Final draft of poster is not ready for print. Abstract of the project is present below:

While the use of artificial intelligence (AI) in data collection is still in its infancy, many researchers have recognized the potential of this technology and are exploring various applications in marine and aquatic sciences. One area of study that is rapidly gaining attention is AI use in analysis of Baited Remote Underwater Video (BRUV) footage. Currently, BRUV footage must be manually analyzed. Enumerating and identifying organisms this way is time consuming and expensive. Costs and hours add up when experienced, trained technicians are required to complete this task, creating a bottleneck in the datastream. For every hour of footage analyzed manually, several hours of processing are spent conducting data collection. Despite this limitation, utilizing BRUVs in ecosystem monitoring remains beneficial as this sampling technique allows for non-invasive, non-destructive data collection, which is ideal when working with delicate or endangered species, or in sensitive habitats. By automating the BRUV footage analysis process, machine learning can reduce the burden of time while also lowering costs associated with manual BRUV video analysis. In our study, untrained AI fish detection software was tested on BRUV footage from a dynamic, low-visibility environment: the sandy beach surf zones in Northern California. The nMax software plug-in, developed for use with EventMeasure, was used to detect any organisms captured on screen when conducting the manual analysis. The AI software was only able to detect 45% of the fish that were observed by the technician, and 14% of the macroinvertebrates. Performance of AI was best when the footage was in clearer water (>1m visibility). Our study was able to establish baseline data, which can serve as a stepping stone for future AI projects working to streamline this non-destructive, non-invasive sampling method in dynamic environments such as the sandy beach surf zone of the Pacific Northwest.