CAREERS

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OUTREACH

Meet the press

Some scientists embrace the media; others bristle. All should know how to reach out, and how their careers can benefit.

BY GENE RUSSO

Marine ecologist Joanie Kleypas and her collaborators expected their paper cataloguing coral reefs to get some media coverage. But they didn't anticipate the pointed questions journalists would ask.

A press release from a collaborator's institution included a provocative headline: 'Great Barrier Reef will crumble within 50 years'. But although this might have been true, it was not

what the paper showed — the study (J. A. Kleypas *et al. Science* 284, 118–120; 1999) reported only a decreased rate of reef calcification. Yet the National Public Radio reporter who interviewed Kleypas seized on the sensational prediction. "Is it true that the Great Barrier Reef will crumble within 50 years?" he asked her.

Kleypas was blindsided. She back-pedalled. She did not want to contradict the comments of her collaborators, but neither did she want to propagate an unfounded conclusion. And she

certainly did not want to imply a lack of knowledge about her own findings. As she answered the reporter, she qualified the findings and circled back to previous comments. She rambled.

Looking back, Kleypas, who works at the National Center for Atmospheric Research in Boulder, Colorado, says that she was unprepared. She was also more concerned with trying to set the record straight for her colleagues than with conveying the import of her findings to the public. "You want to communicate this stuff," she says, "but always there's this little scientist on your shoulder saying 'You can't say that'."

Incidents such as these can spur scientists to rethink their interactions with the media — or even to forgo them altogether. Kleypas, though, stuck with it and learned some lessons. Scientists should know and understand the reporter's publication and audience; they should prepare for the interview; and they should carefully craft their message. Remembering such advice may make media interactions productive, rather than frustrating or embarrassing (see 'How to get your message across'). And in some cases, speaking to the media may actually help advance one's career.

EXPERT ANGST

Nancy Baron, a scientist turned journalist turned science-communications specialist at the Aldo Leopold Leadership Program of Stanford University, California, recalls the first workshop at which she taught scientists how to foster fruitful media interactions. "Immediately, I go in and realize I am not equipped to deal with all of the angst," says Baron, who was a journalist at the time. "It was like a therapy session — how they'd been misquoted, not allowed to read the story before publication. All these views about how unreasonable journalists were." Sentiments such as these, and stories such as Kleypas's, raise the question why bother? Is interacting with the media worth it?

Some insight comes from a study (V. Kiernan *Sci. Commun.* 25, 3–13; 2003) by Vincent Kiernan, a former journalist who is now an associate dean at Georgetown University in Washington DC. He found that scientists whose published findings were covered by news outlets, including *The New York Times* and several daily newspapers, subsequently had more citations in journal articles. Every 100 words of newspaper coverage of a particular study was associated with an additional citation of that study in the four years after the work was published. "Media coverage does affect citation rate," says Kiernan. "So you could make an argument that it's in ►

► the interests of scientists to get media coverage.” He admits, however, that the changes to mass media since his study — for example, the onset of social media — could affect the results if a similar analysis were done today.

Others suggest that scientists have a duty to communicate. Steve Squyres, a professor of astronomy at Cornell University in Ithaca, New York, believes that with government-funded research, the rationale for public outreach is clear. “It is absolutely the duty of any scientist who does their research with public funds,” says Squyres, who heads NASA’s Mars Rover science team and has often participated in press conferences to report the rovers’ progress and status. “We were handed more than US\$800 million for this project,” he says. “I didn’t feel we had the option to say ‘No, we don’t feel like doing media today.’ They’re the conduit to the people you’re doing this for in the first place.”

At first, Squyres had trouble using that conduit. Each day, as he attempted to relay information about the rovers to the media, the challenge was not about breaking down scientific complexities, but about satisfying the public’s thirst for discoveries that were sometimes slow in coming. “What our rovers do in one day, a field geologist can do in 30 seconds,” he explains. So he decided to take a different tack. With the scientists attempting to solve questions about water on Mars as the rovers ambled methodically through Martian soil, he saw an opportunity to show people how science actually works: a continuous journey of discovery that challenges hypotheses, forcing investigators to formulate and test new ones. It was a “Martian mystery novel”, says Squyres. “We got clues, but not in order. We had to piece them together.”

