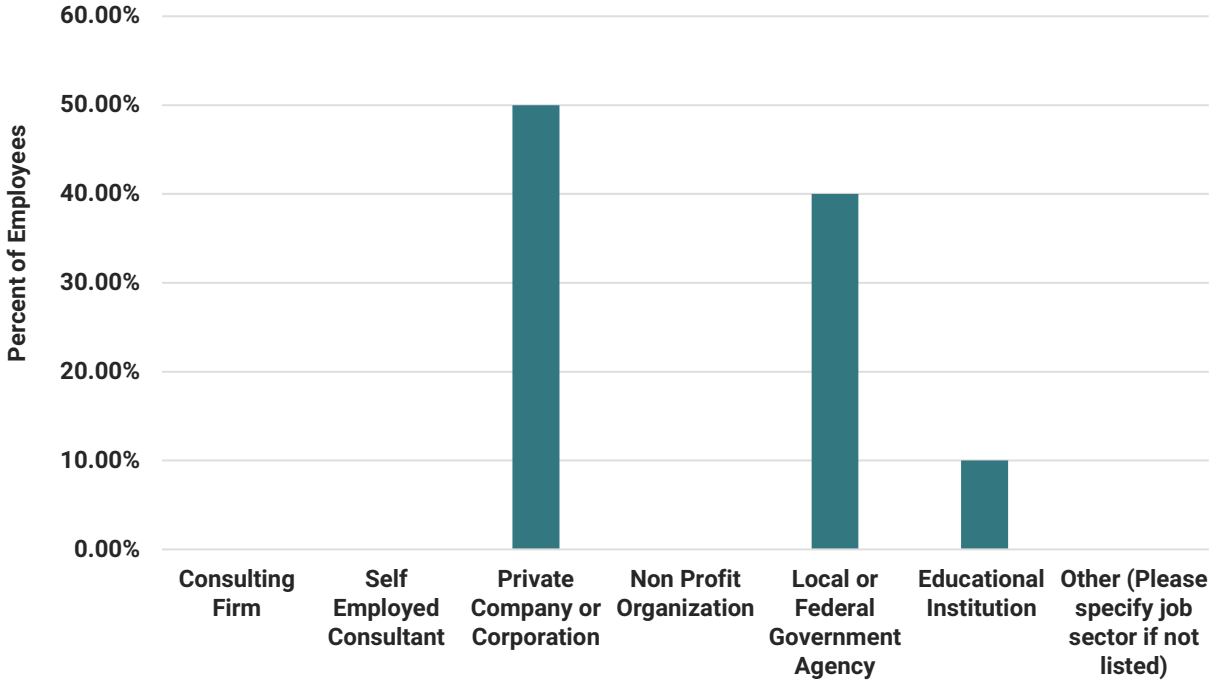
Table 2: Job Titles of Employee Respondents

Job Title	Total
Associate Safety Specialist	1
Consumer Safety Officer	1
Design Engineering EHS Specialist	1
EHS Engineer	1
Environmental Health Specialist Intern	1
Health, Safety, and Environmental Factor Leadership Development Program	1
Safety Health Environmental Factory Leadership Development Program	1
Registered Environmental Health Specialist (REHS)	1
Vector Control Program Manager	1

Chapter 2. Undergraduate Employee Results

EH Employee Workplace Data

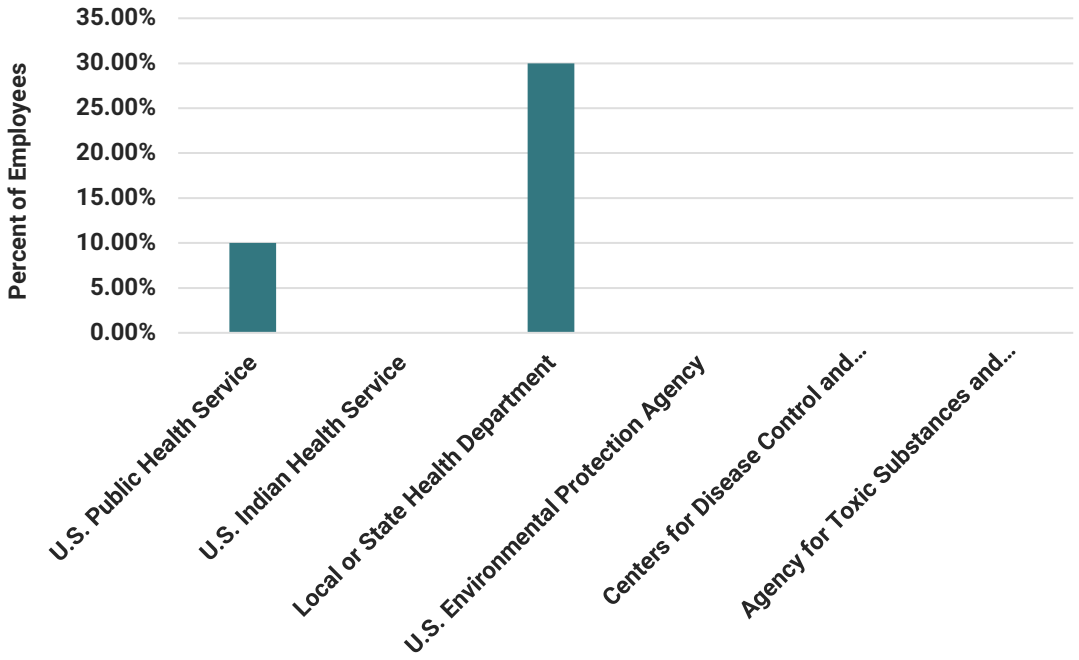
Chart 2: Job Sector Distribution of Employees (N=10)



Chapter 2. Undergraduate Employee Results

EH Employee Workplace Data

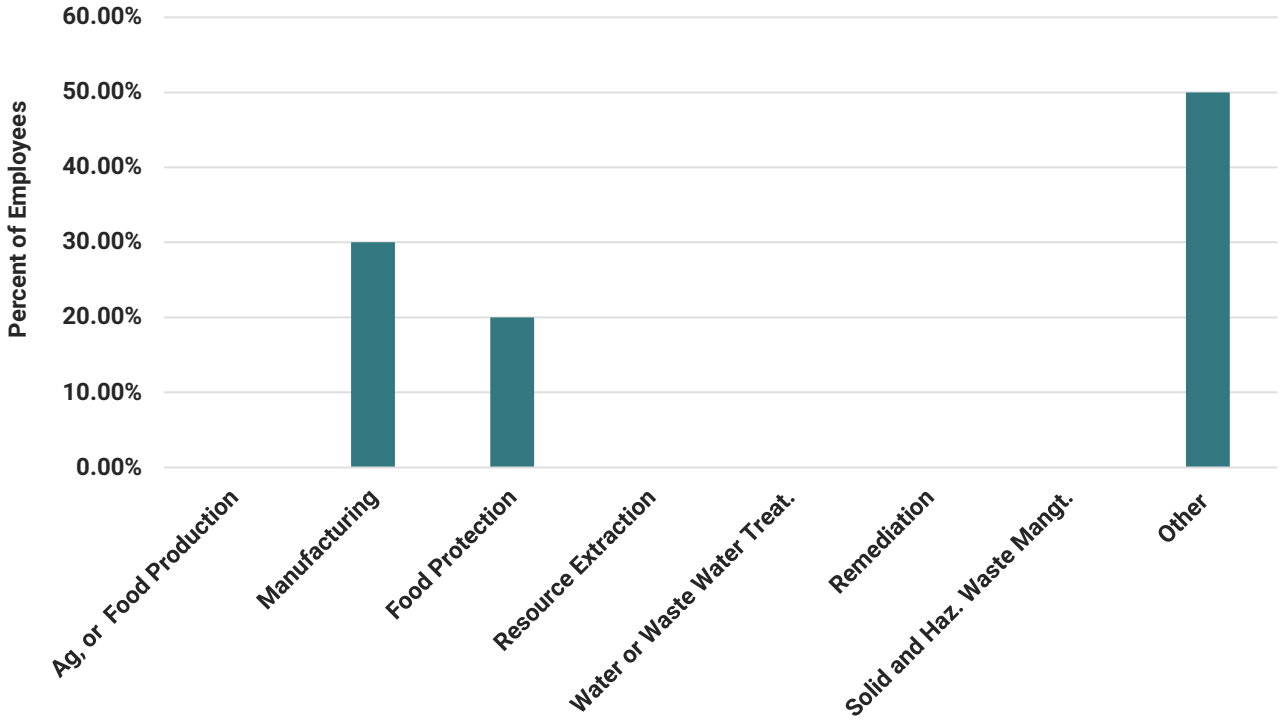
Chart 3: Distribution of Employees Working at Local, State, or Federal Government Agencies (N=10)



Chapter 2. Undergraduate Employee Results

EH Employee Workplace Data

Chart 4: Primary Areas of Employee Work (N=10)

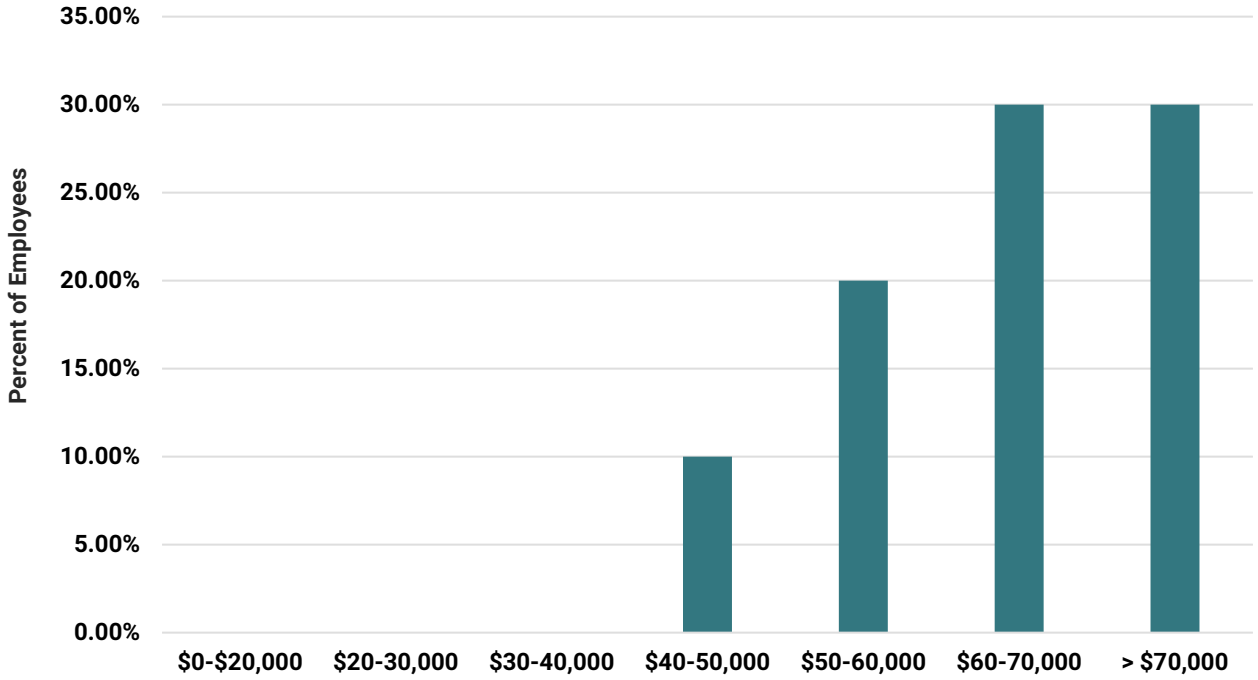


- "Other" Primary Areas of Employee Work include:
  - Emergency Management
  - Vector Control
  - Construction
  - Utility
  - Student.

