

*Gulf of Alaska - Marine Mammals*

**Entanglements of Steller Sea Lions in Marine Debris: Identifying Causes and Finding Solutions**

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Marine debris is a global concern impacting a variety of species in the world's oceans including marine mammals. Because many species are either rarely observed or die at sea, entanglement in marine debris is extremely difficult to quantify. Moreover, entanglement can be a "silent" killer (e.g. swallowed hooks) with no apparent external signs of entanglement. The vulnerability of a particular species to entanglements depends on individual behavior as well as proximity to fishing grounds and the ability to survive an encounter. The incidental take of Steller sea lions (*Eumetopias jubatus*; SSL) through entanglement in marine debris is one hypothesis being addressed in the continuing decline of the western population of SSLs. Our objectives were to estimate the percentage of entangled SSLs by sex and age class on haul-outs in Alaska and British Columbia, and identify materials most associated with entangled SSLs. Incidental to other SSL surveys from 2000-2007, we recorded total number of SSLs per haul-out, number entangled, entanglement type, age class, gender, behavior, and photographed entangled individuals. From 2000-2007, we resighted 572 entangled sea lions of which 388 were unique individuals. Entanglements affected both sexes and all age classes. Although we observed 190 individuals with neck entanglements, 76% were unidentifiable because the entangling material was too deeply embedded in the neck. Of the 44 identifiable neck entanglements, we observed primarily packing bands (55%) and rubber bands (30%), followed by rope (7%), net (7%), and monofilament line (2%). Of the 194 individuals with mouth/hook entanglements, we observed primarily salmon fishery flashers (80%), followed by longline gangions (12%), hook and line (4%), spinners/spoons (2%), and bait hooks (2%). Entanglement of SSLs in marine debris may be a greater problem than previously addressed and additional effort to document entanglements should be included during future field research. By identifying types of debris causing the majority of entanglements, we can work toward reducing entanglements of SSLs.



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