# Biodiversity patterns of non-indigenous macroinvertebrate fouling species along the British Columbian coast

**By Raque Greiter Loerzer**

**VIU Faculty Advisor: Dr. Sarah Dudas**

The increase in marine non-indigenous species (NIS) has become a threat to coastal ecosystems. The spread of NIS is facilitated by transportation and worldwide market distribution, especially through shipping and aquaculture practices. Thus, harbours are prime sink and source locations for marine macroinvertebrate NIS. This research project investigated the patterns of macroinvertebrate fouling species biodiversity on the coast of BC and their relation to anthropogenic activity. Five plates were immersed 1 m from the water's surface at docks in three locations that spanned a range of perceived anthropogenic activity (high to low): Central Coast (Pruth Bay), Desolation Sound (Heriot Bay) and Baynes Sound (Deep Bay). After three months of immersion, the plates were collected and the species on them were identified and then counted following the point-intersect method to determine species biodiversity (e.g. total richness and Shannon-Wiener Index) and abundance (e.g. average percent cover). The number of non-indigenous species and the species community composition varied among sites. The study site with the least amount of human activity (Pruth Bay) had the lowest NIS biodiversity and abundance. Both the biodiversity (e.g. Shannon-Wiener Index) and abundance of NIS at Pruth Bay were significantly different from those found in Heriot Bay and Deep Bay ($p < 0.05$, $F = 16.8$, df = 12 and $p < 0.05$, $F = 16.8$, df = 12, respectively). However, Heriot Bay had the highest amount of NIS present, while Deep Bay had the highest abundance out of all three sites. These contradictory results may be due to differences in the type of human activity, such as commercial aquaculture activity (Baynes Sound) versus boating (Desolation Sound), which are associated with different introduction methods of NIS.