



CAUGHT BETWEEN SHORES

Ecologists paid by industry to assess the effects of businesses on the environment are often accused of selling their souls. But isn't scientific expertise exactly what is needed? **Michael Hopkin** investigates.

Picture this: you are a talented research ecologist and you're evaluating whether a planned hydroelectric dam could damage the local ecosystem. Your findings lead you to believe that the fish in the river would not be significantly harmed by the dam. But when you publish your results, your colleagues refuse to believe them. Why? Because you work for the company that is building the dam.

At first glance, big business seems to be only bad for the environment. After all, industry has cut down rainforests and opened up huge mining scars on the landscape. Surely, it might seem, any ecologist who takes money from an organization that so harms the natural world must be putting concerns about the environment second to salary.

In fact, many ecologists take up industrial contracts to try to minimize the damage caused. But in doing so, they walk a delicate line between those who want to save the natural world and those who want to exploit its resources. Some face accusations from their peers that they've 'sold out'. And conflicts often arise between their interests as researchers and those of the companies they work for. Faced with these challenges, many must question whether their decision to work for industry was worth it.

For some, such as Tyrone Hayes, the answer is no. Hayes is an ecological toxicologist at the University of California, Berkeley, who has received funding from the agribiotech giant Syngenta in the past. "My view has changed a

lot since working with Syngenta," he says. "It's made me a lot more sceptical of scientists who get involved with industry."

Hayes's work touches on one of the most politically charged areas of applied research: the impact of pesticides on the environment. Specifically, he is studying the effects on frogs of atrazine, widely used on transgenic crops. At Berkeley, Hayes took up a contract with

"People I barely knew — students, government regulators, and friends of friends — started questioning my integrity." — Bill Streever

Syngenta, brokered by a consulting firm. In his research, he found that exposure to atrazine leads to male frogs becoming feminized, as measured, among other traits, by larynx size¹.

Culture of mistrust

But Syngenta asked him to divide his data on larynx size by the frogs' body weight, a procedure that he says was designed to make the key finding disappear. A Syngenta representative said that processing the information in this way is a common method for handling data from such studies, designed simply to control for the presence of naturally stunted frogs. Hayes eventually gave up the lucrative contract, and no longer works with industry colleagues, who are forbidden from discussing their results with him.

Hayes worries that many scientists in his field

could come under similar pressure when working under industry contracts. "It's up to researchers to maintain the integrity to say: 'No, I produce data in my lab and I have got to stand by them,'" he says. But that can be hard to do, especially when research funding is at stake.

In general, big businesses, often forced by environmental regulations to investigate the impact of their activities on the environment, have the financial muscle to fully support such projects. Last year the BP Conservation Project, funded by the UK-based oil giant BP, awarded US\$600,000 to 28 groups of conservationists. Overall, the company spends around \$100 million each year on community-investment efforts. That amount of money can seem vast to researchers used to relying on academic funding (see 'The lure of industry').

But peers remaining in academia often charge that industry employees have sold their integrity down the river. "When I went to work for 'big oil', friends wondered why I had gone over to the dark side," recalls Bill Streever, who works for BP as an environmental investigator in Alaska. In a journal editorial published last year², Streever wrote: "People I barely knew — students in lecture halls, government regulators, and friends of friends — started questioning my integrity."

Asked whether he accepts that there is conflict between the work he does and the source of its funding, Streever's answer is an emphatic no. Working inside industry, he argues, is the best way to gain some real

influence and ensure that big business really does embrace environmental stewardship.

Many companies need competent scientists to meet legal guidelines on minimizing the detrimental impact of their operations. "My feeling is that there's a tremendous need out there for talented scientists," says Streever.

Streever also enjoys the relative largesse of big business. For example, in an investigation he mounted on whether noise from oil-drilling operations affects whales in the Beaufort Sea, Streever used BP money to convene a panel that brought together expertise from the diverse fields of acoustics, statistics and mammal ecology. As a wetlands ecologist by training, Streever says it would have been difficult to obtain the funding needed for the panel through traditional wetlands-ecology channels.

