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Why Wet Students Are the Best

THE INS AND OUTS OF FIELDWORK

By Simon Boxall

As summer comes to an end in the Northern Hemisphere (and begins in the Southern), many academics are reflecting on the successes of their summer field courses (or planning for events yet to come). Fieldwork is particularly critical for marine scientists, but it has a range of logistical challenges. With envy, I observe groups of historians popping across to Florence for a long weekend with two staff and 30 students, or our geologists heading off to their summer mapping course with a hammer, a compass, and, of course, a hard hat (safety first)...

At Southampton, we have the potential for a fantastic base for fieldwork, with the largest facility in Europe—teaching labs of every description, vessels waiting on the quayside, a world leading library, and an outstanding IT setup with enough computers for one per student loaded with all of our essential software, plus housing a stone's throw from the department. We are also surrounded by a varied and interesting marine environment.

We run an active and varied field program for oceanography and marine biology with our prime undergraduate residential course running for two weeks in June. We need good weather so we can go out onto the open sea every day (though inevitably we get rain and wind), but we also need to minimize encroaching upon the students' summer vacations, jobs, and internships.

With that in mind, it seems incongruous that in June every year I ship three of our vessels 250 miles west along the coast (one by road on a low loader as it, like me, is getting a bit old for the long journey),

charter a fourth vessel, take two large buses, a big truck, assorted road vehicles, 25 staff, and 130 students and set up base in Falmouth (UK) for two weeks. Oh, and don't forget the hard hats and compasses. We have to take our own computers, set up remote labs, and accommodate 155 people for the duration. Why, I hear you ask? I ask myself that every year, as does our dean when she sees the bill.

Most students come into oceanography because they are interested in getting out to sea and getting wet. The most frequent question from prospective students is: "How much time will I spend on boats?" The answer is a fair bit, but never enough. Learning about our subject in the classroom and laboratory is good, but you need to be able to see and experience it in the field as a critical part of learning about the marine environment. Even aspiring modelers, who mysteriously shun the excitement of near-death experiences in Force 10 storms, need to have some appreciation as to the limitations and processes by which data are collected. So what is wrong with day trips as part of the weekly teaching schedule? Nothing, and most undergraduate courses provide this. But there is a big difference between a day's work on the water and full immersion in a study for two weeks. For fieldwork undertaken during the semester, students work on relatively guided exercises, either individually or in small groups. Staff are on hand for the exercise, but after that the students process their data on their own. At the end of the day, staff and students head off home—and the learning momentum is lost.

So the attraction of a residential field course is that it is a seven-day-a-week, 24-hour-a-day experience. Groups of students work in teams, much the way they would on a research cruise or a commercial survey. They set the agenda, they undertake the sampling, they process the data, and they come up with clear statements (hopefully) about the science at the end. Staff are around the whole time to support and guide the studies while allowing students to sometimes make small (safe) errors, as I strongly believe they learn more quickly by their errors than by having everything laid out in detail and working perfectly. They don't just learn from us but also from their peer group. They are working in a new and unfamiliar environment with new discoveries to be made (this is even more so for our master's students who have a tropical ecology fieldtrip to Bermuda). By comparison, working from their familiar home base on the Solent (a vast strait between the English mainland and the Isle of Wight), staff would pop off for meetings and head home in time for dinner, and students would disappear to their various houses and apartments. The feel of the learning experience would be totally different. What I also observe is that we start our second-year field course with 130 strangers and end up with a whole new group of friendships, several of which have even led to marriage! It is the transition point from groups of students to groups of marine scientists, a point that is made time after time in student surveys and by our external examiners—students themselves see the full value of the work.

So what about the organizer's perspective? I can claim to have a fair amount of experience in this. Thirty years ago, we ran our first main field course—nine students, four staff, and a minibus. We chartered one boat, and it was relatively simple. Finding accommodation for 13 is easy, and even if we ended up in cheap hotels, it didn't break the bank. As this has grown to its modern-day 155, the issues grow exponentially; it is the difference between turning around a rowboat compared to an ocean liner. We are dependent on university halls at the remote site—hotels aren't usually that big and would cost in the region of US\$150,000 for the period (we pick up the bill for all of our compulsory fieldwork). There is then the issue of keeping students active so that they are spending time on the water and getting good access to the labs. They spend a total of three days at sea, but it is a juggling act to make that work—in the UK, workboats are limited to 12 people onboard at any one time, which includes staff. Major logistical issues include not only transport for boats, staff, students, and equipment but also catering—students sort their own out but they need access to kitchens and shops (or carryouts for the culinary-challenged young scientist). This infrastructure quite severely limits the places available for running such a course. My colleagues will often come up with wonderful ideas about interesting regions to survey, but without the necessary infrastructure, choices are limited.

