Description of Data

The attached data is from surveys conducted on the north coast of Washington state from 2010-2018 to document the rates and causes of entanglement in Steller and California sea lions and to calculate the rates of change in haulout counts for each species. Counts of sea lions were conducted at haulouts along the survey area from small boats and photographs of entangled individuals were taken for later analysis to determine the nature of the entangling material and the sex and age of the entangled individual. Rates of entanglement and entangling material occurrence were compared with records collected from stranded individuals on the Washington and Oregon coast by the West Coast Marine Mammal Stranding Network and with packing bands recorded during beach debris surveys conducted by the Olympic Coast National Marine Sanctuary. During the study period, Steller sea lions exhibited a 7.9% ± 3.2 population growth rate, which was similar to that seen in California sea lions (7.8% ± 4.2). California sea lions experienced a much higher rate of entanglement than Steller sea lions (2.13% and 0.41%, respectively), though both rates are not likely to be causing population-level concern, evidenced by the large population growth rates in both species throughout the study period, they do still pose a significant welfare concern to the affected individuals. The age composition of entangled Steller sea lions was 77% adults (32.4% male, 63.3% female), 17.1% juveniles, 5.9% unknown age, and no pups. All entangled California sea lions were adult males except for one juvenile. Steller sea lion entanglements showed no seasonal patterns, but California sea lions experienced a peak in entanglement rates in June and July. The majority of identifiable entanglements were packing bands, followed by salmon flashers, which only occurred in June – September during the peak of the local ocean salmon troll fishery, and monofilament line. The occurrence of packing bands in beach debris surveys correlated with the occurrence of entanglements caused by packing bands in sea lions observed on haulouts during survey effort (Pearson’s R=0.81). However, no sea lions entangled in packing bands were observed in the stranding record, and the overall proportion of stranded animals exhibiting evidence of entanglement was lower than expected, indicating that animals are likely shedding entangling materials at higher rates than are currently predicted.