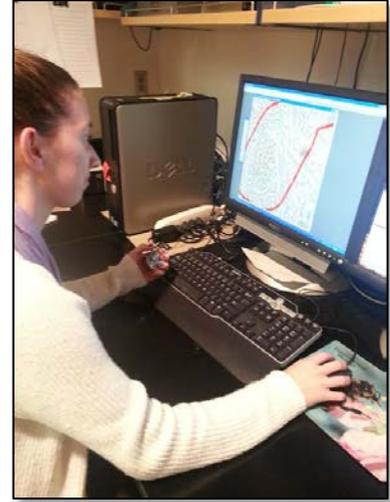


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Microstructure and Innervation of Mystacial Vibrissae in Harbor Seals, *Phoca vitulina*



The objective of my project this summer was to expand upon the efforts of the EcoMorphology lab to generate comparative neural data for vibrissal in harbor seals (*Phoca vitulina*). Their whiskers have a modified, beaded appearance that has been shown to reduce drag and detect the turbulence from fleeing fish when pursuing them. This is called hydrodynamic trail following. My project is examining the innervation and microstructure of their Follicle Sinus Complex (F-SC), which comprises the follicles of their mystacial vibrissae. Our overarching goal was to explore the neurobiology underlying this well-known foraging behavior. We plan to test the hypothesis that the number of axons per F-SC will be in a similar range as other pinniped species, for which data are available. To test this hypothesis, we processed two harbor seal masks and plan to process and addition four this coming fall. All samples were obtained from Marine Mammal Center, Sausalito, CA. The number, length, width, and location of whiskers were mapped, and the largest follicles were dissected and histologically processed to determine axon counts. The largest F-SCs will be sectioned on a microtome, then stained for general structure as well as determining innervation. Sections retrieved will also be used to collect morphometric data (following Marshall et al., 2008, 2014) and axon counts. To date, our preliminary data shows that harbor seal possess approximately 1400 axons/F-SC. This is congruent with the data from other pinniped species and adds to our growing comparative dataset. This fall we will be continue this work to expand our sample size, but expect the results to be similar. This will be part of an undergraduate thesis, and with Dr. Marshall's help I will present the data at an annual meeting of the Society for Integrative and Comparative Biology, and eventually publish this work with Dr. Marshall. I sincerely appreciate the support from TIO this summer, which allowed me to begin this research.