Chapter 2. Undergraduate Employee Results

EH Employee Workplace Data

Chart 5: Salary Ranges of Employees in EH Job Sectors (N=10)



Chapter 2. Undergraduate Employee Results

EH Employee Data on Continuing Education and Professional Development

Table 3:

Continuing Education and Professional Development Pursuits
Master of Business Administration

Table 4:

Professional Recognitions Earned
Vectorborne Mosquito Program Award

Chapter 2. Undergraduate Employee Results

EH Employee Credentials Achieved and Professional Association Affiliations

Table 5:

Certifications	Total
REHS	1
CEM	1
CSP	1
EH Law Course Completed	1
Food, Lodging, and Institution Authorization	1
Graduate Safety Professional	3

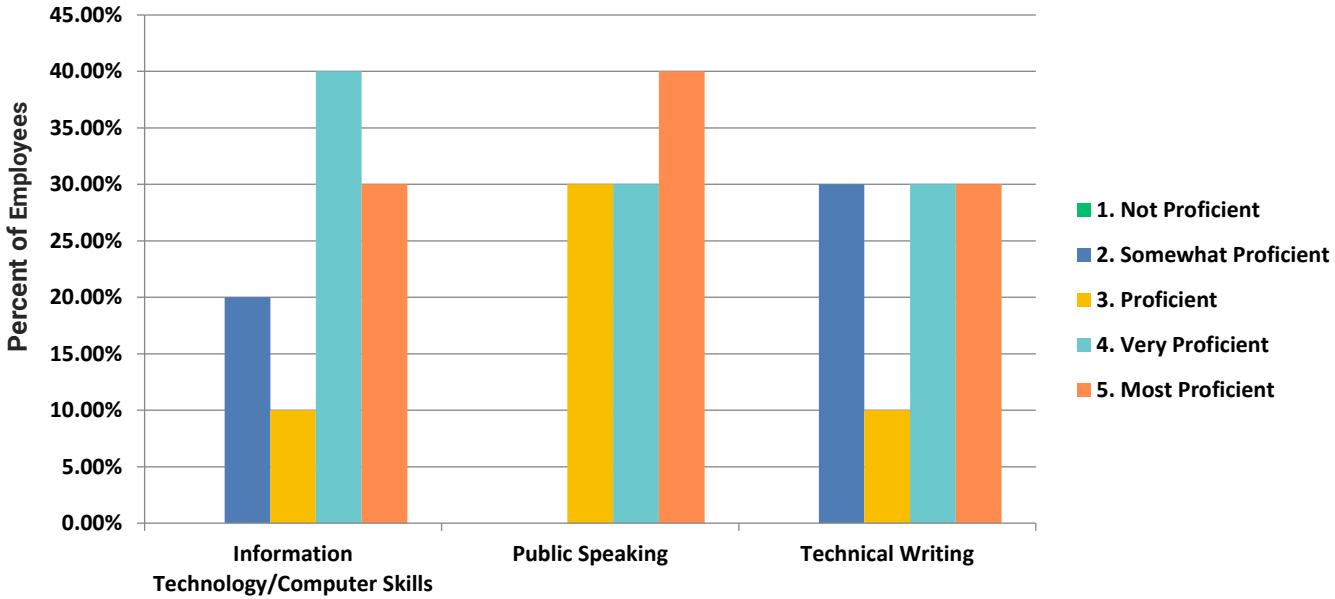
Table 6:

Professional Organization – Members of:	Total
Uniformed Services Environmental Health Association International Association of Emergency Managers	1
National Environmental Health Association	1
American Public Health Association	1
FEMA	1
American Society of Safety Professionals Member	1
North Carolina Mosquito and Vector Control Association Secretary	1

Chapter 2. Undergraduate Employee Results

Employee Skills

Chart 6: Employee Assessment of General Job Skills (N-10)

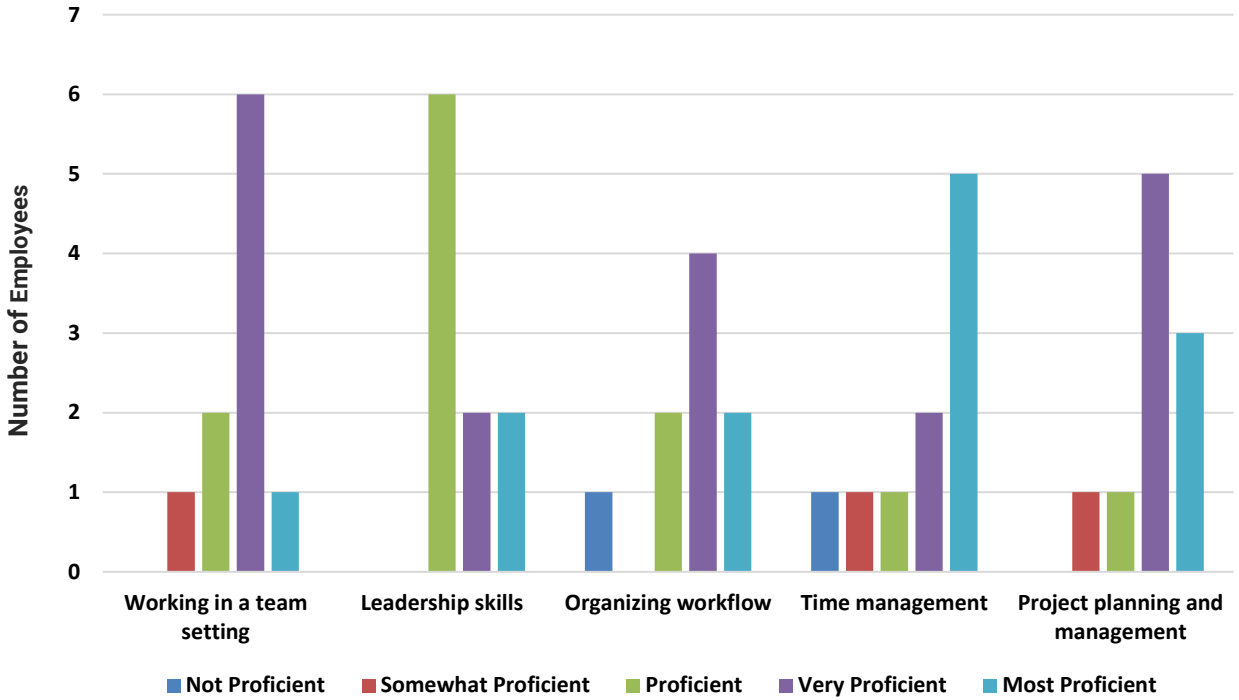


- Employees rated themselves Somewhat Proficient or higher in all General Job Skills categories.

Chapter 2. Undergraduate Employee Results

Employee Skills

Chart 7: Employee Assessment of Interpersonal Skills

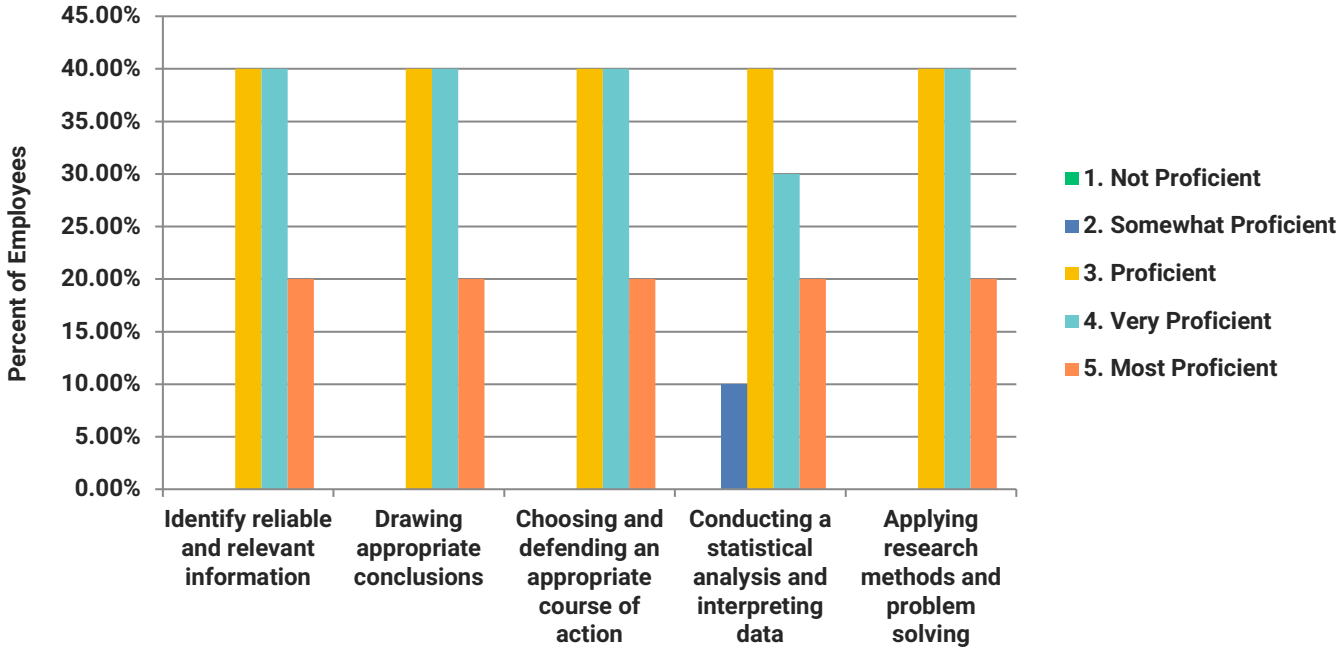


- Most employees rated themselves as Proficient or higher in all Interpersonal Skills except Organizing Workflow.
- One respondent reported Not Proficient for Organizing Workflow and Time Management skills.
- One respondent did not rate themselves regarding Organizing Workflow.

