

Grace Chang

Senior Science Advisor and Technical Director of Marine Sciences and Engineering at Integral Consulting Inc.



What is your current occupation?

A Senior Science Advisor at Integral serves as an expert technical resource to the firm and provides senior technical leadership on projects. I participate in developing new projects and contribute technical and management expertise to existing projects. I am recognized as a mentor to share knowledge and experience with the rest of our technical staff. As Technical Director, I am responsible for the strength and development of Integral's technical capabilities, oversight of our group's technical management and professional development, recruiting new talent, development of capabilities and tools, and ensuring attainment of company growth targets.

What is your educational background?

Ph.D. Marine Science (University of California, Santa Barbara)

M.S. Mechanical and Environmental Engineering (University of California, Santa Barbara)

B.G.E. Geological Engineering (University of Minnesota, Twin Cities)

B.S. Geology (University of Minnesota, Twin Cities)

Certified Engineer In Training (EIT), The State of Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, and Interior Design.

A key message for students is that the geoscience workforce is dynamic, and boundaries between sectors and occupations are fluid. How has this been true in your career?

Yes! This is a great message for students and early career professionals. My career path has not been straight, which is not atypical. Near the time of my Ph.D. graduation, I was faced with a number of career opportunities. I was short-listed for two faculty positions, offered post-doctoral research positions at academic and government institutions, and a research position at a non-profit. I did not feel like I was ready for a faculty position and questioned whether I even had a passion for teaching; therefore, I chose the latter. Within a few months, it didn't pan out (for a number of reasons: not what I expected, did not like the relocation). I was able to transition back to the lab at which I worked as a graduate student. I stayed there for 8 years as a researcher, climbing the academic, non-tenure track (soft money) ladder. I really enjoyed it; however the pressure of consistently generating my own and my husband's salary (I married the field engineer in our lab ☺) became too much. It was at this time that a little bit of luck in timing came into play. I bumped into a buddy from grad school at a conference. After discussing with him my concern about the lack of funding, he mentioned that the consulting company for which he worked happened to be looking for a researcher and a field engineer with my and my husband's qualifications. Shortly thereafter, we both transitioned from academic careers to environmental consultants.

Where do you see your sector moving in future years? How would you advise students to prepare to be competitive job applicants and successful employees?

Consultancy, by nature, is fluid. We move with the needs of the greater industry – in our case, solving environmental problems. Therefore, I see environmental consultancy moving even more toward climate change issues, new and yet undiscovered chemical contaminants and their effects on humans and the environment, and managing potential multi-use conflicts in marine and coastal environments.

A successful consultant, therefore, must possess technical skills and interests that are applicable across a broad range of geoscience topics. For example, we recently conducted a job search for a scientist to help with two very different projects, one involving numerical modeling and the other, signal processing of underwater acoustics data. Our top candidate, among dozens, was someone who had little direct experience in either, yet they showed great interest in learning, and demonstrated the technical skills to achieve success in a short period. They accepted our offer and we cannot be more pleased with their performance.

In addition to technical skills, a successful employee must demonstrate that they possess self-confidence, pride without ego, and that they excel in collaborative/team environments yet can work independently. In an interview setting, it is important for a candidate to have general knowledge about the company to which they are applying, and that they ask pertinent questions about expectations and career growth within the company. Importantly, should a job application be unsuccessful, it is important to view this not as a discouragement, but as another future

opportunity. The candidate should consider the interviewer(s) as part of their growing network.

What is the role of networking in your sector? Do you have advice for a student who is just beginning to build their network? What is the best way for students to get their foot in the door?

Ha! See above! Networking is one of the keys to success in consulting (and beyond). The great thing about networking is that it is not hard. Everyone you know is in your network and everyone you meet grows this network. Naturally, the best way to build a network is to increase the opportunities to meet new people. The most effective means, I've found, is at conferences. However, it's not enough just to show up at a conference and attend presentations. Before the conference, develop a strategy for networking. If you are interested in working in a particular field of study, ask your advisor, committee members, other faculty members, and your fellow students to introduce you to others in the field, or at least provide names of people to meet. If you are interested in working for a particular organization, find out if anyone from that organization will be at the conference and presenting. Plan to attend and talk to them. If possible, reach out before the conference to set up a meeting. It's also important to present your own work to showcase your skills and connect with folks with mutual interests. Networking does not end with the "meet and greet". Be sure to follow-up with people you meet and try to stay connected through common interests. For example, if you read an article or news piece that you believe would be of interest to someone in your network, forward it along with a "let's catch up" message. Take advantage of professional social media platforms like Linked In, Research Gate, etc.

What does a "typical" day of work look like for you?

Although no day is typical, one day of work for me may involve the following activities:

- Research, training, and/or identifying opportunities – read an article, search for funding opportunities, attend a webinar, etc. (60-120 min)
- Connect with people in my network (15-30 min of emails and/or phone calls)
- Business development for immediate opportunities – writing proposals, white papers, etc. (60-120 min)
- Administrative duties (30-60 min)
- Project management – budget tracking, invoicing, etc. (30-60 min)
- Project work – data analysis and visualization, data evaluation, reporting, etc. (240 min)

What is the best part of your job?

Previously (maybe more than 5 years ago?), I would have said that contributing to solving environmental problems through sound science is the best part of my job. These days, the best part of my job is contributing to the career growth of our staff members.

Do you have any other comments or advice for students looking to enter your sector of the geoscience workforce?

Please feel free to reach out if you have questions about consulting careers in the fields of geoscience; LinkedIn link below.

Connect:

<https://www.linkedin.com/in/grace-chang-b12808a2/>