

112: Field anesthesia of juvenile Steller sea lions (*Eumetopias jubatus*) captured using an underwater capture technique

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The Steller sea lion (*Eumetopias jubatus*, SSL) is a marine apex predator and an important sentinel for environmental change and ecosystem health in the North Pacific. The western distinct population segment of SSL is listed as endangered, and portions of the population are failing to recover. Between 1998 and 2008, 622 SSLs were successfully captured underwater in coastal Alaska by SCUBA divers and anesthetized with isoflurane or sevoflurane for research purposes. We found a significantly ($t = -2.2$, $P = 0.038$, $n = 19$) faster induction time ($x \pm SD$) for sevoflurane (11 ± 6 min) compared to isoflurane (14 ± 6 min). Interestingly, there was also a significant difference in induction ($F_{7,582} = 4.5$, $P < 0.001$, range 9 - 18 min) and recovery ($F_{7,485} = 8.6$, $P < 0.001$, range 2 - 10 min) times and a significant interaction for different anesthetists (isoflurane protocol). This probably reflects different comfort levels with anesthetic planes, and challenges anesthetizing pinnipeds. Stable vital signs were reported during most procedures, except for incidents of hypothermia (22%) and apnea (3%). Severe hypothermia with temperatures < 35 C were measured in 132 (22%) of all animals. Hypothermia had a significant association with month ($r^2 = 0.29$, $F_{9,455} = 21.3$, $P < 0.01$), with the majority of hypothermia events occurring in February and March, and a significant but weak association with length of anesthesia (slope = -0.02 , $r^2 = 0.02$, $F_{1,439} = 8.4$, $P < 0.01$) and sex ($F_{2,462} = 8.6$, $P < 0.01$). Mortality rate for all anesthesia events was low (0.33%). We conclude that underwater dive captures and isoflurane/sevoflurane anesthesia is an effective protocol for animal handling and field anesthesia with minimal rookery disturbance.



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ABSTRACT BOOK

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