Chapter 2. Undergraduate Employee Results

Employee Skills

Chart 8: Employee Assessment of Ability to Interpret Data (N-10)

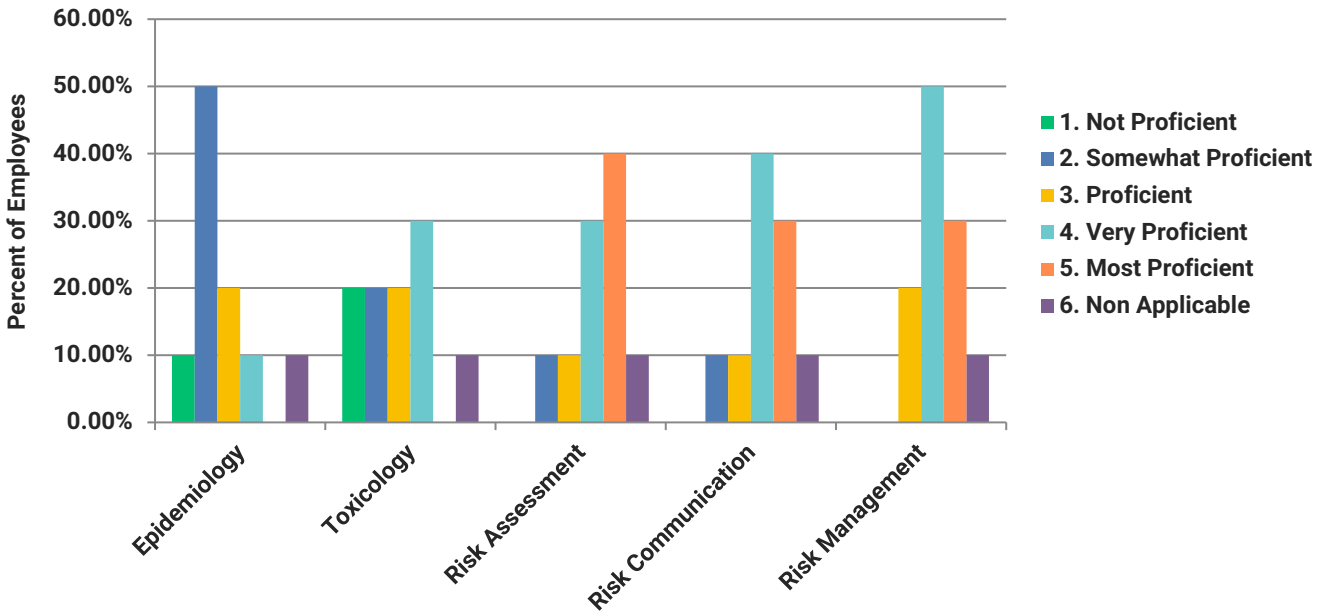


- 90% of employees found themselves Proficient or better in all skills related to Interpreting Data.
- One employee reported Somewhat Proficient in Conducting a Statistical Analysis and Interpreting Data.

Chapter 2. Undergraduate Employee Results

Employee Skills

Chart 9: Employee Assessment of Competency in EH Specific Areas (N=10)

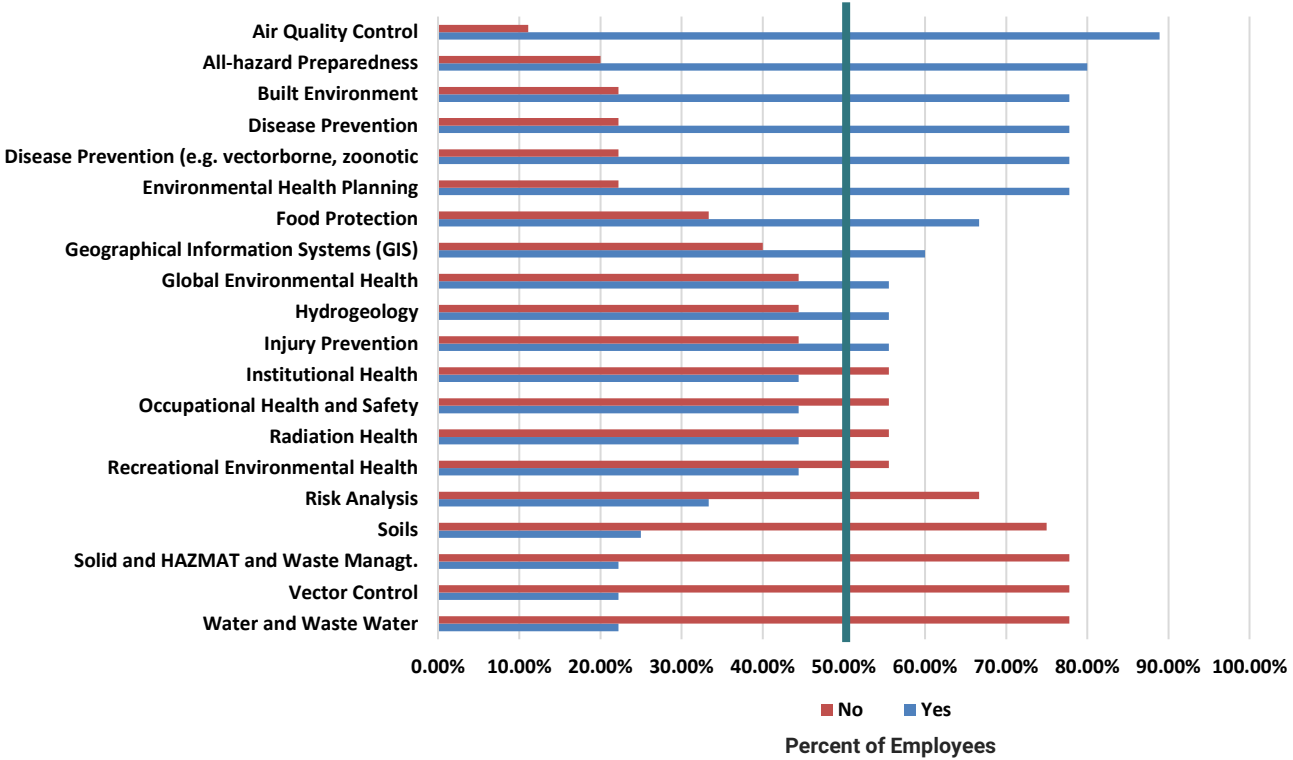


- 80% of employees reported being Somewhat, Very, or Most Proficient in all EH Specific Areas except Toxicology.
- Not Proficient was reported by one respondent related to Epidemiology and by two employees related to Toxicology.
- Responses of Non Applicable are related to the respondent who is currently a student.

Chapter 2. Undergraduate Employee Results

EH Specialty Area Relevance

Chart 10: Job Requires Knowledge of the Following EH Specialty Areas – Employee Assessment (N=9)



- 50% or more of employees found knowledge required in the following EH Specialty Areas:
  - Air Quality Control
  - All-hazard Preparedness
  - Built Environment
  - Disease Prevention
  - Disease Prevention (e.g. vectorborne, zoonotic diseases)
  - Environmental Health Planning
  - Food Protection
  - GIS
  - Global Environmental Health
  - Hydrogeology
  - Injury Prevention.

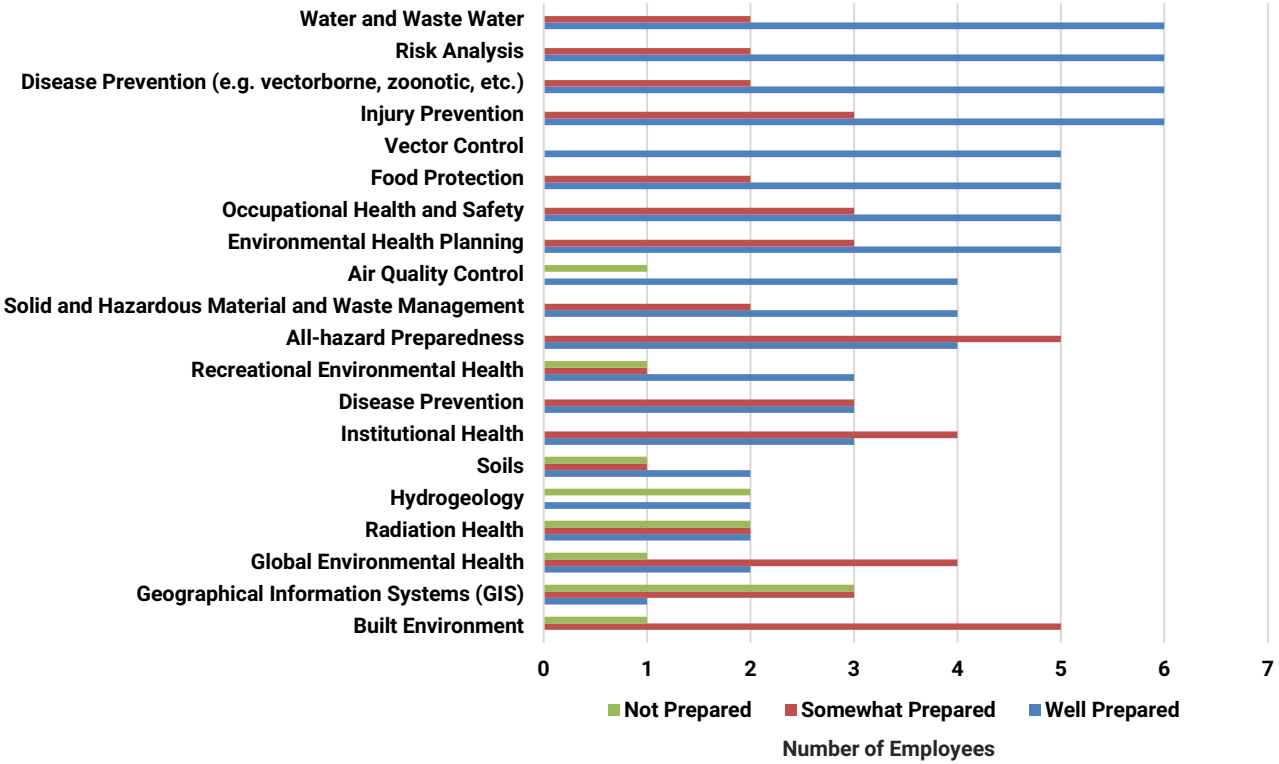
- More than 50% of respondents found knowledge unnecessary in the following EH Specialty Areas:
  - Water and Waste Water
  - Vector Control
  - Solid and HAZMAT and Waste Management
  - Soils
  - Risk Analysis
  - Recreational Environmental Health
  - Radiation Health
  - Institutional Health
  - Occupational Health and Safety.

