



Al Martin HCTF Conservation Fellowships Recipient 2024



Tessa Rehill

Tessa Rehill is a Master's student at the University of Victoria, where she is conducting innovative research on kelp forest restoration under the mentorship of Dr. Julia Baum. Partnering with the Kelp Rescue Initiative, Tessa is focused on addressing the combined threats of climate change and urchin overgrazing that are devastating kelp forests along British Columbia's coastline. Her work is pivotal in understanding and mitigating these threats, with a particular emphasis on developing sustainable strategies for kelp restoration.

Kelp forests are among the most productive and diverse ecosystems on the planet, serving as critical habitats for a wide array of marine species, including commercially and culturally important fish like salmon and herring. These underwater forests provide food and shelter, stabilize the seabed, and play a significant role in carbon sequestration, helping to mitigate climate change. However, kelp forests are increasingly threatened by rising ocean temperatures and the unchecked proliferation of sea urchins, which overgraze and transform these lush habitats into barren seascapes. The loss of kelp forests has far-reaching consequences, not only for marine biodiversity but also for the communities and industries that depend on them.

She utilizes Remotely Operated Vehicles (ROVs) and dive surveys to gather extensive data on urchin populations across BC's coastal waters to create species distribution models. By mapping urchin density hotspots, her work aims to pinpoint critical areas for kelp restoration and identify regions that require urgent conservation efforts. This mapping is not only crucial for restoration but also provides a predictive tool for future kelp management, helping to establish density thresholds that trigger intervention.

In addition to mapping, Tessa is leading experimental work in Barkley Sound, where she is investigating the effectiveness of various urchin control methods. These experiments include traditional techniques like urchin culling and enclosure cages, as well as novel approaches such as the use of fear cues to alter urchin behavior. By leveraging the natural responses of urchins to chemical signals from injured conspecifics, Tessa's work explores the potential of creating a "landscape of fear" that deters urchin grazing, thus protecting outplanted kelp and enhancing restoration success.

Outside of her academic pursuits, Tessa is an avid outdoors enthusiast. She enjoys hiking, bikepacking, and snorkeling, passions that deepen her connection to the natural world and fuel her dedication to marine conservation. Whether exploring remote trails or underwater landscapes, Tessa's love for the outdoors is a constant source of inspiration in her work.

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Tessa is deeply committed to marine conservation and is driven by a passion for safeguarding the biodiversity of coastal ecosystems. Her research is set to make a significant contribution to the field of kelp restoration, offering new tools and approaches that could be critical in reversing the decline of these essential habitats. She is a Coastal Climate Solution Leaders trainee during her graduate program. Through her work, Tessa aims to ensure that kelp forests continue to thrive, supporting the rich marine life and cultural heritage of British Columbia for future generations.



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