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TO FEED IS TO BREED: MATING STRATEGIES IN MALE WEDDELL SEALS

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In polygynous breeding systems, males face intense selection pressures in competition for females. In terrestrially breeding phocid seals males are significantly larger than females. Large size is driven by advantages conferred in male-male competition, and the ability of males to fast during the breeding season. Prolonged tenure at the breeding site maximises exposure to females and hence mating opportunities. By contrast, for aquatically breeding seals, the opportunity to feed during the breeding season may offset the need for large size and the ability to fast, and large size may not confer significant advantages in underwater contests. Males holding underwater territories may have access to prey during the breeding season. We measured individual differences in male breeding success for Weddell seals (*Leptonychotes weddellii*) at Turtle Rock, McMurdo Sound (77.727S, 166.85E) between 1997-2000. Weddell seals breed during the austral spring in areas of fast-ice surrounding the shores of Antarctica. Under-ice behaviour of individual males was measured using an acoustic array system. Mass changes, rate of mass loss, tenure and age were recorded and mating success measured using paternity analysis. Males tracked and successfully genotyped were aged from 6 to 20 years (mean 13.7). The largest males were 50% heavier than the lightest at the beginning of the breeding season (range 314.5 to 465 kg). Mass loss ranged from 0.0 to 4.1 kg /day (mean 2.1 ± 0.53 kg / day) and mass-specific loss from 0 to 1.06% (mean 0.53 ± 0.23). Territory use was dynamic and the volume of water patrolled changed dramatically through the course of each breeding season with some males spending most of the time either at or near the surface, others diving regularly and others switching from regular diving to near surface behaviour. Median dive depth was highly variable ranging from 0.0 m to 66.1 m and max dive depths also varied dramatically (0 to 518 m). Shallow diving males successfully sired pups as did males that continued to dive, and diving behaviour was not related to age nor initial mass. Foraging during the breeding season may help prolong tenure, but appears to be facultative rather than obligative.