- ✓ Note that there were 10 respondents for All-hazard Preparedness - 80% Yes and GIS - 60% Yes

Chapter 2. Undergraduate Employee Results

EH Specialty Area Program Preparation

Chart 11: Employee Assessment of Preparedness in EH Specialty Areas

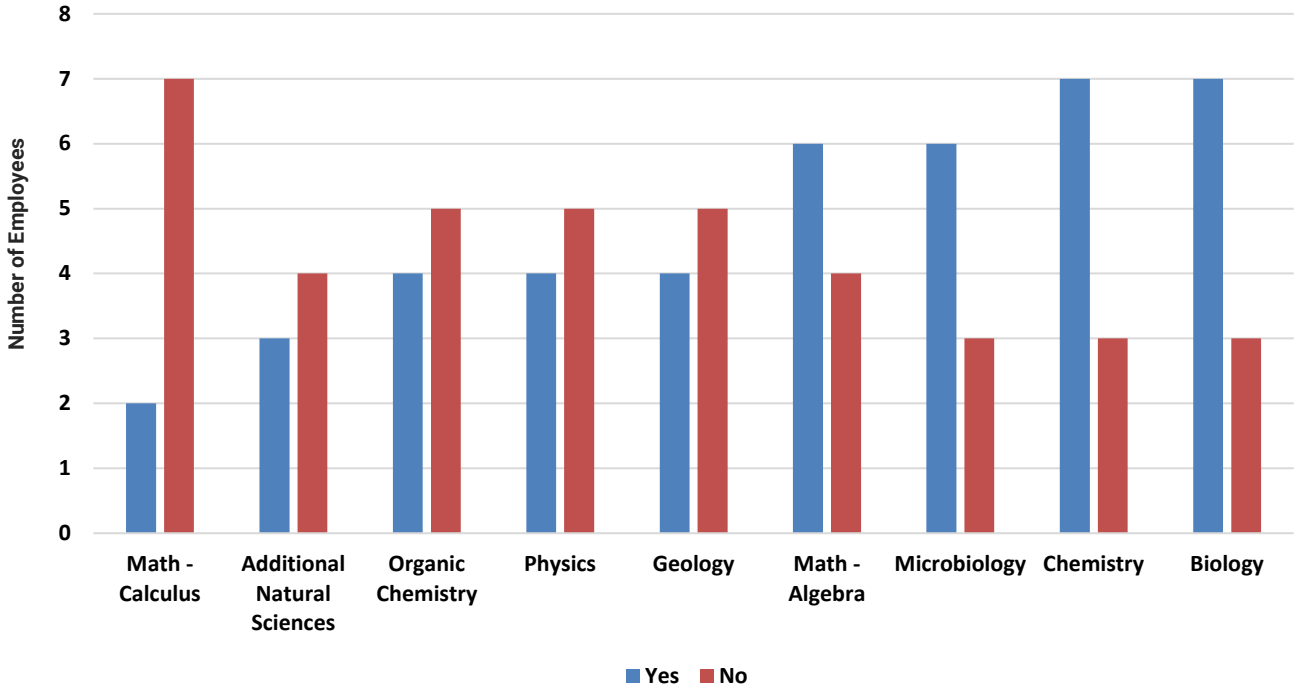


- Half or more of employees reported being Well Prepared in the following EH Specialty Areas:
  - Water and Waste Water
  - Risk Analysis
  - Disease Prevention (e.g. vectorborne and zoonotic)
  - Injury Prevention
  - Vector Control
  - Food Protection
  - Occupational Health and Safety
  - Environmental Health Planning
  - Air Quality Control
  - Solid and Hazardous Material and Waste Management
  - All-hazard Preparedness
  - Recreational Environmental Health
  - Disease Prevention
  - Institutional Health.
- Half of respondents reported being somewhat prepared for:
  - Built Environment
  - All-hazard Preparedness
  - Global Environmental Health
  - Institutional Health
  - Injury Prevention
  - Occupational Health & Safety
  - Environmental Health Planning
  - Disease Prevention
  - GIS.
- Note: Recreation and Radiation Health were reported as unnecessary knowledge areas by 50% or more of respondents.

Chapter 2. Undergraduate Employee Results

EH Related Science and Math Requirements

Chart 12: Job Requires Knowledge of Math and EH Related Sciences

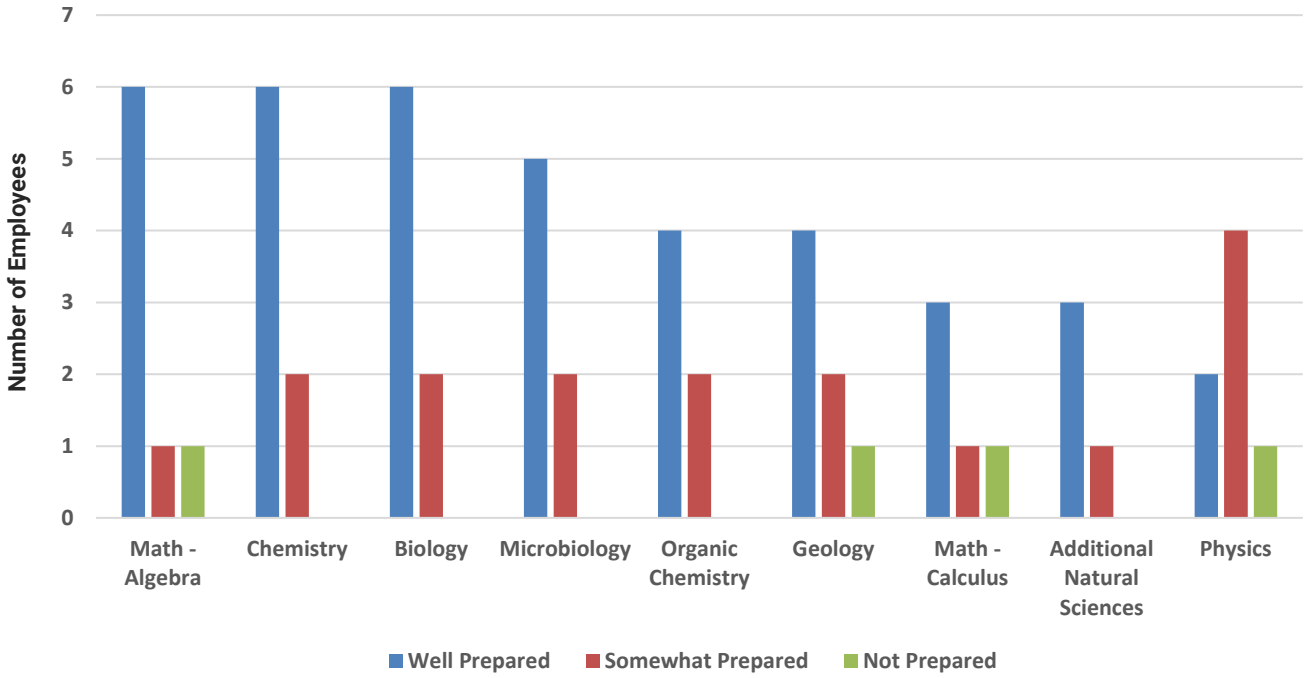


- Half or more of employees found the following necessary for their employment:
  - Biology
  - Chemistry
  - Microbiology
  - Algebra
  - Geology
  - Physics
  - Organic Chemistry.
- Half or more respondents found knowledge unnecessary for their jobs in:
  - Calculus
  - Algebra
  - Physics
  - Geology
  - Organic Chemistry
  - Additional natural sciences.

Chapter 2. Undergraduate Employee Results

EH Related Science and Math Requirements

Chart 13: Employee Assessment of Preparedness in EH Related Sciences and Math



- Half or more respondents reported themselves Somewhat or Well Prepared in all EH Related Sciences and Math.
- Note that half, or more, of respondents found the following topics unnecessary for their jobs:
  - Algebra
  - Calculus
  - Additional Natural Sciences
  - Physics
  - Geology.
- Note: Areas in which one student reported Not Prepared were also not required for their job.

