What you can do with your graduate degree other than academics and still do interesting work?

Subtitle:

So, how do you get a job as an environmental scientist?

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Stantec Consulting Ltd.
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Some sources of career information

- http://www.cses.vt.edu/current-students/jobs/tips/env-consult-career-tips.pdf
- www.sage.wisc.edu/careers/.../doc/Environmental%20Consultant.doc
- http://www.wikihow.com/Be-an-Environmental-Consultant
- http://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm
- http://www.prospects.ac.uk/environmental_consultant_job_description.htm
- http://jobs-emplois.gc.ca/index-eng.htm

Mark Richardson's career

Overview

- 30 years of experience
  - ~20 years in public sector; ~10 years in private sector
- Education
  - PhD (Biology) 1994
  - MSc (Biology) 1983
  - BSc Honours (Biology) 1980
- Skills/experience I have gained and used in my career:
  - Risk assessment, risk management
  - Regulatory toxicology
  - Biostatistics
  - Allometry (human characteristics), time-activity patterns and exposure factors used in RA
  - Environmental fate of chemicals, bioaccumulation, bioconcentration
  - Chemical exposures and risks from dental materials
  - Environmental policy and regulatory risk management processes
  - Writing: >50 scientific articles published, numerous other reports and documents.
  - Teach what I know: 20 risk assessment training seminars and courses.
  - Public speaking: >50 platform presentations at conferences and workshops.

Typical career path in consulting (spanning 20-30 years)

- See website #1
- Internship, junior, intermediate, senior/associate, manager, director
- Grunt work, carrying gear around, helping more senior staff finish reports, having juniors help you…

Useful starting skills for a career in environmental consulting (or any job, for that matter)

- Relevant degree
- Communication
  - Writing skills (can you write in a style that is informative, understandable and keep it SHORT!)
  - Do you have good spelling and grammar skills?
  - “Conducting research and preparing written findings of your research is one of the most important skills you gain during your studies” (see website #1)
  - Presentation skills – can you stand up in front of an audience of strangers and not be nervous (or act like you are not)?
- Mathematics – can you do basic algebra?
  - $C_{tissue} = C_{water}$ X BCF

Degrees relevant to environmental consulting

Science disciplines

- Life sciences
  - Toxicology
  - Biology
  - Ecology
  - Physiology
  - Zoology
  - Epidemiology
  - Medicine
  - Veterinary medicine
  - Environmental Sciences
  - Microbiology
  - Immunology
  - Botany
  - Pharmacology
- Chemistry
  - Physical chemistry
  - Biochemistry
  - Analytical chemistry

- Engineering
  - Environmental
  - Chemical
  - Civil
  - Engineering disciplines involved in atmospheric and oceanographic modeling
- Statistics/biostatistics
- Mathematics (algebra!)
- Earth sciences
  - Geology
  - Geography
  - Hydrogeology
- Risk assessment
- Many others: See http://chemistry.about.com/od/mathsciencefundamentals/a/ologylist.htm

Other disciplines

- Communications, Law (toxic torts; social justice); Psychology

Where are the science jobs?

- Public sector (opportunities currently declining)
  - Federal and provincial (and even municipal) departments and agencies
    - Environment, health, land-use planning
      - Air quality, water quality, soil quality (agricultural, parkland, residential, commercial and industrial), food quality, consumer products (Chinese toys with Pb-based paints), urban and indoor environments, wilderness and ambient environments
  - Regulatory agencies are doing less and less science in-house, and are contracting more and more of that science work to the private sector.
  - Public sector staff primarily manage the work and contracts completed by the private sector

PS drops in size for first time in decade

Spending cuts expected to ensure decline continues

KATHRYN MAY

Ottawa Citizen
Wednesday, Oct 24/12

Canadian federal science-based departments & agencies

- Agriculture and Agri-Food Canada
- Atomic Energy of Canada Limited
- Canadian Institutes of Health Research
- Canadian Space Agency
- Communications Research Centre Canada
- Environment Canada
- Fisheries and Oceans Canada
- Foreign Affairs & International Trade
- Health Canada
- Industry Canada
- National Defence
- National Research Council Canada
- Natural Resources Canada
- Public Health Agency of Canada
- Royal Canadian Mounted Police
- Science and Engineering Research Canada
- Transport Canada

Where are the science jobs?