Some NASA public-relations personnel were nervous. Admitting uncertainty could make scientists look uninformed or unprepared. But before long, they saw the value of Squyres’s approach. The researchers could present a clue uncovered by a rover, offer possible explanations, and then say, “Tune in tomorrow to see whether we can find the answers.” They had what every mystery writer desires — an audience anxiously awaiting the next instalment.

Helping to provide insights into the process of discovery is important not only for education’s sake, notes Cornell University communications professor Bruce Lewenstein. It can also humanize science and give the public more realistic expectations about scientific results. As an example of where this could apply, Lewenstein cites ‘climategate’: the release of e-mails from the University of East Anglia, UK, that were brandished by critics as evidence that scientists were censoring legitimate findings challenging theories about humanity’s contribution to climate change. Those who study the history and sociology of science just shrugged, says

Lewenstein. They knew that scientists often discuss where to publish and which journals might throw up barriers. “Part of the problem is that the controversy was couched as, ‘They’re not living up to ideals,’” he says. But the ideal of the stoic scientist does not always reflect reality. If more of the public had understood that, perhaps the controversy could have been abated.

THE SAGAN EFFECT

Some worry that media interaction can taint careers. The ‘Sagan effect’, named after the astronomer and famous science communicator Carl Sagan, suggests that frequency of media interaction might be inversely proportional to scientific ability. Sagan’s biographers, Keay Davidson and William Poundstone, both say that his popularization of science was a big reason that the National Academy of Sciences did not accept him as a member. And yet Sagan, as they document, had a prolific publication record and many protégés, including Squyres.

Indeed, one study (P. Jensen *et al. Sci. Public Policy* 7, 527–541; 2008) found that the most active popularizers — those who communicated through interviews, conferences or science associations — are also the most active academically, according to metrics such as publication record, frequency of teaching and number of collaborations. The researchers examined data from more than 3,500 scientists at the French National Center for Scientific Research (CNRS), where employees must report annually, as a matter of procedure, on all their activities for the year: everything from research activities to interviews given to the press. Lead author Pablo Jensen, a physicist at the University of Lyon in France, notes that some of the heads of the CNRS had themselves expected that popularizers would be shown to be “failed scientists”. Jensen’s data suggest

Nancy Baron trains scientists in talking to the media.

otherwise — the CNRS’s popularizing researchers may not necessarily be the best scientists, but they are among the most productive.

Another study suggests that there are three conditions under which scientists will not resent colleagues who popularize: that they report on their own sound scientific work; that they wait to be approached by journalists rather than marketing themselves; and that they avoid self-promotion or aggrandizement. The work, based on 55 in-depth interviews with scientists working on privately and publicly funded human genome projects — and coming from France, Germany, the United Kingdom or the United States — will be published as part of the *Sociology of the Sciences Yearbook* volume ‘The sciences’ media connection’ (Springer, 2011). “Scientists are ambivalent towards visible colleagues,” says study author Simone Rödder, a postdoc at the Institute for Science and Technology Studies at the University of Bielefeld in Germany. The three conditions are a means of “ambivalence management”, she adds.

TOP TIPS

How to get your message across

- Know your audience. Reporters have a vast range of experience and backgrounds. Understanding this will help you to talk to them at the appropriate level of detail.
- The medium matters. The depth and type of question differ depending on whether the journalist is from radio, television, or an online or print publication. Deadline pressures — daily, weekly or monthly — also affect the agenda and level of detail.
- Be diligent. Consider looking at earlier work by the reporter to make sure that he or she has produced quality pieces. “You have to weigh the cost–benefit,” says Nancy Baron, who teaches science communication for the Aldo Leopold Leadership Program at Stanford University, California. “You shouldn’t answer the phone and start talking.”
- Prepare. Think about the message you want to convey and the 3–5 major points you want to make. But be ready for an interview to go in an unexpected direction.
- Don’t go beyond your knowledge.
- You can ask to check quotes and other contributions, but reporters may refuse.
- Be careful when trying to be funny if that is not your natural manner — it could flop terribly, or backfire.
- As you proceed with the interview, look for cues that the reporter understands your comments and explanations. Is he or she asking germane follow-up questions?
- When you sign off, make sure to provide your contact info and let the reporter know how and when you will be available if further explanation is needed. **G.R.**