Chapter 3. Undergraduate Supervisor Results

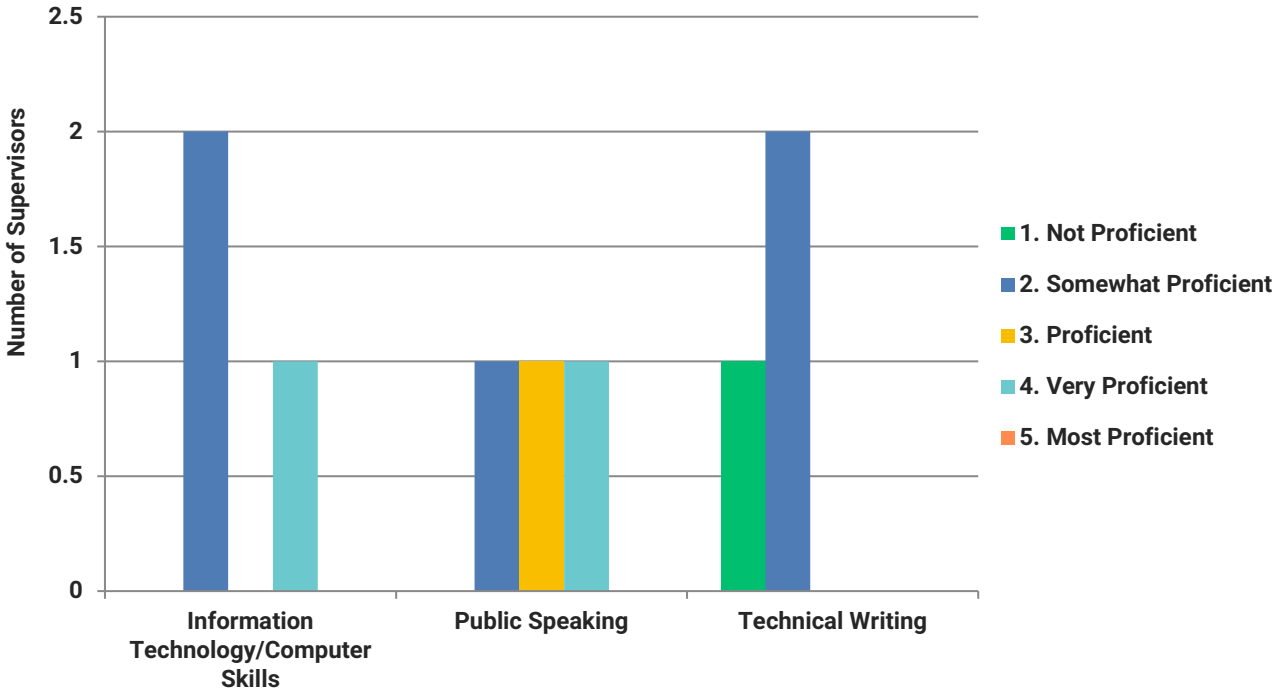
Supervisor Summary:

Supervisors of graduates of 2023-2024 reaccrediting programs were asked to assess the skills and preparedness of their employees. Two supervisors responded to the survey in full and one respondent answered only skills and knowledge questions. Their employee related responses are presented on the following pages.

Chapter 3. Undergraduate Supervisor Results

Employee Skills

Chart 14: Supervisor Assessment of Employee General Job Skills (N=3)

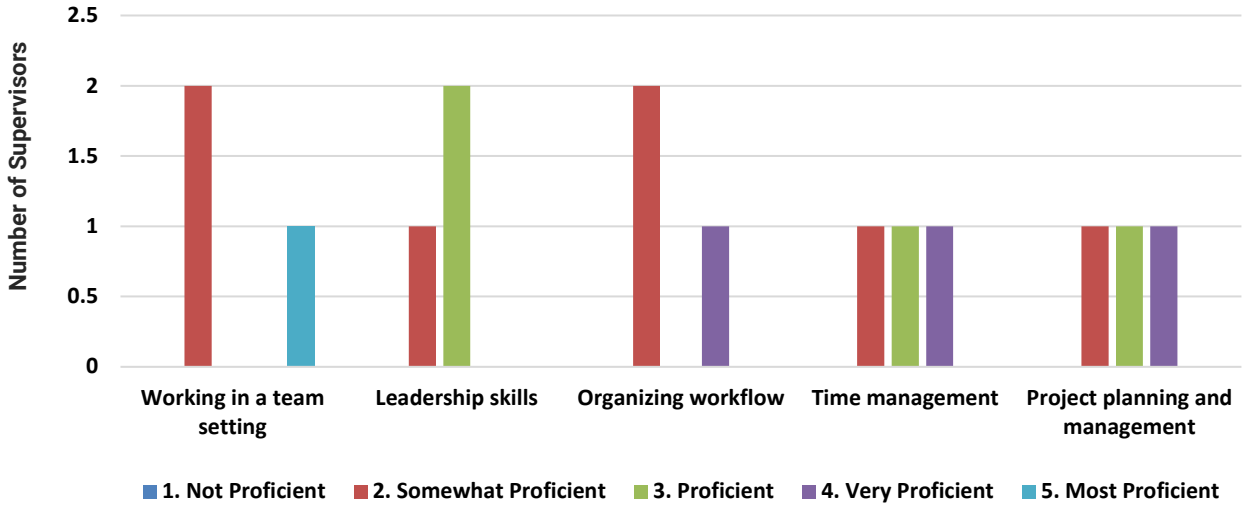


- Supervisors found employees to be Somewhat Proficient, Proficient, or Very Proficient in all General Job Skills except Technical Writing.

Chapter 3. Undergraduate Supervisor Results

Employee Skills

Chart 15: Supervisor Assessment of Employee Interpersonal Skills (N=3)

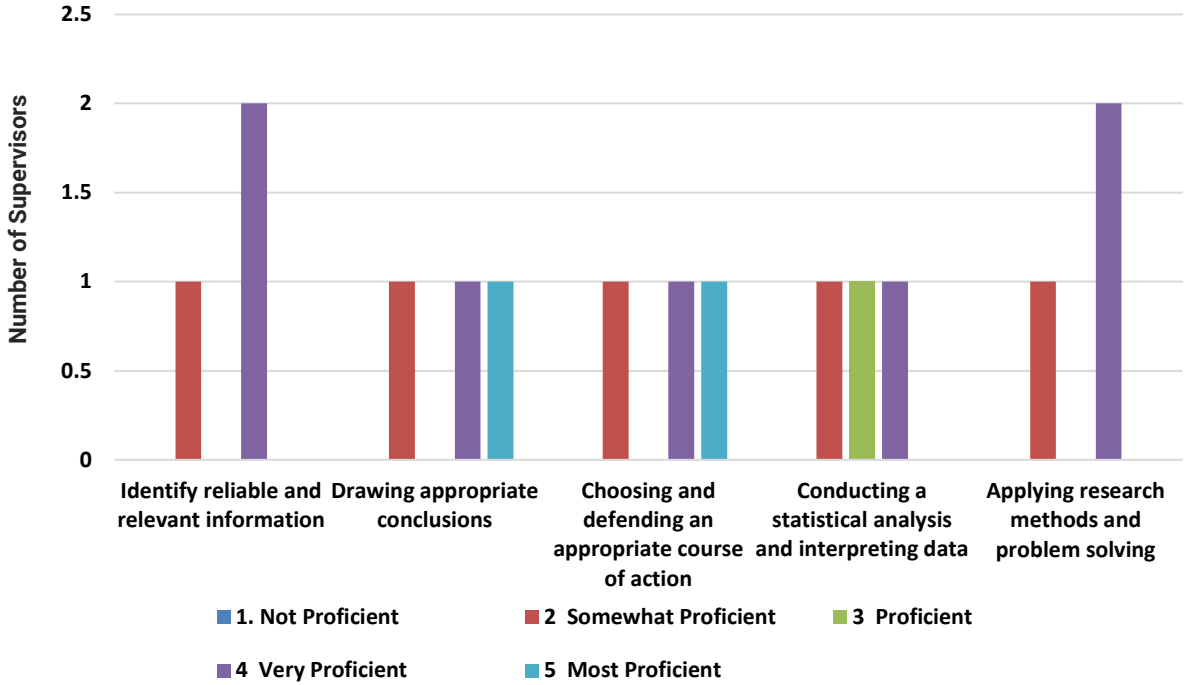


- Supervisors reported Somewhat to Most Proficient in all Interpersonal Skills.

Chapter 3. Undergraduate Supervisor Results

Employee Skills

Chart 16: Supervisor Assessment of Employee Ability to Interpret Data (N=3)

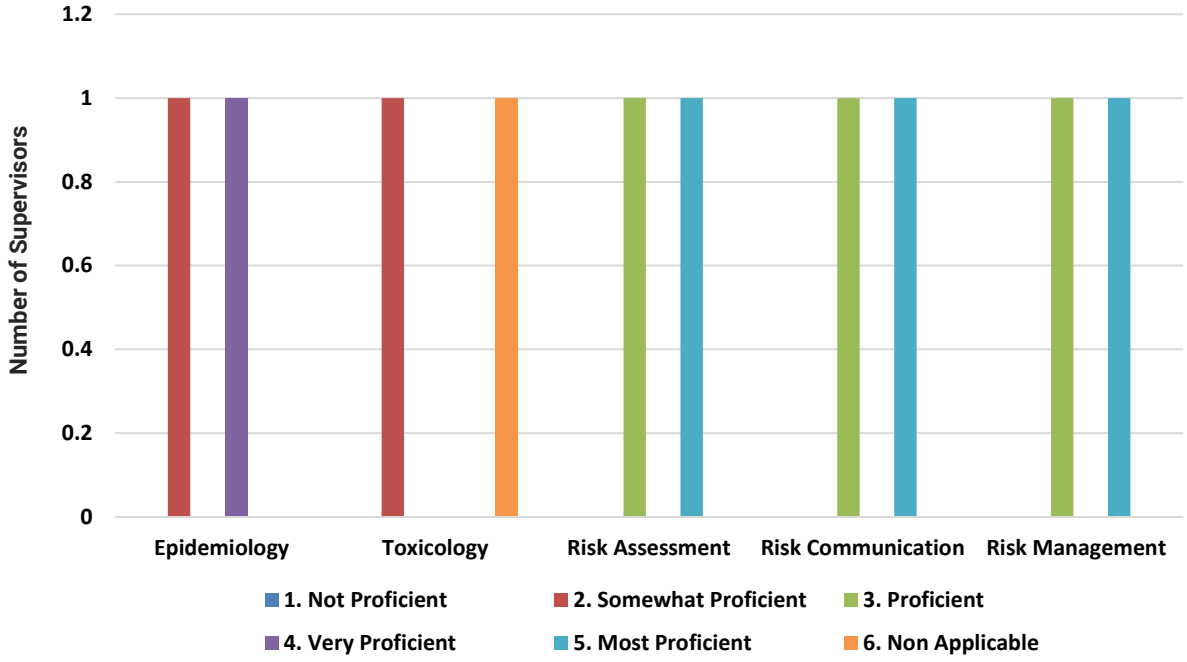


- Supervisors reported employees' Ability to Interpret Data as Somewhat Proficient or higher for all Ability to Interpret Data categories.

