

CSULB Environmental Science and Policy BA and BS Degree Program Career Survey

Environmental Careers Survey Conducted May-July, 2002

In this section, we provide details of the following summary list:

- Environmental Careers Organization¹ survey of environmental science and policy jobs includes 707,679 positions in federal and local government, and 1,262,300 positions in private industry.
- The January 2000 issue (available without payment) of the *National Environmental Employment Report* lists over 400 positions.
- Ecoemploy.com lists 68 career positions posted over the last month (May 2002).
- Environetwork lists 239 career positions, posted in the last month (May 2002).
- Environmental Career Opportunities (ecojobs.com) claims (May 2002) to list over 500 positions.
- Sustainable Business (sustainablebusiness.com) lists (May 2002) 650 positions.
- The *Economist* (May 11, 2002), a weekly publication, lists 8 positions and 16 temporary consulting positions in environmental, natural resource and rural development, and a general call for energy economists in government.
- A February 25, 2002, US EPA email lists 14 internship positions for environmental economists.
- Job Openings for Economists, published 10 times yearly by the American Economic Association, lists 202 openings for environmental, natural resource, and energy economists during the past year.
- 24 positions are posted (May 2002) at web sites for the International Society for Ecological Economics, the International Association for Agricultural Economists, the American Agricultural Economics Association (AAAE) and in the AAAE newsletter.
- The National Association of Environmental Professionals (<http://www.naep.org/>) lists (May 2002) 39 career positions.
- The World Bank has 2 internship programs and 16 vacancies for economists or environmental and energy specialists (May 2002).
- The Organization for Economic Co-operation and Development (OECD) has 3 Directorates (Economics; Environment; Food, Agriculture, and Fisheries) with positions (May 2002) for experts in environmental science and policy.
- The United Nations Environment Programme has 15 vacancies (May 2002), and the United Nations Division for Sustainable Development also has positions.
- The International Council for Local Environmental Initiatives lists (May 2002) 10 openings.
- The US EPA employs approximately 18,000 people in locations across the country, including its headquarters in Washington DC, 10 regional offices, and 17 laboratories. In addition to internships and fellowships, EPA has 43 open positions (May 2002).
- The Department of Interior lists over 90 career categories.
- USDA lists 941 positions open (May 2002).

¹ See Cook, John R. Jr., Kevin Doyle, Sam Heizmann, Tanya Stubbs, Meryl Brott, and Dylan Murray, 1999, The Complete Guide to Environmental Careers in the 21st Century, The Environmental Careers Organization, Washington DC: Island Press. ISBN 1-55963-585-1.

- The DOE lists 80 positions (May 2002).
- A search of the US Office of Personnel Management in May 2002 (<http://www.usajobs.opm.gov/a.htm>) under the category, Professional and Entry Level Professional, Bachelor's Degree, salary range of \$32,000 to \$54,000, 248 positions are suitable for graduates of our proposed BS program, and 158 positions for graduates of the BA program.

The number of environmental careers, estimated by the Environmental Careers Organization², in the Federal Government, Local Government, and the Environmental Industry are, respectively, 231,839 (Table 1.1 reproduced below), 475,840 (Table 1.2 reproduced below), and 1,262,300 (Table 1.3 reproduced). Table 1.4 presents employment and salary by career category. These employment and salary estimates are biased down because their sources systematically omit technically trained social sciences and law.

