An Ecological Classification of Alaska Steller Sea Lion (*Eumetopias jubatus*) Rookeries

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As the western stock of Steller sea lions continues to decline, government managers will likely place additional controls on commercial fisheries as protective measures. Currently, management decisions regarding rookeries are based largely on the geographic location of a site and little effort has been made to describe rookeries in an ecosystem context. We provide a broad ecological characterization of rookeries for the western stock of Steller sea lions that can be used in making management decisions to facilitate their recovery. We used available literature, NMFS databases (1990 - 1998) and GIS resources to group sea lion rookeries into biologically related regions. The data sets were divided into three broad categories that include, habitat (bathymetry, substrate type and orientation), population trends and diet (prey diversity). Rookeries were buffered by a radius of 10nm using ArcGIS, and ecological attributes were assigned to the buffered sites. Five raster layers, each containing a single ecological factor, were combined to create a composite layer containing values representing the ecological attributes. Regions were determined using Jenks (1977) natural break classification scheme. This is a robust method of grouping related values by minimizing the variance within class and maximizing variance between classes. Five distinct classes of rookeries were identified, based on their relatedness to the ecological factors we defined. Several of the breaks occur at major oceanic passes including, Tanaga Pass and Amukta Pass. Our classification is a first attempt to group Steller sea lion rookeries in an ecological context and will be useful to managers when making decisions regarding sea lion recovery.