Chapter 3. Undergraduate Supervisor Results

Employee Skills

Chart 17: Supervisor Assessment of Employee Proficiency in EH Specific Areas (N=2)

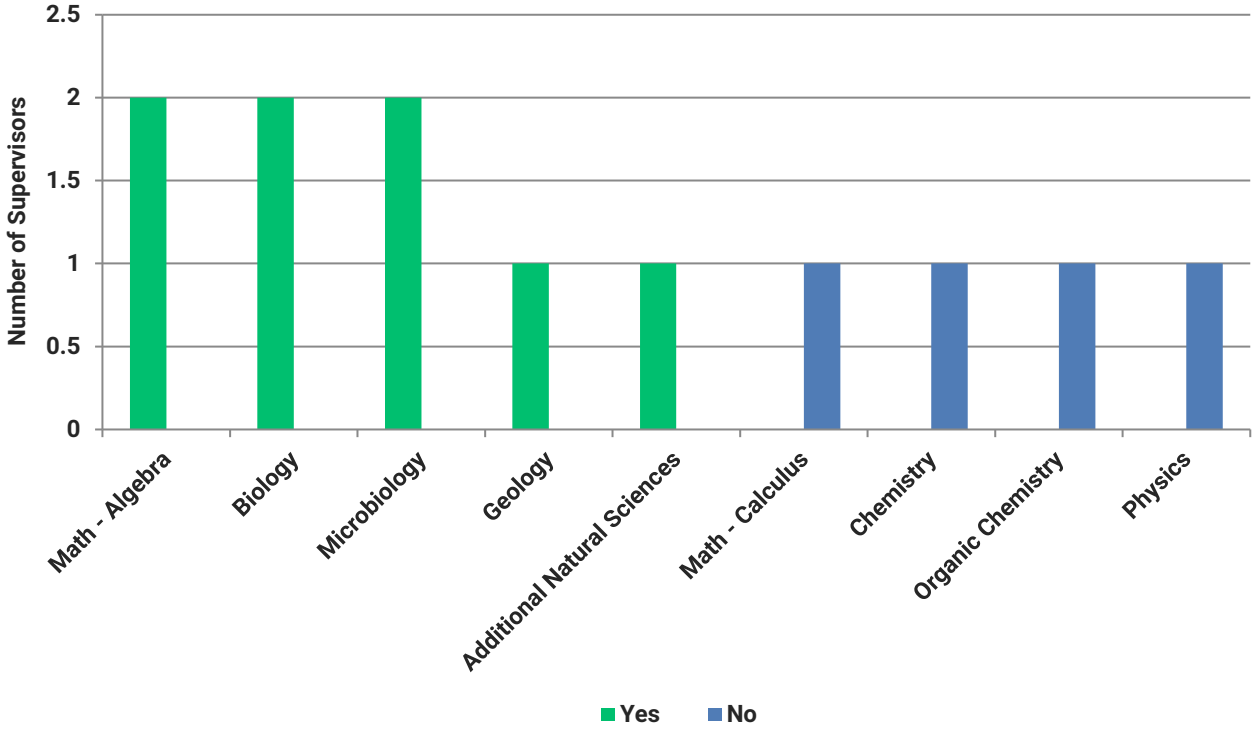


- Employees were rated Somewhat Proficient or higher for all EH Specific Areas, with one Supervisor reporting a Very Proficient student in the topic of Epidemiology and one Supervisor reporting Toxicology as Non Applicable.

Chapter 3. Undergraduate Supervisor Results

EH Related Science and Math Requirements

Chart 18: Job Requires Knowledge of Math and EH Related Science (N=2) - Supervisor Assessment

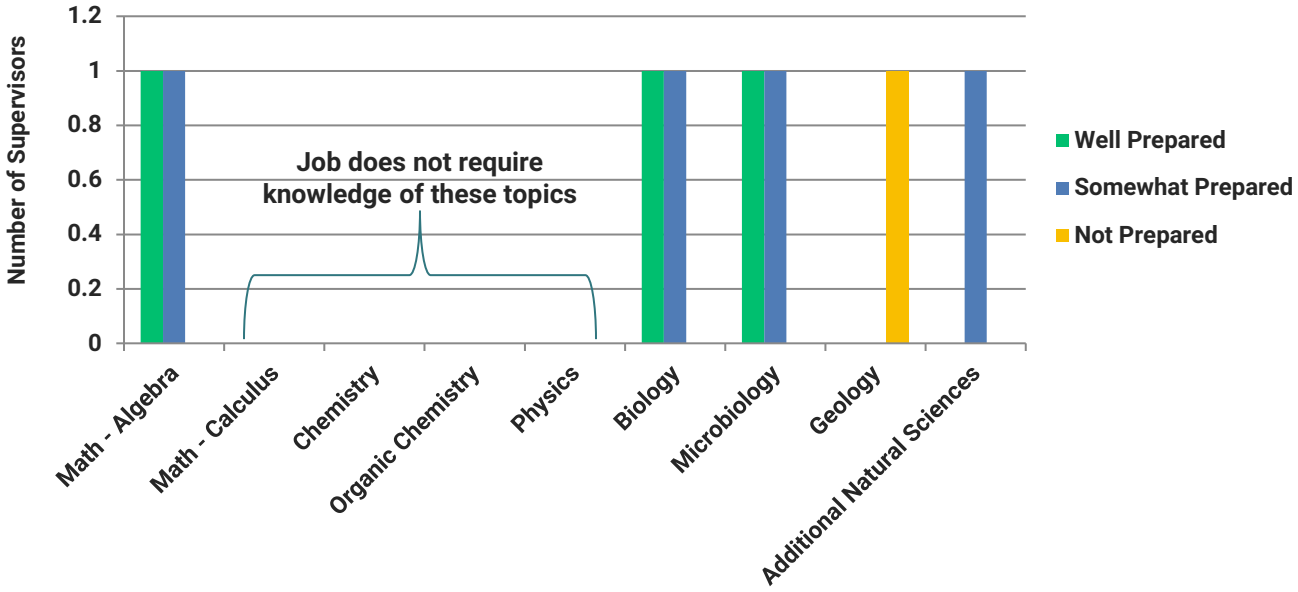


- Supervisors reported Employee jobs require:
  - Algebra
  - Biology
  - Microbiology
  - Geology
  - Additional Natural Sciences.

Chapter 3. Undergraduate Supervisor Results

EH Related Science and Math Requirements

Chart 19: Supervisor Assessment of Preparedness in EH Related Sciences and Math (N=2)

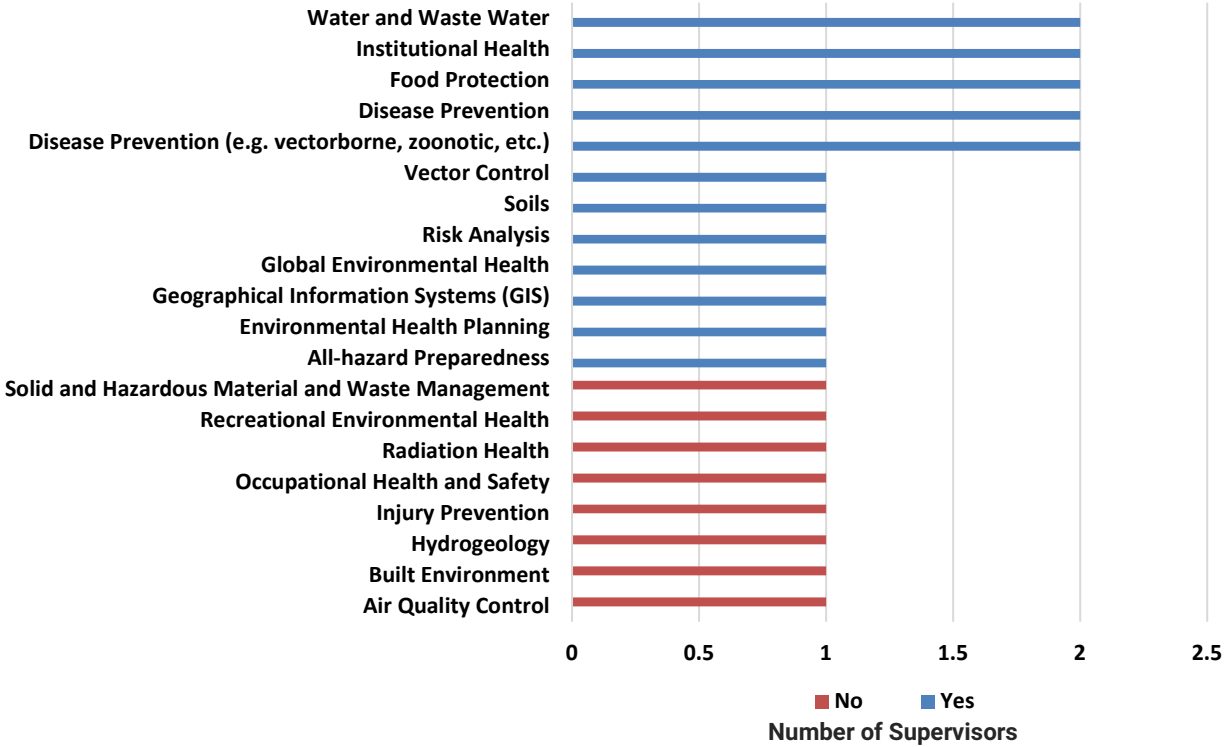


- Supervisors reported employees as Somewhat or Well Prepared in:
  - Algebra
  - Biology
  - Microbiology
  - Additional Natural Sciences
- One supervisor reported an employee was Not Prepared in the topic of Geology, a topic this Supervisor reported relevant to the employee's job.