- Private sector (opportunities currently increasing)
  - Environmental consulting is growing faster than other science consulting fields
  - Consultants to public sector
    - Often, it is consultants who perform the actual risk assessments in support of fed/prov environmental regulations, develop environmental quality guidelines, conduct or review Environmental Assessments, etc.
  - Consultants to industries, land owners, etc.
    - Risk assessments conducted on behalf of clients that must meet or conform with environmental regulations.
  - Work in industry
    - Mining, refining and related industries
    - Chemical and consumer product manufacturing
    - Many others
  - My best hires while in the public sector were people with private sector experience
    - They know the science and the work
    - They can offer informed, critical review and management of the work (they know how it's done and what to expect)
    - They understand that a deadline means something.

How do you become a risk assessor?

Few (if anyone) start out with a career plan to become a risk assessor

For most people, their careers ‘happen to them’; they are not planned

Some basics:

- Education
  - Formal degree
  - On-the-job training
- Luck (could be considered good or bad)
- Willingness and aptitude to learn new things, to learn them quickly, and to apply that new knowledge to solve problems.
- Absence of a know-it-all attitude
  - Most job opportunities are lost due to ‘personal suitability’ issues.
- Have a specialty
  - Many risk assessors get their start because they are hired to exploit their specialist knowledge of some science/chemical/organism/skill/etc.
  - The opportunity to diversify your expertise comes later.

Do you have [some of] the skills to get a job in consulting?

- Search out environmental job advertisements on the net and study the desired skill sets of the people they are seeking (usually intermediates and seniors).
- Realize that you won't have all of the skills, or the depth/experience, listed for intermediate or senior positions
- Junior positions are almost never advertised

How to increase your job prospects

- Get a relevant education
- Specialize
- Take a job placement, work term (such as co-op), or internship during your education
  - A large proportion (probably the majority) of first-time hires with consulting firms are those graduates that did a successful work term with that company
  - They get hired because they have been ‘tested’; the employer knows what they are getting and knows that they ‘fit in’.
  - In the federal public service, a manager can hire a graduate directly from school (termed ‘bridging’), without a competition, if that graduate has had a formal co-op or work placement with the federal government during their degree program.
  - I’ve always been surprised how little interest science grad students have had in co-op programs (although this is changing).
- Be flexible on the type of job you are willing to take and kind of work you will do
  - First jobs generally involve “grunt work” – doing the hard slogging for someone else
  - This is when most on-the-job learning takes place.
- Be flexible in the type of employment situation you are willing to take
  - Employment agency (generally lousy pay but often provides an ‘in’)
  - Casual, short term, part time (public sector managers have more flexibility in filling positions that are not ‘permanent’)
  - Single project contract (generally lousy pay but often provides an ‘in’)

How to increase your job prospects

- Don’t expect that you will be earning a 6 figure salary right off the mark
  - Starting salaries in private sector vary, but $40k-$50k to start is pretty typical; greater for a valuable specialty and/or higher degree
  - Starting salaries in the public sector tend to be higher, but maximum salaries tend to be lower (and job availability is decreasing)
- Join and participate in local chapters of SETAC and other science associations
  - Opportunity to meet potential employers in a casual yet professional situation.
  - Give a talk on your grad research; let them know what you do.
- Publish your grad research
  - This emphasizes a specialization or expertise.
  - An example of your scientific writing skills.
  - This demonstrates that you can see a project through to completion.
- Teach what you know; offer a seminar through U Sask, local SETAC chapter, etc.
- Do not rely solely on email and internet for job applications; make personal, face-to-face contact whenever possible.
  - Many of my junior hires while in government were people who just happened to have ‘dropped in’ at the right time
  - Usually hired as casual or through employment agency (short term, no strings, easy to let go), or small defined contract (no further work if contract report missed the mark)

How to increase your job prospects

- Send an unsolicited application to companies advertising for intermediate or senior positions.
  - Tell HR that you do not meet all of the listed skills or experience, but…..
  - Tell/show HR that you have some/many of the skills being sought and that you would be interested in a junior position working for the intermediate/senior they are trying to find.
- Volunteer for local environmental organizations, particularly those that interact with local industries and consulting companies.
  - Do more than just door-to-door fundraising. Get significantly involved.
- Starting jobs commonly go to candidates who are known to the people doing the hiring.
  - Interns/student placements
  - Neighbors and children of neighbors and friends
  - Network……

Questions?