Private Employment Agencies

Several organizations provide employment information for a fee. One organization is the Environmental Careers Organization, which publishes a monthly employment report that emphasizes positions in natural science and environmental organizations, omitting much of the social sciences. The January 2000 issue (available without payment) of the *National Environmental Employment Report* contains 24 pages of articles and advertisements for over 400 positions plus 600 seasonal jobs, in addition to many internships and graduate assistant positions. Ecoemploy.com lists 68 career positions posted over the last month, and lists employers by state and province for the US and Canada. Environetwork lists 239 career positions, posted in the last month, but only displays the first 20 without a fee. Environmental Career Opportunities (ecojobs.com) claims to list over 500 positions, provided to those who pay a fee. At no charge, they list 15 positions in Conservation and Natural Resources, 15 positions in Environmental Policy, Regulation and Legislation, 15 positions in Environmental Advocacy, Outreach and Communication, over 46 positions in Environmental Science and Engineering, 40 in Outdoor and Environmental Education, 5 in Higher Education, 3 International Environmental jobs, 4 graduate programs with multiple assistant positions, and 7 internships. The Student Conservation Association (sca-inc.org) lists 6 sources for internships for adults over 18, and permits students to fill out an application for paid internship positions that they sell to organizations seeking interns. Sustainable Business (sustainablebusiness.com) lists 26 pages with about 25 positions on each page, about 650 positions, that can be sorted by senior/junior positions in 22 categories including scientific, public health, research, policy, advocacy, communication, editorial, program management, engineering, education, design and architecture, information technology, sales and marketing.

² See Cook, John R. Jr., Kevin Doyle, Sam Heizmann, Tanya Stubbs, Meryl Brott, and Dylan Murray, 1999, The Complete Guide to Environmental Careers in the 21st Century, The Environmental Careers Organization, Washington DC: Island Press. ISBN 1-55963-585-1.

Professional Association Employment Markets

There are literally hundreds of professional associations³ that advertise positions, and we simply cannot survey them without making substantial payments to obtain access, and devoting costly time. We can present information from associations and sources easily accessible to us.

In natural sciences, last month's job listings posts 66 positions in the members only section of the web site of The Air and Waste Management Association. An email from the South Coast Air Quality Management District lists two positions open right now.

The latest issue of the *Economist* (May 11, 2002), a weekly publication, lists 8 positions and 16 temporary consulting positions in environmental, natural resource and rural development, and a general call for energy economists in government. A recent US EPA email has 14 internship positions for environmental economists. Job Openings for Economists, published 10 times yearly by the American Economic Association, lists 202 openings for environmental, natural resource, and energy economists during the past year. One position is listed at the web site for the International Association for Agricultural Economists, and four positions are listed at the web site for the American Agricultural Economics Association (AAAE). The AAAE newsletter, published 6 times per year, lists 9 positions in two newsletters available from the members-only section of their web site. The International Society for Ecological Economics advertises for 11 positions.

The National Association of Environmental Professionals (<http://www.naep.org/>) lists 39 career positions.

Employers

We can classify employers into international, national, state/province, and local government agencies; non-government agencies (NGOs), academic, consultants and private industry. A survey of employers is beyond our scope, but we can provide measures of the scope of opportunities.

International

The World Bank has several groups with programs that hire professionals in environmental science and policy, and especially environmental economists. There are currently 2 internship programs and 16 vacancies for economists or environmental and energy specialists. The Organization for Economic Co-operation and Development (OECD) has 3 Directorates (Economics; Environment; Food, Agriculture, and Fisheries) with positions for experts in environmental science and policy. The United Nations Environment Programme has 15 vacancies, and the United Nations Division for Sustainable Development also has positions. The International Council for Local Environmental Initiatives has more than 400 cities, towns, counties, and their associations from around the world as full Members of the Council, with hundreds of additional local governments participating in specific ICLEI campaigns and projects. The ICLEI job bank lists 10 openings.

National, state and provincial government

The World Bank lists national and state/province government environmental and resource agencies for each continent (<http://www.worldbank.org/nipr/afr/afrepas.htm>); we sum them up as follows: Africa – 54, Asia – 51, Eastern Europe and Central Asia – 36, Latin America – 51,

³ See Table A below for a partial list used by The Environmental Careers Organization to obtain job data, a list that omits most social sciences.