Chapter 3. Undergraduate Supervisor Results

EH Supervisors – EH Specialty Areas

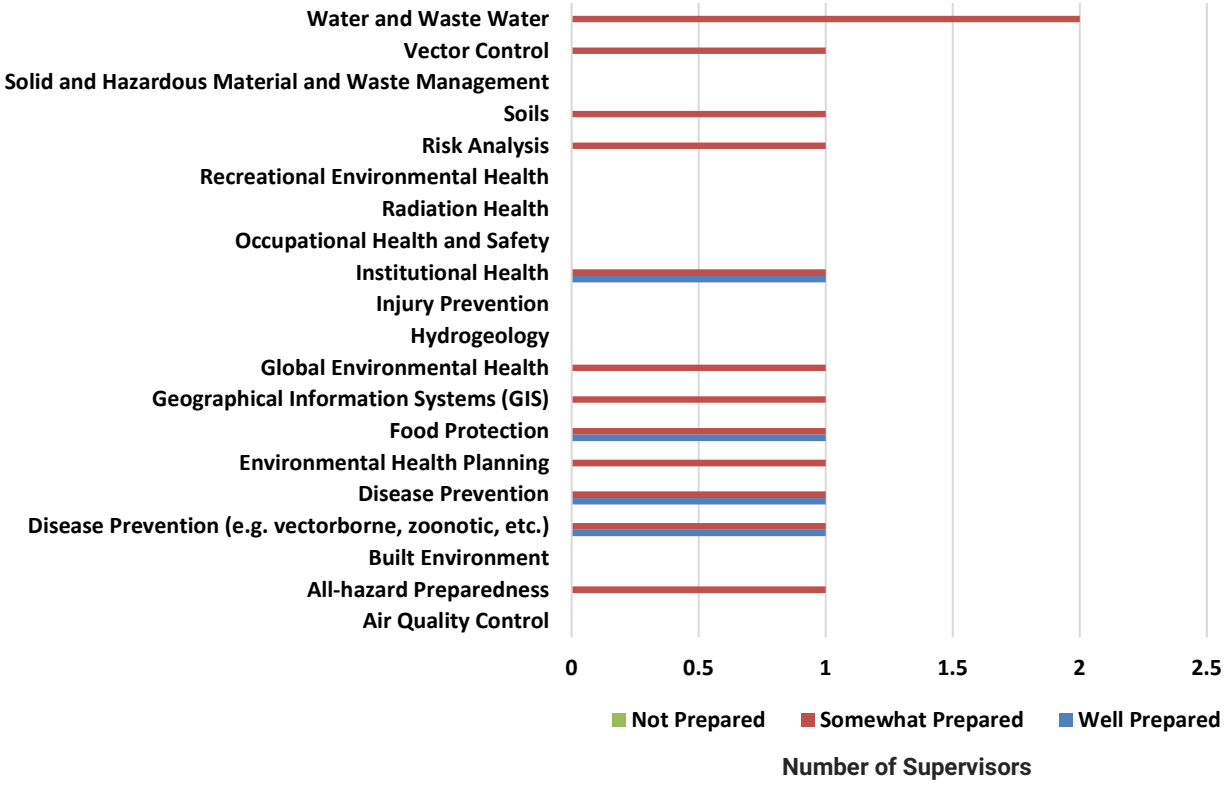
Chart 20: Does Employee's Job Require Knowledge of the following EH Specialty Areas



Chapter 3. Undergraduate Supervisor Results

EH Supervisors – EH Specialty Areas

Chart 21: Supervisor Assessment of Employee Preparation



- **Supervisors reported Employees as Somewhat or Well Prepared in all EH Specialty Areas requiring their knowledge.**

Chapter 4. Undergraduate Narrative and Discussion

Narrative and Discussion:

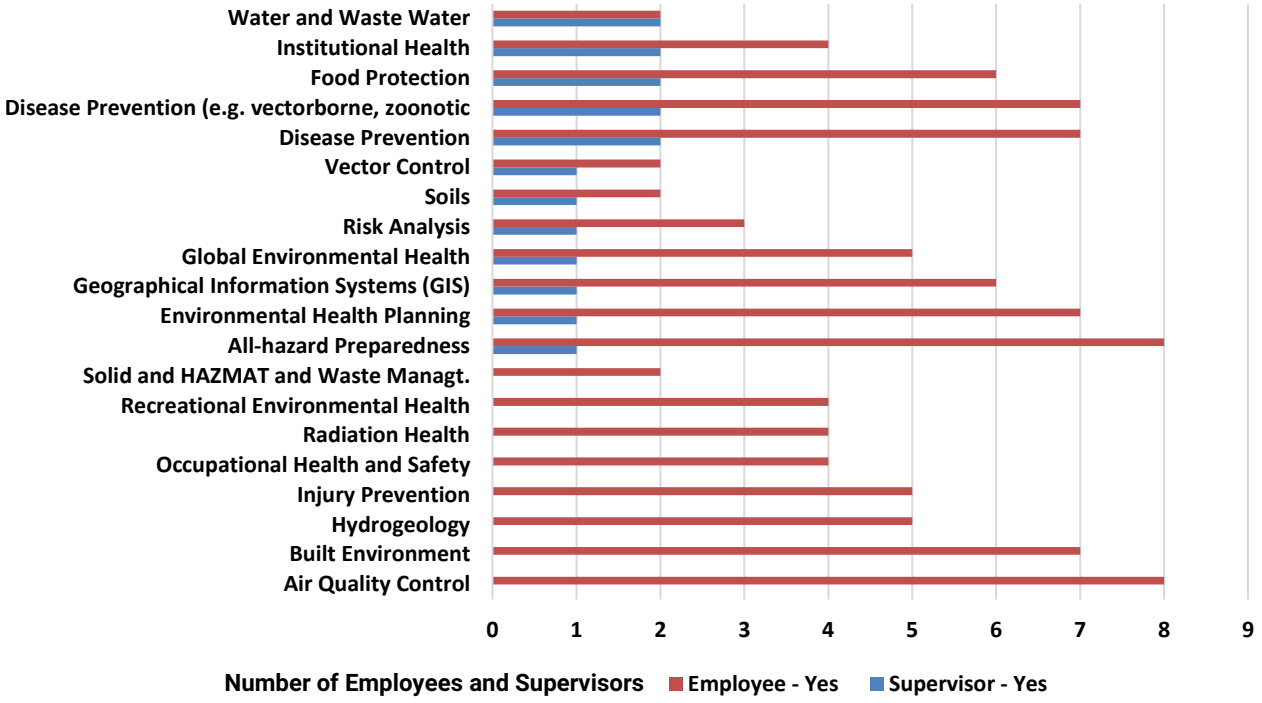
EHAC accredits EH academic programs in order to create educational degree programs that produce EH graduates who are well prepared academically and have the fundamental and practical skills to successfully enter and thrive in the EH field. EHAC's primary mission is to enhance the education and training of students in EH science and protection by ensuring that students receive premium quality education and training from EHAC accredited degree programs.

The following slides show a comparison of data gathered between Supervisors and Employees.

Chapter 4. Employees/Supervisors - Discussion

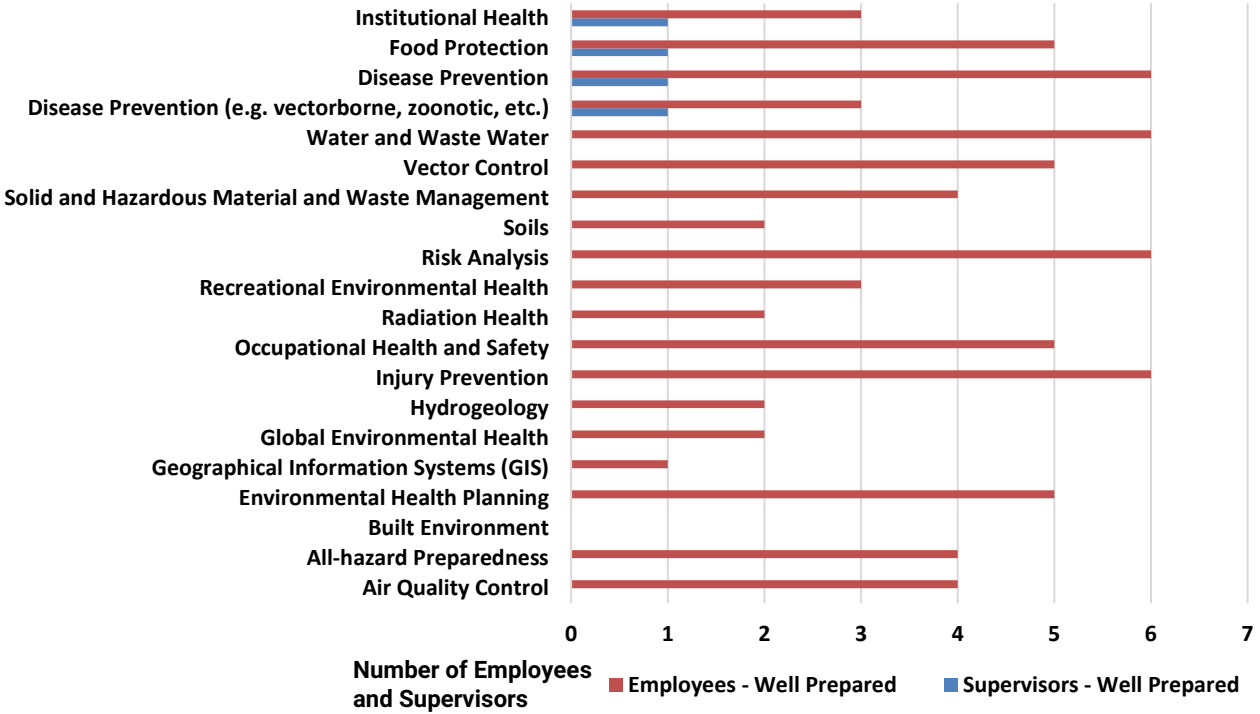
EH Specialty Knowledge Areas

Chart 22: Employee and Supervisor Assessment of Employee Need for Knowledge in EH Specialty Areas



EH Specialty Areas – Job Skills Assessments

Chart 23: Employee and Supervisor Assessment of Employee Preparedness in EH Specialty Areas