When the infrastructure hits a problem, it has a major knock-on effect. In one case, we were waiting at the quayside on day one for the charter vessel to pick up the first group, only to discover after many calls that this was never going to happen, as the engine seized three days ago and they forgot to tell you. (This scenario ensures that you have a network of regional vessel companies in your phone book.) Similarly, being told a month before the event that the accommodation has made a slipup on the booking and “could we delay by a week” makes you very good at negotiation and



A group of undergraduates gathered for a photo on one of Southampton's summer fieldwork course vessels.

assertiveness (we didn't delay...).

Then, there are the staff and students themselves. Persuading 25 staff to give up two weeks to teach after the end of the semester is never easy. Without the staff, the problem would be insurmountable, and we also need crew, technicians, IT support, postgraduate demonstrators, and, of course, academics. Many have done it for so long that the setup and the day-to-day operational side of such a course is straightforward. I am always astounded at how the support staff team turn up on day zero and by day one we have a fully operational research facility capable of estuarine and offshore work.

Academics are more difficult and fall in to two categories—most are wholeheartedly behind the event but a few, over the years, would rather resort to tidying the stationary cupboard. What is interesting is that if we can get those who are skeptical to come once, they invariably turn into strong supporters. One of my modeling colleagues who gets seasick just looking at a photo of the ocean came a few years ago and has been an avid supporter and staff member ever since, though my budget for sick bags has gone through the roof.

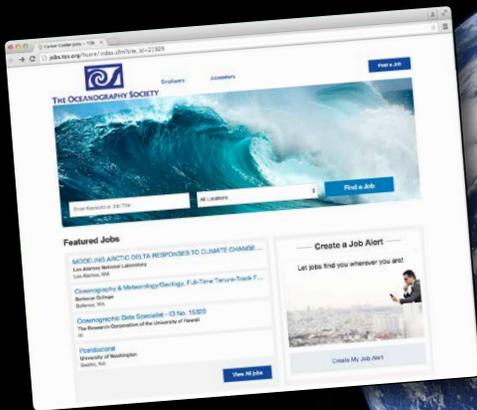
The other people-related problems are they either get ill or have accidents. If you take 155 people away for two weeks, then there is a high chance of dealing with a health crisis, and so some of my time is spent running back and forth to hospital. This included the staff member who had a severe allergy to shellfish but didn't realize fresh prawns came in that category—and, yes, she was a marine biologist! Perhaps surprisingly, given the hazardous environment, the number of work-related accidents is very low. I guess that because the risk is high, the mitigation against that risk is equally high. However, given the number of people involved, the number of accidents that actually occur outside of work is the greater problem. On an average field course, I reckon on five or six trips to the ER. This varies from the most dangerous activity of our entire calendar, the field course staff-student football match on the beach, which has associated cuts and broken toes and fingers, not to mention overindulgence in the end-of-day beers. I have had to deal with one student who fell over his toothbrush in his room and broke his ankle, another who was demonstrating the art of pole dancing in the local nightclub and fell off the pole,

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and worst of all, the person who decided to tombstone off the end of the pier late one evening. This particular student ended up with a bad back for about three months—I wasn't sure what was worse, the fact that she jumped off a high pier for fun or the fact that it was low water and the tide was out, which had totally passed her by as a budding oceanographer!

The advantage of fieldwork away from the students' base is clear in my mind, but the cost and level of logistics grows ever higher year on year. But why move our wonderful resource from Southampton to elsewhere in the country? A few years ago I was aware of a European Union-led initiative for a series of summer schools in various universities spread over the EU. This did focus primarily on postgraduate teaching, but I felt it had great potential for a wider, worldwide, approach for undergraduates. It would be cheaper, easier, and from the staff perspective more practical for us to run our field course at home. If there were a network of courses, then students from Southampton could opt to attend the course in, say, Miami or Naples, while those from University of Washington or Kiel could undertake their work in Southampton. Students would still get the experience of working as a group in a different environment with new staff and ideas, but with lower costs for the individual institutions, both financial and in time. There are lots of issues that would need resolving, but it is an idea—any takers out there?

Meantime, I need to start preparing my bookings for boats and accommodation for 2018—next year's bookings were done a year ago. Just to show to my editor that sometimes I don't leave things to the eleventh hour, there is a time and place for procrastination—and fieldwork isn't it! @

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