Are Universities Providing the Knowledge and Skills Students Need to Succeed as Fisheries and Wildlife Professionals?

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A topic of discussion for many years

- “The requirements necessary for state employees to deal effectively with today’s fisheries resource problems are beyond the training presently being provided in our universities.”

Some suggest broader education of fisheries professionals

• “Students who aspire to be fisheries scientists should be encouraged to complete their undergraduate degrees in a basic science…”

• “The emphasis should be placed on conceptual skills such as problem solving, not on technical knowledge or skills specific to fisheries science.”

Others suggest more fisheries specific education

- Courses identified as “essential” by NMFS Science Centers in preparing students to conduct high-level quantitative population dynamics/stock assessments
  - Population dynamics, Fish ecology, Multivariate statistics, Sampling theory, Fisheries or natural resource modeling, Bayesian statistics, Stock assessment, Risk & decision analysis, Fisheries or natural resources computer programming
Surveys suggest more emphasis is needed on communication skills

- “...subjects in areas of interpersonal interactions and administration...were almost as important as the scientific subjects. However, these...subjects seemed to be underemphasized in their college educations.”

Objectives

• Discuss results of a recent survey of employers in natural resources regarding desired competencies & perceived proficiencies of entry-level hires

• Broaden the focus of the discussion
  – This isn’t just a university problem
Established in response to concerns re: relevancy of university wildlife programs to KSA’s needed by today’s professionals

Stauffer & McMullin (2009) surveyed TWS membership

- Importance of knowledge in wide array of disciplines for entry-level hires
- Perceptions of proficiency in those areas
TWS Survey

- 1,750 respondents (418 state agency, 342 federal agency, 235 private sector, 111 NGO)
- Top 3 areas of knowledge
  - Oral communication
  - Written communication
  - Working in teams
TWS Survey

Importance

Proficiency

Low Importance
High Importance
Low Proficiency
High Proficiency

Oral Communication
Written Communication
Working in Teams
Interacting w/ stakeholders

Human Dimensions
Wetlands Ecology
Field Botany
Policy/Administration
Mixed Messages on Communication

- Written & oral communication skills rated highly for importance and proficiency
- However, proficiency rated 2-3 points lower on 10-point scale
Does advanced training make a difference in communication skills?

- “No number of courses can replace the thesis in training a research scientist.”
- “…the process of preparing a thesis provides training in synthesizing relevant information, analyzing data, writing technical reports, and delivering scientific presentations.”

No difference in perceived proficiency with increased education

Perceived Proficiency—Written Communication

Perceived Proficiency—Oral Communication

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Broadening the Discussion

• Are we teaching the written and oral communication skills that students really need?
  – Technical writing and presentations are important
  – Do we emphasize communicating to non-professional audiences enough?
Universities can’t address this issue alone

• Acquiring and sharpening the skills needed to succeed as fish & wildlife professionals should be the responsibility of
  – Universities
  – Employers
  – Professional societies
  – Individuals
Suggested Roles

• Professional societies
  – Define standards of competency through certification
  – Focus on minimum requirements
    • What does it mean to be a fisheries professional?
  – Update certification requirements regularly
Suggested Roles

• Universities
  – Bachelor’s graduates of fisheries programs should be able to meet certification requirements
  – Focus on critical thinking, problem solving, acceptable communication skills
  – Advanced degree candidates should be able to design research, analyze & synthesize data, further hone their communication skills
Suggested Roles

• Employers
  – Don’t expect entry-level hires to be finished products
  – Engage universities in curriculum discussions
  – Support continuing education, professional development
  – Focus on job aspects that are more difficult to teach in university classes
  • Stakeholder interactions, conflict resolution, leadership & supervision, planning & budgeting
Suggested Roles

• Individuals
  – Professionalism requires life-long learning
  – Commitment to self-improvement