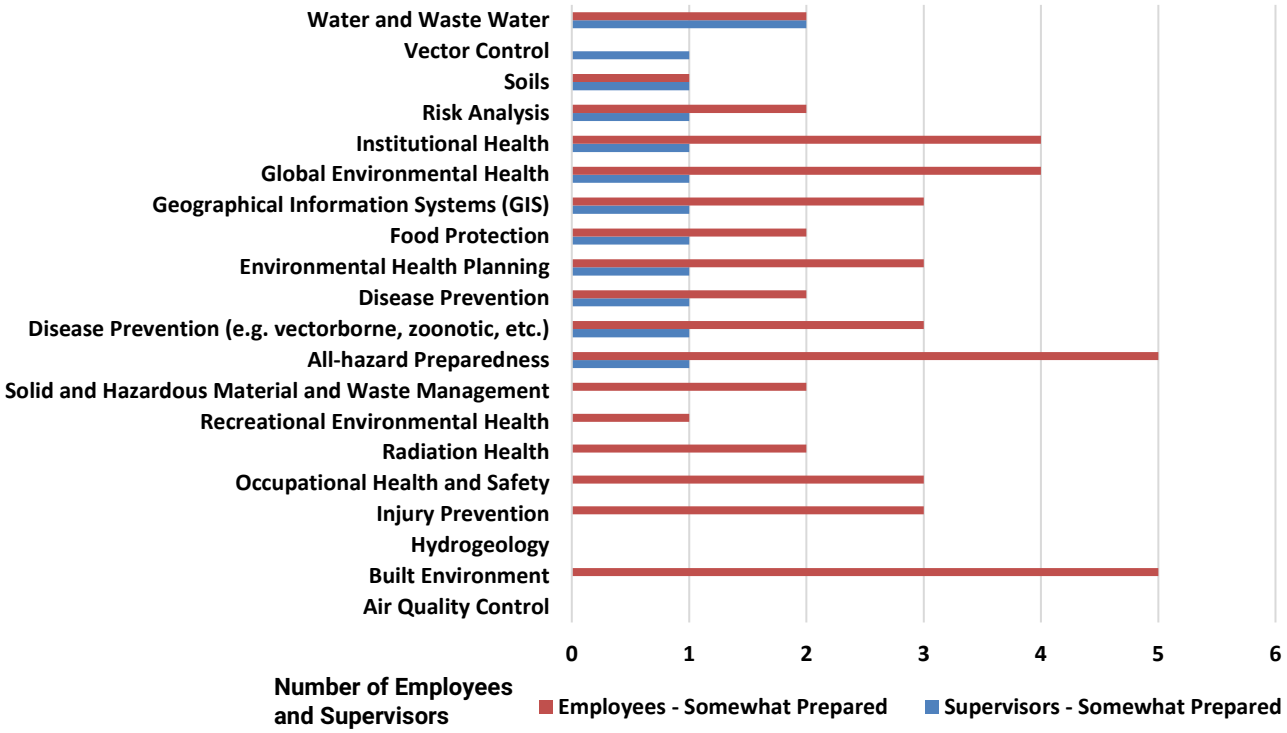


- **Supervisors reported all employees as Somewhat or Well Prepared in all EH Specialty Areas they reported necessary for employees' jobs.**

Chapter 4. Undergraduate Narrative and Discussion

EH Specialty Areas – Job Skills Assessments

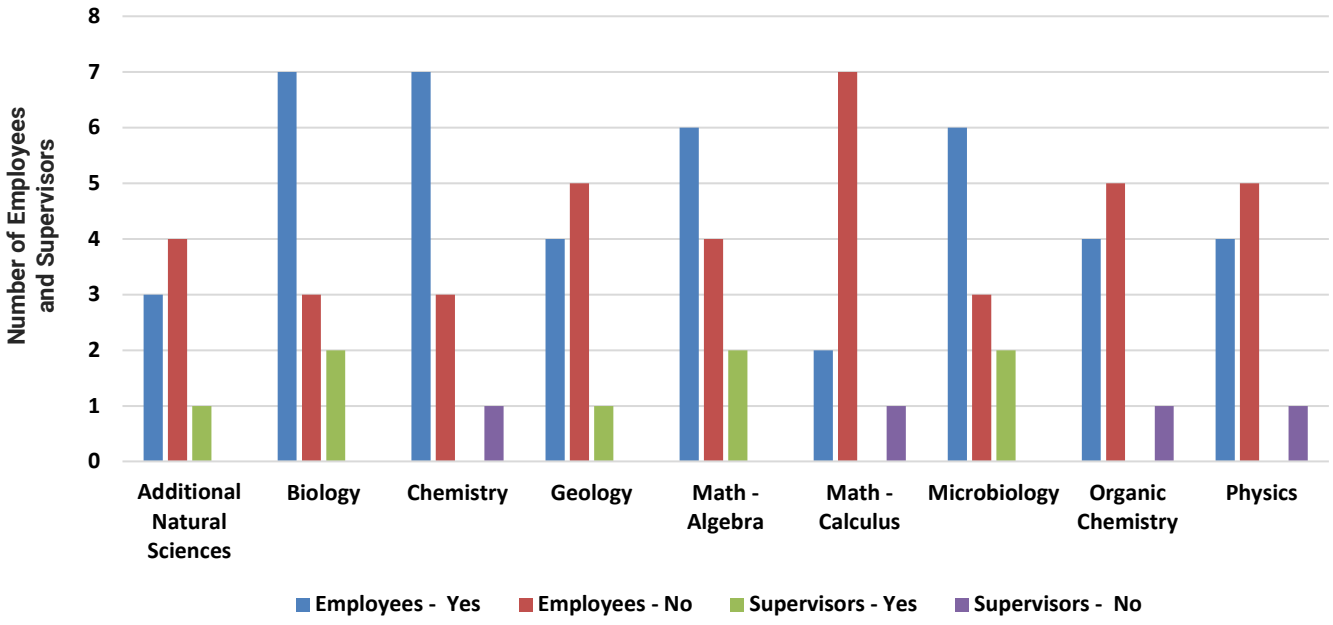
Chart 24: Employee and Supervisor Assessment of Employee Preparedness in EH Specialty Areas



- Supervisors reported all employees as Somewhat or Well Prepared in all EH Specialty Areas they reported necessary for employees' jobs

EH Specialty Areas – Job Skills Assessments

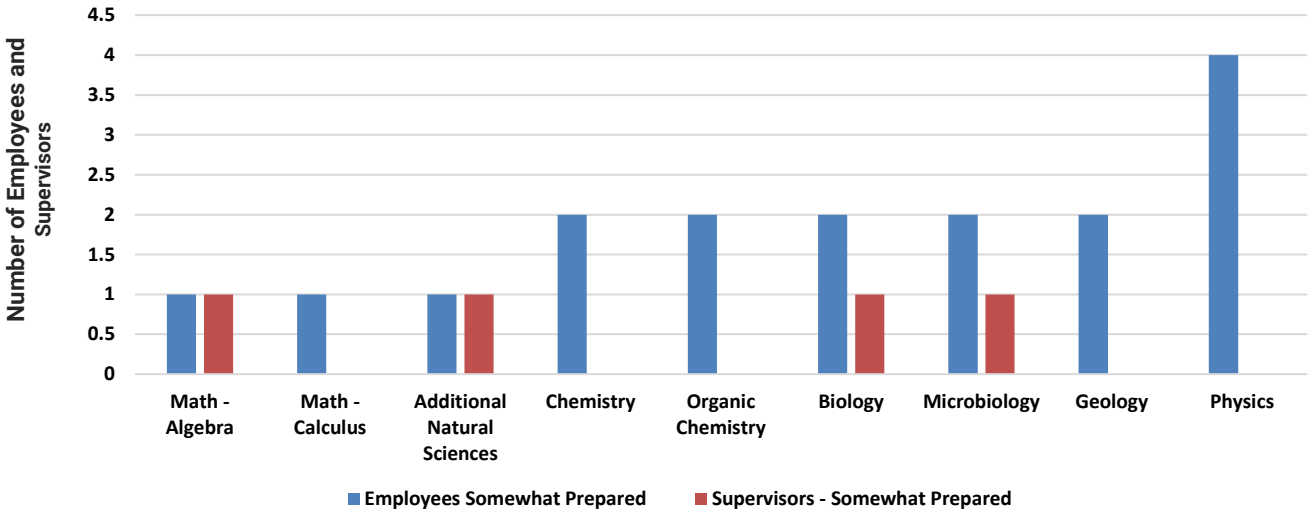
Chart 25: Employee and Supervisor Assessment of Employee Need for Knowledge of EH Science and Math Areas



- Employees and Supervisors agreed on Employee need for knowledge of the following EH Science and Math topics:
  - Algebra
  - Biology
  - Microbiology
  - Geology
  - Additional Natural Sciences

EH Specialty Areas – Job Skills Assessments

Chart 26: Employee and Supervisor Assessment of Employee Preparedness in EH Science and Math Areas

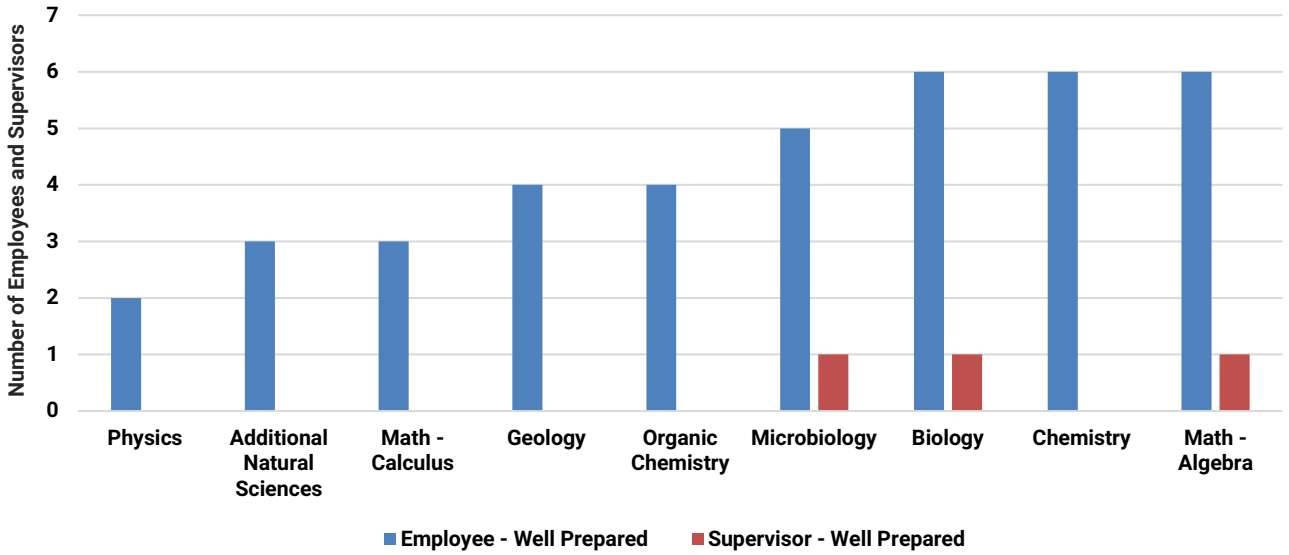


- Employees and Supervisors agreed on rating of Somewhat Prepared in the EH science and math areas of:
  - Algebra
  - Biology
  - Microbiology
  - Additional Natural Sciences
- Algebra and Geology were EH Areas in which one Supervisor and one Employee found knowledge necessary but unprepared.

Chapter 4. Undergraduate Narrative and Discussion

EH Specialty Areas – Job Skills Assessments

Chart 27: Employee and Supervisor Assessment of Employee Preparedness in EH Science and Math Areas



- Employees and Supervisors agreed on rating of Well Prepared in the EH Science and Math areas of:
  - Algebra
  - Biology
  - Microbiology

Thank You!

Questions? Contact Executive Director Leslie Mitchell at executive.director@nehsap.crg