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MEMORANDUM FOR: F/AKC3- Tom Gelatt, Program Leader  
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FROM: F/AKC3- Rolf Ream  
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SUBJECT: Steller sea lion food habits at St. George Island, Alaska

The Alaska Ecosystems Program recently completed an analysis of Steller sea lion (*Eumetopias jubatus*) food habits data from St. George Island, Alaska. Fecal samples (n=27) were collected at the Dalnoi Point haul-out on June 10, 2009, by representatives of the Tribal Government of St. George. Individual samples were placed in plastic bags and frozen on-island for subsequent shipping and processing. Fecal samples (or “scats”) were processed, and prey hard parts were recovered and identified to the lowest possible taxon, following methods described in Sinclair and Zeppelin (2002). Percent frequency of occurrence (FO) of prey was calculated as the number of scats in which a prey species or group occurred divided by the total number of scats containing prey remains. In addition, the size of walleye pollock (*Theragra chalcogramma*) consumed by Steller sea lions was estimated using cranial structures found in scats, and regression formulae that relate bone measurements to fork length (Zeppelin et al., 2004).

All scats (n=27) contained identifiable prey remains. Walleye pollock (77.8% FO), Irish Lord sculpins (*Hemilepidotus sp.*; 70.4% FO), and rock sole (*Lepidopsetta biliniata*; 55.6% FO) were the dominant prey (Figure 1). Other important prey items included skates (Rajidae), polychaete worms (polychaete spp.), and Pacific cod (*Gadus macrocephalus*), which were all found at FO > 14% (Table 1). Fourteen measurable cranial elements were found in 6 scats. The fork length of walleye pollock estimated from regressions of the bone measurements ranged from 41.6 cm to 73.7 cm (Figure 2).

CC: Lowell Fritz, Brian Fadely, Tonya Zeppelin  
Michael Williams, Juan Guerrero  
Chris Merculief, Max Malavansky, Phil Lekanof, Karin Holser, Phil Zavadil  
Larry Cotter, Bill Wilson, Jeannie Heltzel



Literature cited:

Sinclair, E. H., and T. K. Zeppelin. 2002. Seasonal and spatial differences in diet in the western stock of Steller sea lions (*Eumetopias jubatus*). *J. Mammal.* 83(4):973–990.

Zeppelin, T.K., D.J. Tollit, K.A. Call, T.J. Orchard, and C.J. Gudmundson. 2004. Sizes of walleye pollock (*Theragra chalcogramma*) and Atka mackerel (*Pleurogrammus monopterygius*) consumed by the western stock of Steller sea lions (*Eumetopias jubatus*) in Alaska from 1998 to 2000. *Fish. Bull.* 102, 509–521.

Table 1. Number of Steller sea lion scat samples containing the identified prey and percent frequency of occurrence of the prey in samples collected on St. George I., June 2009.

<b>Prey item</b>	<b>Number of samples</b>	<b>% FO</b>
Cods: family Gadidae		
Pacific Cod ( <i>Gadus macrocephalus</i> )	4	14.8
Walleye pollock ( <i>Theragra chalcogramma</i> )	21	77.8
Flatfishes: order Pleuronectiformes		
Arrowtooth flounder ( <i>Atheresthes stomias</i> )	2	7.4
Rock sole ( <i>Lepidopsetta biliniata</i> )	15	55.6
Unidentified flatfish spp.	1	3.7
Lanternfishes: family Myctophidae		
Ganet lanternfish ( <i>Stenobrachius nannochir</i> )	1	3.7
Lumpfishes: family Cyclopteridae	2	7.4
Pricklebacks: family Stichaeidae		
Slender eelblenny ( <i>Lumpenus fabricii</i> )	2	7.4
Rockfishes: family Scorpaenidae	1	3.7
Sandfishes: family Trichodontidae	2	7.4
Sculpins: family Cottidae		
Irish lord sp. ( <i>Hemilepidotus sp.</i> )	19	70.4
Skates: family Rajidae	7	25.9
Smelts: family Osmeridae	1	3.7
Unidentified polychaete spp.	5	18.5