Middle East and North Africa – 23, North America – 72, Western Europe – 39. The 72 in North America includes only one for California, Cal EPA. As the following list demonstrates, these are substantial under estimates:

- [California Environment and Natural Resources Agencies](#)
 - [Air Resources Board](#)
 - [California Department of Conservation](#)
 - [California Department of Fish and Game](#)
 - [California Department of Forestry and Fire Protection](#)
 - [California Department of Parks and Recreation](#)
 - [California Department of Pesticide Regulation](#)
 - [California Department of Toxic Substances Control](#)
 - [California Department of Water Resources](#)
 - [California Environmental Protection Agency](#)
 - [California Environmental Resources Evaluation System \(CERES\)](#)
 - [California Integrated Waste Management Board](#)
 - [California Resources Agency](#)
 - [Governor's Office of Planning and Research \(OPR\)](#)
 - [Office of Environmental Health Hazard Assessment](#)
 - [State Water Resources Control Board](#)

In addition, there are various energy agencies, the Public Utilities Commission, the Energy Commission, the Energy Division of the Department of Water Resources, the State Lands Commission, and the Electricity Oversight Board.

The US EPA employs approximately 18,000 people in locations across the country, including its headquarters in Washington DC, 10 regional offices, and 17 laboratories. In addition to internships and fellowships, EPA has 43 open positions. The Department of Interior lists over 90 career categories. USDA lists 941 positions open. The DOE lists 80 positions. A search of the US Office of Personnel Management (<http://www.usajobs.opm.gov/a.htm>) under the category, Professional and Entry Level Professional, Bachelor's Degree, salary range of \$32,000 to \$54,000, 248 positions are suitable for graduates of our proposed BS program, and 158 positions for graduates of the BA program.

Local Government Agencies, NGOs, and Consultancies

The Michigan State University Department of Agricultural Economics website lists 3 sites to find environmental positions in local government, 13 NGOs, and 57 consulting firms that hire environmental economists. One of the consulting firms (National Economic Research Associates), for example, states: "We are always looking for qualified candidates and generally have openings in our major offices across the U.S. and in Brussels, London, Madrid, Rome, Sydney and Tokyo."

Graduates from a similar program

Responses from an alumni survey compiled in Spring 1996 and 1997 at UC Berkeley:

- a) Spring 1996 survey of graduates from Environmental Science and Conservation and Resource Studies during 1990-1996: 32 respondents with various career paths (education K-12, medical school, law school, MS and MA programs, PhD programs, government agencies, environmental engineering, legal analysts, environmental policy, advocacy, environmental science positions at major corporations, etc.).
- b) Spring 1997 survey of graduates from 1972 to 1989, 9 pages: 38 advanced degrees; 166 careers spanning all of the social and natural sciences applied to environmental problems, including public policy, advocacy, recreation, legislative analyst, journalism, public relations, legal analysis, regulatory work and environmental compliance, management consulting, teaching, socioeconomic analysis, risk-benefit and cost evaluation, financial analysis, urban design, planning, public health policy, computer software, graphical information systems, statistical analysis, epidemiology, toxicology, chemical and biological monitoring, and engineering.

Table 1.1 Federal Government Employment at Environmental and conservation Agencies (1997)

Agency	Permanent	Temp/Seasonal	Total
National Park Service	15,729	6,000	21,729
Bureau of Land Management	8,760	1,000	10,660
Fish and Wildlife Service	7,000	500	7,500
U.S. Geological Survey	10,395		10,395
Other Interior Agencies	21,843		21,843
Environmental Protection Agency	18,165		18,165
USDA Forest Service	30,000	15,000	45,000
Other agriculture (environ-related)	11,000		11,000
Department of Energy	16,983		16,983
Transportation (environ-related)	12,610		12,610
National Oceanic and Atmospheric Agency	7,500		7,500
Army Corp of Engineers	27,454		27,454
Other agencies	21,000		21,000
Total	208,439	23,400	231,839

Source: Page 15, Cook, John R. Jr., Kevin Doyle, Sam Heizmann, Tanya Stubbs, Meryl Brott, and Dylan Murray, 1999, The Complete Guide to Environmental Careers in the 21st Century, The Environmental Careers Organization, Washington DC: Island Press. ISBN 1-55963-585-1.

