

above 20°C, the upper limit for migrating salmon. Above that, salmon eggs, fry, and juveniles typically perish, says Chris Caudill, a fisheries ecologist at the University of Idaho, Moscow. Adult fish sometimes survive those temperatures by halting their migrations and holing up in any colder water tributaries they can find. Yet doing so can bring other problems. For starters, the fish don't eat during spawning, so extended layovers can sap the energy reserves they need to complete their trip. And as the fish wait, they face increased predation and disease. "When water temperatures rise, none of the options is good," Caudill says.

Water managers can combat high summer stream temperatures by slowly releasing cold water from summertime snowmelt captured in reservoirs. But without a significant snowpack, that strategy can only work for so long. Last year, for example, water managers in northern California tried that approach at Shasta Dam in an effort to keep water temperatures below 20°C in the Sacramento River, home to endangered winter-run Chinook salmon that migrate upriver during the summer. But the supply of cold water behind the dam ran out in early September, and river temperatures soared. As a result, an estimated 95% of the eggs, fry, and juvenile winter-run Chinook died, says Peter Moyle, a fisheries biologist at the University of California, Davis. Right now, Shasta Lake holds roughly the same volume of cold water as it did at this time last year, Moyle says. "Chances are good we'll see a repeat of last year."

Even if the skies open up and water fills reservoirs throughout the West, young salmon that do make it out to sea face a potentially even larger problem. That's because river travel represents only the first of their challenges. Equally important to the health of the fish is the availability of food in the ocean. That food depends on the upwelling of cold, nutrient-rich waters off the West coast. Yet this year there has been less upwelling than usual because of a layer of unusually warm surface water (*Science*, 3 April, p. 17), which has already led to a crash in sardine and seabird populations. So if and when young salmon manage to escape the warm, low river levels, "they will face an ocean with not a lot of food," Moyle says. That's likely to further jeopardize the more than one dozen fish runs already listed as either threatened or endangered.

Adding to these troubles, long-term climate change, which is expected to produce more hot and dry years like this one, is likely to wipe out all the remaining California salmon stocks by the end of the century, Moyle says. At this point, Moyle says, "it looks inevitable." ■

FACULTY HIRING

Women best men in study of tenure-track hiring

Female candidates twice as likely to get top rating

By Rachel Bernstein

Wendy Williams and Stephen Ceci believe they have crossed one factor off the list of obstacles facing women in academia: the hiring committee. To their own surprise, the Cornell University psychologists have found that a highly qualified woman applying for a tenure-track faculty position in STEM (science, technology, engineering, and mathematics) at a U.S. university is twice as likely to be hired as an equally qualified man.

The results run counter to widely held perceptions and suggest that this is a good time for women to pursue an academic career. Some observers, however, say the study—which involved actual faculty members rating hypothetical candidates—does not reproduce real-world hiring. And they worry the results may leave the incorrect impression that universities have achieved gender parity in STEM fields. Still, says psychologist Virginia Valian of Hunter College in New York City, "it will definitely make people think more thoroughly and more subtly" about the issue.

The researchers invented three hypothetical candidates for an assistant professorship: an extremely well-qualified woman, an extremely well-qualified man, and a slightly less qualified man. For each candidate, they wrote a summary that included a search committee's impression of the candidate, quotes from recommendation letters, and a score for the candidate's job talk and interview. Then they asked 873 tenure-track faculty from four fields, roughly divided between men and women, to rank the candidates. Overall, raters in most fields were twice as likely to tag the woman as the best candidate, the researchers reported online this week in the *Proceedings of the National Academy of Sciences*.

Williams and Ceci say they were shocked

at the outcome. And although they did not investigate the potential causes, they suspect it may be due to some combination of training programs on gender and hiring, a growing belief about the importance of gender balance among STEM faculty, and the retirement of older faculty.

The candidates' marital status and whether they had children made little difference to the outcome, except in one case.

When the female candidate was described as having had a child during graduate school, male raters preferred a candidate who took a 1-year parental leave, whereas female raters preferred the one who did not take a leave.

"I almost wonder if there's a bit of paternalism going on" among the male raters, says University of Mississippi, Oxford, business professor H. Kristl Davison. Perhaps "there's a female bias present in terms of, 'I struggled through grad school without taking leave; I think others should do so as well.'"

But Davison also wonders whether the study's main result "would translate to the real world." She and others note that bias can enter the hiring process well before the final selection round. Men and women can be perceived differently during preliminary interviews, for instance, based on personality traits that have nothing to do with merit.

Others note that obstacles may emerge later, after a woman is hired. "I think it's fair to say that the women who have run the gauntlet and gotten advanced STEM degrees will find the labor market quite welcoming," writes Jennifer Glass, a sociologist at

the University of Texas, Austin, in an e-mail. "What happens once they are [hired] is another matter entirely." She says studies suggest that women still have higher attrition rates in some STEM careers.

Valian agrees. Despite the apparent good news, she says, "it's too soon to say: 'OK, problem solved.'" ■

Who chose the female candidate?

67.3
%, overall

69.2
%, biology

66.7
%, engineering

72.5
%, psychology

58.6
%, economics