

Undergraduates engaged in authentic research experiences learn valuable skills and contribute to a new publication on island biodiversity.



Visit the lecture hall at the Bamfield Marine Sciences Centre and you may have a hard time finding any of the 50 or so university students studying there. Instead, students are more likely to be seen zipping around in small boats, tromping around on beaches, or sitting on the grass debating the merits of a new scientific paper. Students here enjoy a rare opportunity: to learn to be scientists by contributing to real science. A new study on island biodiversity published on October 5, 2017 in the journal *Ecosphere* highlights the potential of this kind of experiential learning.



The new research makes use of Bamfield's exceptional geographical location to address a long-standing puzzle about islands: why do some small islands have many unique species while other islands have very few? It turns out that part of the answer lies in how exposed islands are to storms and waves, something not worked into previous estimates of island biodiversity.

The study uses a predictive framework that nearly doubles the ability to forecast biodiversity on small islands and has implications for our understanding of land-use in fragmented ecosystems. In particular, the results could be used to more accurately estimate biodiversity loss on small islands threatened by storms and sea level rise as a result of climate change.



The study was the brainchild of two BMSC course instructors, Chris Neufeld and K. C. Burns, and a graduate teaching assistant and PhD student, Samuel Starko. Close to 50 students enrolled in three iterations of the Coastal Community Ecology course helped collect the data for the current study. In doing so, students were able to apply the tools used by practicing scientists—species identification, geological surveying, marine navigation skills, and critical thinking—in a real-world context. Neufeld and colleagues think that this approach can go even further.

The most recent iteration of the course, taught this past summer by Neufeld and Starko, broadened its reach beyond islands to document some dramatic long-term changes in seaweed biodiversity. At the end of the course, two groups of students were invited to help write up their results for publication. This would be the students' first peer-reviewed scientific paper but, given the success of this kind of experiential learning, it will probably not be their last. Dr. Chris Neufeld: cneufeld5@gmail.com, 604-815-8340

Disturbance and diversity in a continental archipelago: a mechanistic framework linking area, height, and exposure. 2017. C. Neufeld, S. Starko, and K.C. Burns. *Ecosphere* 8(10):e01957. 10.1002/ecs2.1957

The **Bamfield Marine Sciences Centre** is a world-class teaching and research facility located on the outer west coast of Vancouver Island, Canada. The Marine Centre supports diverse coastal and marine research of the highest calibre and is recognized as among the very best research and training facilities in the world. BMSC is a shared campus of the Universities of Victoria, British Columbia, Alberta, Calgary, and Simon Fraser University. <http://www.bamfieldmsc.com>



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