Although some young scientists embrace media engagement (see page 365 for a profile of one of them), many remain nervous. “I’ve had some young postdocs in politically charged institutions whisper to me, ‘Hey, I have to wait until I have tenure, and then you’ll hear from me,’” says Baron, adding that caution is sometimes warranted. In her book, *Escape from the Ivory Tower: A Guide to Making Your Science Matter* (Island Press, 2010), she cites the example of Martin Krkosek, a biologist who as a graduate student helped to show that sea-lice infestations linked to farmed salmon in Canada were hurting wild salmon populations. Between 2005 and 2007, he published in *Science* and elsewhere, and often spoke to the media. Controversy swirled. The salmon aquaculture industry refuted the findings, suggesting that the infestations were natural; but in 2008, British Columbia put a moratorium on fish-farm expansion, owing in part to Krkosek’s work. He says that his media outreach may have hurt his cause at some departments where he applied for positions. At others it was an asset. “Waiting for tenure may be safer for career advancement in some instances,” says Krkosek, now in a tenure-track position at the University of Otago in New Zealand. “But opportunities for communicating with public and policy audiences could be lost.”

Young scientists should know the cultures of their institutions, fields and laboratories before they speak to the media, and find out whether frequent interactions are frowned on, says Dennis Meredith, author of *Explaining Research: How to Reach Key Audiences to Advance Your Work* (Oxford Univ. Press, 2010). And frequent media interactions can be a time sink — a big downside for graduate students trying to finish a dissertation, or postdocs in the middle of a big project. Often, young scientists will run into an adviser who thinks “every minute away from the bench is wasted,” says Cornelia Dean, long-time science writer at *The New York Times* and author of *Am I Making Myself Clear? A Scientist’s Guide to Talking to the Public* (Harvard Univ. Press, 2009). “I think the culture needs to change,” says Dean. “You may feel you don’t have media charisma, and don’t have the energy to do it, but you can at least support the people doing it.”

Lewenstein, though, believes that investigators balk at student and postdoc media involvement less than they used to. Four years ago, when he asked the graduate students and postdocs taking his science-communication class how many of them were worried that their adviser would find out they were there, about half put their hands up. But when he held the same workshop this year, no hands were raised. “You need to recognize that there are consequences of working with the media,” says Lewenstein. “But in the end it’s good both for you as an individual, and for our overall society if you’re connected with the public.” ■

Gene Russo is the Careers editor at Nature.

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COLUMN

A CV of failures

Keeping a visible record of your rejected applications can help others to deal with setbacks, says **Melanie Stefan**.

A couple of months ago, I received a letter informing me that my fellowship application had failed. On the same day, Brazil’s World Cup squad announced that football phenomenon Ronaldinho had not been selected. “Cool,” I thought. “I am like Ronaldinho.” But that thought offered only little consolation. No scientist enjoys such failures, but too often we hide them.

In a way, a fellowship rejection is to be expected. Most of these fellowships have success rates of about 15%, meaning that an applicant might be successful in only one out of every seven tries. For every hour I’ve spent working on a successful proposal, I’ve spent six hours working on ones that will be rejected. I don’t mind the extra work — after all, if I abhorred tedious tasks with low chances of success, I would not be in research.

Even so, this means that for every endorsement, there are about six challenges to my ability, my determination and my vision. I find this harder to swallow. Perhaps this is because I have generally succeeded so far. I did well at school and later at university, earned the PhD position of my dreams, and have published several papers. This is the story that my CV reveals.

But that is exactly the problem. My CV does not reflect the bulk of my academic efforts — it does not mention the exams I failed, my unsuccessful PhD or fellowship applications, or the papers never accepted for publication. At conferences, I talk about the one project

that worked, not about the many that failed.

As scientists, we construct a narrative of success that renders our setbacks invisible both to ourselves and to others. Often, other scientists’ careers seem to be a constant, streamlined series of triumphs. Therefore, whenever we experience an individual failure, we feel alone and dejected.

Such is not the case with every profession. Consider Ronaldinho. A football player cannot hide his setbacks. Everything is out in the open — every failure to be selected for a big competition, every injury, every missed penalty is on display. Maybe this is a good thing. It shows young aspiring players what it means to be a football player. It helps them to cope with their own setbacks.

So here is my suggestion. Compile an ‘alternative’ CV of failures. Log every unsuccessful application, refused grant proposal and rejected paper. Don’t dwell on it for hours, just keep a running, up-to-date tally. If you dare — and can afford to — make it public. It will be six times as long as your normal CV. It will probably be utterly depressing at first sight. But it will remind you of the missing truths, some of the essential parts of what it means to be a scientist — and it might inspire a colleague to shake off a rejection and start again. ■

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