Table 1.2 Local Government Employment in Environmental and Conservation Work (1996)

Municipal Government		Towns and Townships	
Entities	19,279	Entities	16,656
Full-time	2,199,000	Employment	410,000
Part-time	440,000	Environmental	32,800
Environmental	211,120		
County government		Special Districts	
Entities	3,043	Entities	31,555
Employment	2,251,000	Full-time	497,000
Environmental	180,080	Part-time	151,000
		Environmental	51,840
Total Environmental Employment		475,840	

Source: Page 16, Cook, John R. Jr., Kevin Doyle, Sam Heizmann, Tanya Stubbs, Meryl Brott, and Dylan Murray, 1999, The Complete Guide to Environmental Careers in the 21st Century, The Environmental Careers Organization, Washington DC: Island Press. ISBN 1-55963-585-1.

Table 1.3 Estimated Environmental Industry Employment

Area	Entities	Employment	Revenue Billions (\$)
<i>Services</i>			
Analytical services	1,400	20,000	1.2
Wastewater treatment	27,000	113,700	25.9
Solid waste management	5,900	229,600	35.8
Hazardous waste management	2,500	53,300	5.6
Remediation/Ind. services	3,800	100,000	8.9
Consulting and engineering	5,800	162,800	15.6
<i>Equipment</i>			
Water (includes chemicals)	2,600	100,700	19.0
Instrument/Information system	500	24,800	3.4
Air pollution	800	83,300	16.2
Waste management	2,000	88,200	12.2
Process/Prevention technology	300	15,200	1.0
<i>Resources</i>			
Water utility	58,000	118,000	25.3
Resource recovery	2,000	128,300	16.9
Environmental energy	600	24,400	2.3
Total	113,200	1,262,300	189.3

Source: Page 17, Cook, John R. Jr., Kevin Doyle, Sam Heizmann, Tanya Stubbs, Meryl Brott, and Dylan Murray, 1999, The Complete Guide to Environmental Careers in the 21st Century, The Environmental Careers Organization, Washington DC: Island Press. ISBN 1-55963-585-1.

Table 1.4 Employment and Salary by Career Category

Category	Employment Number-Range % growth	Breakdown			Salary in \$Thousands
		Public	Private	Non-profit	Starting 10 years experience Mgnt/consultant
Planning	40,000-45,000 2-6% growth	66%	15%	19%	\$29-\$32k >\$55k ?
Education Communication	>300,000 5% growth	60%	15%	25%	\$18-\$25k \$28-\$45k \$60-\$75k
Water Quality Management	>300,000 3-4% growth	40%	55%	5%	\$18-\$35k ? \$50-\$100k
Air Quality Management	80,000 1-4% growth	20%	75%	5%	\$20-\$33k \$50-\$65k \$75-\$90
Solid Waste Management	>250,000 2-5% growth	40%	50%	10%	\$22-\$40k \$50k \$80-\$100k
Hazardous Waste Management	>150,000 2-5% growth	22%	77%	1%	\$19-\$35k \$45-\$70k \$75-\$100k
Energy	180,000 3-9% growth	20%	70%	10%	\$28-\$60k ? \$80-\$100k
Land and Water Conservation	45,000 3-7% growth	72%	10%	18%	\$18-\$30k \$50-\$85k ?
Fishery and Wildlife Management	>37,000 8-10%	65%	15%	5% NGO 25% Edu	\$22-\$25 \$35-\$42k \$50-\$70k
Parks and Outdoor Recreation	240,000 10-20% increase thru 2005	80%	15%	5%	\$20-\$30k ? \$30-\$40k
Forestry	>80,000 10-20%	40%	48%	2% NGO 10% Edu	\$18-\$32k \$35-\$50k \$60-\$100k

Source: Various pages of Cook, John R. Jr., Kevin Doyle, Sam Heizmann, Tanya Stubbs, Meryl Brott, and Dylan Murray, 1999, The Complete Guide to Environmental Careers in the 21st Century, The Environmental Careers Organization, Washington DC: Island Press. ISBN 1-55963-585-1.