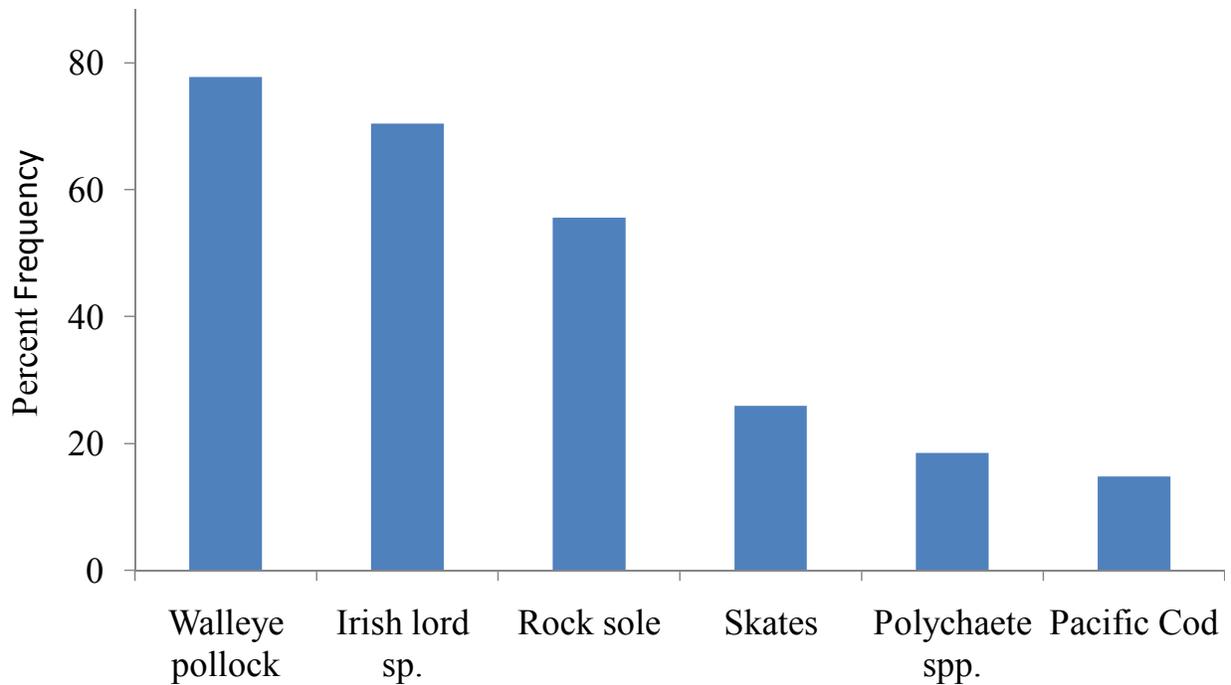


Figure 1. Percent frequency of occurrence of important (> 10%) prey found in Steller sea lion scat samples collected on St. George I., June 2009 (n = 27 scats).

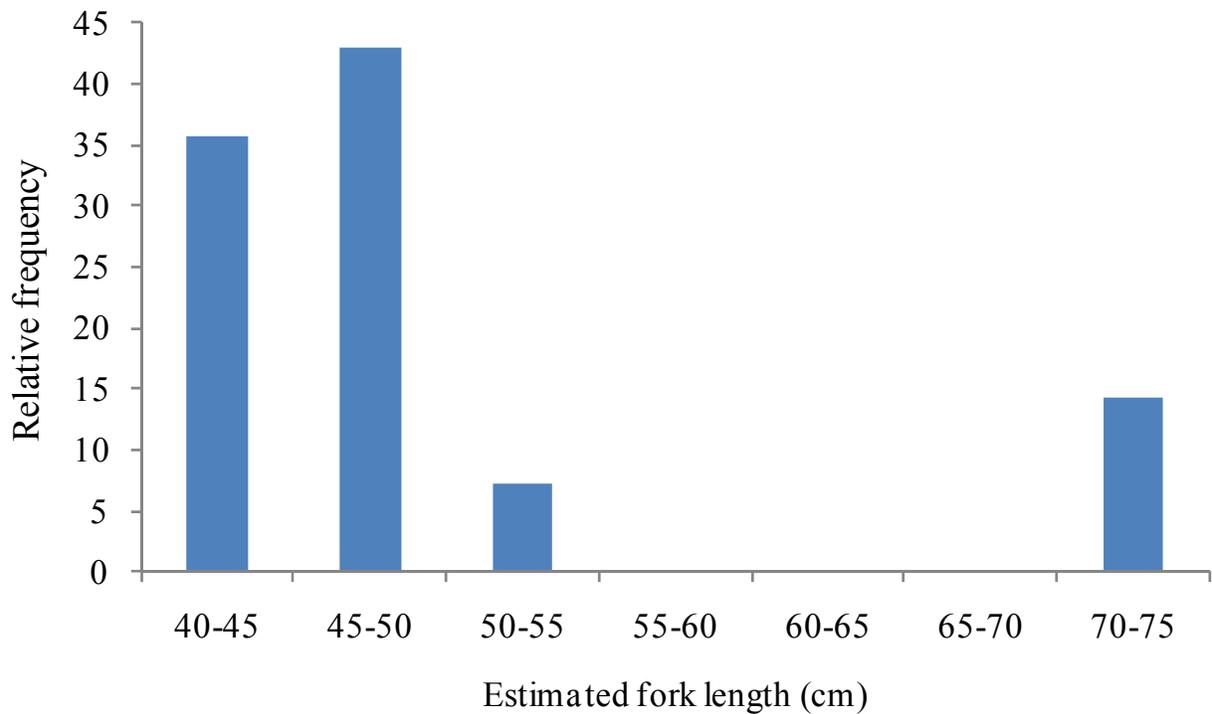


Figure 2. Relative frequency histogram of the estimated fork length of walleye pollock consumed by Steller sea lions at St. George I., based on 14 measurable cranial elements found in 6 scats.