Mutual gains

Scientists aren't the only ones who stand to benefit from partnerships with industry. Elaine Dorward-King, head of health, safety and the environment at the mining multinational Rio Tinto, argues that companies have everything to gain by protecting their reputations through diligent environmental stewardship. "If you want to have a positive impact on the world, I can scarcely think of a better area to work in," she says.

For a corporate behemoth such as Rio Tinto, she adds, losing the trust of local people means losing out financially in the long run. In Madagascar, where the company is eyeing a huge deposit of the mineral ilmenite, Rio Tinto's environmental department has spent the past 20 years weighing up the likely impact of a mining operation on the local community and



P. S. TURNER

Put off: Tyrone Hayes's experience with an agribiotech giant has made him mistrust scientists in industry.

environment. Past mistakes stress this need for caution: in Papua New Guinea, back in the 1960s, a copper mine owned in part by Rio Tinto polluted the surrounding environment, and eventually helped lead to a civil war that caused the mine to close.

There is often a third player in the collaboration between environmental science and business: non-governmental organizations,

or NGOs. Many operate from a position of supreme cynicism, accusing industry figures such as Dorward-King of spouting platitudes while having one eye firmly fixed on the balance sheet. But others see collaborations between science and industry as a key opportunity to influence big business, and lever their relatively modest funds into brokering such collaborations.

One organization that falls into the second category is Fauna and Flora International, based in Cambridge, UK. It joined forces with BP in 1990 to help minimize the impact of oil-drilling operations on local wildlife, and was predictably accused by other, more hardline NGOs of selling out.

But Annelisa Grigg, the organization's director of corporate affairs, argues that this puts it in a position of influence with big business that it would not otherwise enjoy. She says that her organization now has the ear of more than 25 mining corporations, as well as the International Council of Mining and Metals, based in London, UK.

In the end, environmental scientists say they must keep a critical eye on all science, whether it comes from the industrial or academic sector. "You always have to prove yourself," says Marianne Carter, who manages a conservation programme that links BP with conservationists in academia. "And show that it's not just a greenwash."

Michael Hopkin is a reporter for news@nature.com.

The lure of industry

Do environmental scientists make more money in industry than in academia? Most people would probably say yes, but the picture isn't so clear-cut. Published salary data suggest that the average contract scientist in the United States takes home a similar pay cheque to a university instructor. And for those who scale the ranks of academia, the pay offs for university employees can be even higher.

The Commission on Professionals in Science and Technology (CPST), which produces average-salary data for US scientists, shows that in 2004-05 the average rank-and-file university academic working on disciplines related to natural resources and conservation

earned almost US\$41,000. The average figure for academic ecologists fell short of this benchmark, at around \$32,600. Meanwhile, environmental scientists working as consulting staff researchers to the corporate sector earned slightly more than \$39,000.

Elaine Dorward-King, who oversees environmental surveying for the mining multinational Rio Tinto, doesn't believe that money is a big motivator, because those in search of big bucks would be pursuing different careers anyway. "If you want to get rich, you don't become an environmental scientist," she says. In fact, she argues, the way to rake in the cash is to stay on the academic tenure track. "Full professors

make substantial salaries," she says.

Does she have a point? Possibly. The CPST data show that US professors of ecology bring home on average more than \$90,000. But this is surely small beans compared with what someone with similar management responsibility would earn in the corporate sector.

And what's more, pay cheques in US academia are widely regarded as healthier than those at universities in other countries. So although US scientists may be tempted into industrial positions by factors other than money, the financial enticement may be stronger for those in other countries. **M.H**

- Hayes, T. B. et al. *Proc. Natl Acad. Sci. USA* 99, 5476-5480 (2002).
- Streever, B. *Frontiers Ecol. Env.* 3, 407 (2005).