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| **TABLE S1. Measurements of extant and extinct pinnipeds included in Figure 3** | | | | | | |
| Species | Family | Specimen | Sex | Side | Greatest length tibia (cm) | Transverse diameter of shaft at narrowest point (cm) |
| Phocidae indet. | Phocidae | USNM PAL 706597 | Indet | Left | 21.6 | 3.2 |
| *Acrophoca longirostris* | Phocidae | USNM PAL 443495 | Indet | Left | 23.6 | 3.5 |
| *Erignathus barbatus* | Phocidae | USNM 307617 | Indet | Right | 29.1 | 3.5 |
| *Halichoerus grypus* | Phocidae | USNM 244346 | Indet | Left | 27.7 | 3.7 |
| *Halichoerus grypus* | Phocidae | CAS 22571 | Female | Left | 26.6 | 2.6 |
| *Leptophoca lenis* | Phocidae | USNM PAL 175578 | Indet | Right | 21.5 | 2.7 |
| *Mirounga angustirostris* | Phocidae | CAS 1137 | Female | Left | 28.4 | 3.1 |
| *Mirounga angustirostris* | Phocidae | CAS 962 | Female | Left | 28.2 | 3.3 |
| Monachinae indet. | Phocidae | USNM PAL 205850 | Indet | Right | 26.2 | 3.6 |
| *Piscophoca* sp. | Phocidae | USNM PAL 443891 | Indet | Left | 24.3 | 3.5 |
| *Piscophoca* sp. | Phocidae | USNM PAL 443891 | Indet | Right | 24.1 | 3.3 |
| *Piscophoca* sp. | Phocidae | USNM PAL 443898 | Indet | Right | 22.9 | 3.3 |
| *Piscophoca* sp. | Phocidae | USNM PAL 443899 | Indet | Left | 23.0 | 3.3 |
| *Phoca vitulina* | Phocidae | CAS 21377 | Female | Left | 18.5 | 1.9 |
| *Phoca vitulina* | Phocidae | CAS 20852 | Female | Right | 19.5 | 1.9 |
| *Phoca vitulina* | Phocidae | UCSC ANTH 110911/2 | Indet | Right | 21.7 | 1.7 |
| Odobenidae indet. | Odobenidae | USNM 335573 | Indet | Left | 41.0 | 4.9 |
| Odobenidae indet. | Odobenidae | USNM 335514 | Indet | Left | 39.4 | 5.7 |
| *Arctocephalus townsendi* | Otariidae | CAS 3000 | Female | Left | 17.9 | 1.4 |
| *Arctocephalus townsendi* | Otariidae | CAS 30876 | Female | Left | 16.2 | 1.4 |
| *Callorhinus ursinus* | Otariidae | CAS 2334 | Female | Left | 16.4 | 1.2 |
| *Eumetopias jubatus* | Otariidae | CAS 16245 | Male | Right | 32.1 | 3.8 |
| *Eumetopias jubatus* | Otariidae | CAS 22199 | Female | Left | 27.3 | 3.5 |
| *Eumetopias jubatus* | Otariidae | UCSC ANTH 11821/1 | Male | Right | 26.9 | 3.4 |
| *Eumetopias jubatus* | Otariidae | UCSC ANTH 11821/2 | Male | Left | 27.0 | 3.8 |
| *Zalophus californianus* | Otariidae | CAS 15262 | Female | Left | 16.8 | 1.7 |
| *Zalophus californianus* | Otariidae | CAS 15979 | Male | Left | 19.7 | 1.7 |
| *Zalophus californianus* | Otariidae | CAS 15978 | Female | Right | 20.5 | 2.0 |
| *Zalophus californianus* | Otariidae | CAS 23000 | Female | Right | 19.5 | 1.8 |
| *Zalophus californianus* | Otariidae | CAS 21038 | Female | Left | 18.7 | 1.8 |
| *Zalophus californianus* | Otariidae | CAS 16607 | Male | Right | 23.5 | 2.3 |
| *Zalophus californianus* | Otariidae | CAS 16608 | Female | Left | 18.2 | 1.8 |
| *Zalophus californianus* | Otariidae | UCSC ANTH 11811/7 | Indet | Right | 24.6 | 2.7 |
| *Zalophus californianus* | Otariidae | UCSC ANTH 110811/05 | Indet | Right | 26.4 | 2.4 |
| *Zalophus wollebaeki* | Otariidae | CAS 24364 | Male | Right | 23.6 | 2.2 |
| *Zalophus wollebaeki* | Otariidae | CAS 24363 | Male | Right | 21.7 | 2.2 |