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Geoscientists in High Demand in the Oil Industry

Lucas Laursen
United States
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Six years ago, would-be lawyer Kira Diaz-Tushman heard a National Public Radio program about the impending retirement of senior [U.S. Geological Survey](#) (USGS) geologists. "I thought, 'That sounds fun. I want to do what they're doing and play around in the field.' " So she double-majored in geology and political science at [Bryn Mawr College](#) in Pennsylvania and did a summer internship at USGS.

"I joined for a bit of adventure ... [and the] opportunity to go all over the world." Sally Serenyi, Schlumberger

Watching researchers scramble for dwindling federal funding turned her away from government work. But her interest in geology persisted, so she studied for a master's degree in structural geology at the [University of Texas](#) (UT), Austin. While there, she interned with the technology group at [Apache Corp.](#), an oil exploration company based in Houston, and learned the basics of seismic mapping. She began to seriously consider a job in oil exploration.

Diaz-Tushman, now an operations geologist for [BP](#), is part of a fast-growing global cadre of scientists and engineers building careers around unlocking more of Earth's energy reserves. Those in the field repeat the mantra that the "easy oil is gone"; this new generation faces the challenge of finding oil in remote locations and of pioneering new ways to tap into unconventional reserves in existing oil fields.

MIND THE GAP

The cyclical nature of oil prices has left a historical footprint on the existing pool of human resources. Low prices in the 1980s and 1990s meant that many major companies recruited less or not at all, leaving them top-heavy and in need of young talent.

The hiring gap "is more of a driver than the

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price" of oil today, says Laura DeMott, a Houston-based senior petroleum geologist at [ExxonMobil](#). Regardless of the cause, demand for people with geological and geophysical training is high in the oil industry, and experts predict it will stay strong for the next 5 to 10 years.

People entering the industry will have their choice of a great diversity of companies, locations, and career paths. In North America, family-owned single-drill outfits work alongside multinational exploration companies such as Schlumberger and companies that integrate the entire process from exploration to production to distribution, such as BP and ExxonMobil.



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RECRUITMENT AND PREPARATION

Sally Serenyi (pictured at top) didn't set out to join the oil industry. But not long after she graduated with her bachelor's degree in physics from the [University of Exeter](#) in the U.K., she walked past a glossy recruiting display at a career fair with pictures of exotic landscapes. The display was for [Schlumberger](#); now, just under 2 years later, she works for the company as a field engineer. "I joined for a bit of adventure," she says, and the "opportunity to go all over the world." Serenyi works with a crew of a half-dozen engineers and equipment operators near exploration sites in Austria and Hungary, collecting and preparing data for client companies.

Recruiters generally encourage students interested in the oil industry to obtain master's degrees, and industry-sponsored scholarships provide some incentive. But the current demand for new talent means that companies are "happy to have people with a strong bachelor's," says [Charles Groat](#), former USGS director and now a professor of energy and mineral resources at UT Austin. Groat tells students that oil companies still prefer graduates who have fundamental training in geology and geophysics and who are comfortable with quantitative analysis, perhaps through classes in economics, statistics, or computer science. There are also jobs available to people in related fields including physics and engineering, as Serenyi found.

Companies use internship programs as recruiting tools and as extended interviews, says Eric Lyons, a geophysicist at BP. Lyons did three internships with [Marathon Oil Corp.](#) en route to earning a geophysics master's degree. Such programs give companies "a chance to look at the students and vice versa," Groat says. But internships are "a long way from being required," he adds.

THE DAILY GRIND

New recruits to large companies typically spend a significant part of the first couple of years completing in-company training and gaining experience with different parts of the company. Lyons, who has worked on North American oil fields, now works on fields in the Gulf of Mexico and will be assigned elsewhere next year. For DeMott, who earned her master's degree in geology in 2007, training at ExxonMobil will involve three 8-month placements.

As companies bring in green staff, they are also trying to bring experienced staff back from retirement, or retain baby boomers as part-time consultants, to train the young recruits. Even so, the workforce is expected to be bottom-heavy--which could work to the advantage of younger employees. "In a few years, there will be the option to go up the ladder faster," Diaz-Tushman says.

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In large companies, young geoscientists often have a choice of pursuing a managerial track or a parallel technical career ladder, with comparable compensation and recognition. In smaller companies that have just one or two geologists on staff, that may not be possible, and the work can be "more mundane, since they don't have the resources for more exotic stuff," says Groat. Still, smaller companies can have a different culture that may suit some geoscientists, he adds.

Lyons warns students who "love being outside" that at most oil industry jobs, "you're gonna be sitting inside all the time." Diaz-Tushman says that even though some of her work is in the field, ultimately, "I have an office job." It is possible to find fieldwork-focused jobs, such as Serenyi's, but fieldwork can mean giving up sleep when a well needs attention or a client suddenly needs data. "[The lifestyle] wouldn't fit someone who wasn't particularly energetic," Serenyi says.

CHALLENGES

Plenty of technical challenges await this new generation of geoscientists. "The hottest area right now is unconventional reservoirs," says Groat. These include tight reservoirs of traditional hydrocarbons that have no natural fractures for engineers to exploit as conduits. Oil companies are also exploring other hydrocarbon sources such as heavy oils, coal-bed methane, and oil shale.

"There's a lot of stuff out there," DeMott emphasizes, "but what's there is not easy and not cheap to get out; ... that's the problem that everyone is facing."

It's hard to forget the price crashes, layoffs, and hiring freezes that swept the industry during the 1980s and 1990s. But analysts predict not just stability but strong growth in jobs in the field in the near future.

"Maybe the hiring rate will slow in 5 or 10 years," DeMott says, "but I'm not concerned with losing my job. There's still not that many people to hire."

<p>Lucas Laursen is a freelance science writer in Cambridge, U.K.</p>	<p>Comments, suggestions? Please send your feedback to our editor.</p>
<p>Images. Top: Courtesy, Schlumberger. Middle: NSF/Earthscope</p>	<p>DOI: 10.1126/science.caredit.a0800119</p>

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