It's dirty, but it's not dirt: scientists in state policy

Karen Morrison
CalRecycle, Sacramento, CA
(karen.morrison@cdpr.ca.gov)

Ilonka Zlatar
California Air Resources Board, Sacramento, CA

From my first day on the job at the California Department of Resources Recycling and Recovery (CalRecycle), I knew that I was definitely in a non-traditional career for an ecologist. I piled into a van with 10 of my coworkers and drove to a waste transfer station. From the confines of the van, I watched as large garbage trucks pulled through the gate and headed for the tipping floor, where they dumped their contents and then headed back out for another load. Meanwhile, smaller vehicles pushed the accumulated trash into a hole in the floor, loading it onto transfer trucks that would ultimately deposit the trash in a landfill.

We donned our safety vests and helmets and left the van, only to be greeted by the odor of decomposing waste and the cry of gulls overhead. A few feet away was our destination – a tented area where a small crew was sorting the trash into over 80 categories (paper, plastic, metal, glass, electronics, food, and so on) for California's periodic waste characterization study. It was smelly, it was dirty, but manual sorting is the only way to know what people throw away. And in order to make good, data-based policies on recycling, composting, and waste management, we have to know what's there (Figure 1).

A job at a state agency may not be the first thing that comes to your mind when you're planning a career – it certainly wasn't for us! However, we invite you to consider the option, as state agencies provide a rich and fulfilling opportunity for scientists. And it's not just the Department of Fish and Wildlife that's hiring: in California alone, there are roughly 3,000 state-employed scientists in over 30 state departments, so the opportunities are vast! At CalRecycle, we work to "protect the environment and preserve resources by empowering Californians to reduce, reuse, and recycle". But state scientists throughout California also protect wildlife habitats, conserve natural resources, and safeguard public health.

Although our work differs substantially from academic ecological work, many of the skills required can be cultivated in any position. These skills include:

Analysis – what do the data tell you? A key part of our jobs is analyzing the available data to implement existing programs or to recommend new policies. For some state scientists, this means extensive fieldwork measuring water quality, collecting plant samples, sorting garbage, or analyzing geologic faults. For others, this means taking data collected by others, evaluating the merits of the data, and determining what conclusions can be drawn from that information. These are key aspects of scientific training – every class, every research paper, every internship is an opportunity to enhance your ability to collect and interpret data.

Communication – tell it like you mean it! Almost all of our work revolves around communication. Whether it's a written report describing the current state of recycling and disposal, or an oral presentation on pending regulations, clarity is critical. We also work with a wide variety of stakeholders, including individual citizens, small businesses, local governments, international corporations, and experienced lobbyists. To prepare yourself for your job as a communicator, we recommend that you seek out opportunities to present your research to a variety of audiences. Find every opportunity you can to present in front of other ecologists or professional audiences, but also talk to your grandma or a friend.

Patience – it's a virtue in all things, but especially in government. By their nature, governments typically move slowly. There are many safeguards in place to ensure a slow, deliberative, transparent process to enable time for feedback and improvement. This often results in multi-year projects for even small changes to programs. It can be frustrating at times, but thoughtful processes ideally lead to better policies. One way to help prepare for this is

Figure 1. *Sorting food waste is dirty work but is important for estimating greenhouse-gas emissions from landfills. In this study by Eugene Tsang at the Sunshine Canyon Landfill in Los Angeles, sorted food waste is separated to undergo methane production analysis.*

to get involved in your local government now. Go to city council meetings, apply to be on scientific commissions, or become an advocate. This isn't a necessary step for working in state government as a scientist, but these experiences will give you first-hand knowledge as to how government works. Taking a class on government affairs, public policy, or administration could be useful too.

Organization – long history, many players, and politics. It's one thing to work on your own data for your dissertation, thesis, or research project; it's quite another to be a member of a team of dozens of people working together on discrete yet related parts of a massive (sometimes decades long) project. As we develop policies, we have to keep in mind the concerns of hundreds of stakeholders. Our version of a literature review includes delving into volumes of statutes and regulations. We have to ensure that the actions that we suggest adhere to all the rules and laws – and sometimes the *intent* of those laws – by diving deep into institutional memory. Good thing that state workers (including the lawyers) stick around for a while! The challenge is tracking and incorporating all of these pieces – stakeholder comments, coworker feedback, and applicable laws – into our final work products. You can practice this on a small scale with class projects and then use those same techniques as the projects get bigger.

So how do you get a job in state government? There are two basic steps: take an eligibility exam, and then apply for a job.

All California state jobs are categorized into a job classification (eg environmental scientist, research scientist, air pollution specialist). To be considered for a job, you must prove that you meet minimum qualifications for education and experience by taking an eligibility exam for that classification. Not all states may follow this same practice, so be sure to check the local requirements.

Once you pass the exam, you're eligible to apply for any job that uses that classification! You may be asked to take an additional in-person or online test to determine if your knowledge and abilities meet the minimum requirements for the position. Usually, candidates with the top scores on the test are then asked for an interview. Interviews for state service aren't that different from interviews for any other job. Just be sure to answer all of the questions fully, as the hiring panel can't evaluate what you don't tell them, even if it's on your resume.

Working in state government as a scientist can be challenging. We've found that there is a perceptible transition to the hierarchy of a large bureaucracy. Our experience in academia was that a small group of people could make decisions quickly. In a department with roughly 800 employees, that isn't always possible, and work products typically go through several levels of formal review before they're finalized. We have found, however, that our colleagues provide helpful context and advice on how best to navigate the process.

We love our creative, collaborative colleagues, and we've found that there are considerable benefits to working in civil service. In contrast to what you may be hearing at the federal level, state scientist jobs are extremely stable. Many of our colleagues have worked for the state for over 20 years! There is also a tremendous amount of flexibility in the kind of work you can perform. Karen's background is in organic chemistry, and Ilonka's background is in ecology, yet our jobs focus on climate change, incentive programs, trash, recycling, and composting. It's common (and even encouraged) for staff to move within a department or agency in order to broaden their experience, and there seem to be endless opportunities for both lateral and upward mobility.

Most importantly, we get to play a vital role in shaping environmental policies in California. During our time at CalRecycle, we have worked to develop regulations regarding disposal, recycling, and composting; to advance major program reform for nationally recognized recycling programs; to quantify wood use at biomass power plants; to design surveys studying trash; and to analyze our efforts to recycle and compost more effectively. Karen even had the opportunity to testify to the California State Legislature on our work to improve waste management in the state.

We strongly encourage you to consider jobs in state government across different agencies. Although California has the largest number of scientists, most states have a Department of Environmental Quality or Resources that deals with many issues in need of a scientist's perspective to solve real, important problems.

doi:10.1002/fee.1787

Author biographies

Karen Morrison is a senior environmental scientist in the policy office at CalRecycle. She completed her PhD in organic chemistry at the University of Illinois Urbana–Champaign and her BS in chemistry at Harvey Mudd College. She was formerly a Science and Technology Policy Fellow in the California Senate Environmental Quality Committee.

Ilonka Zlatar is an air pollution specialist at the California Air Resources Board and was previously an environmental scientist at CalRecycle. She completed her MS in natural resources science (community ecology) at the University of Nebraska–Lincoln and her BS in biology at the University of Nevada, Las Vegas. She now focuses on increasing access to funding for greenhouse-gas reduction projects for disadvantaged communities.

