

Dynamic habitat corridors for marine mammals; intensive use of a coastal channel by harbour seals is modulated by tidal currents

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Previous studies have found that predators utilise habitat corridors to ambush prey moving through them. In the marine environment, coastal channels effectively act as habitat corridors for prey movements, and sightings of marine mammals in such areas suggest that they may also target these for foraging. Unlike terrestrial systems where the underlying habitat structure is generally static, corridors in marine systems are in constant flux due to water movements created by tidal processes. Although these hydrographic features can be highly complex, there is generally a predictable underlying tidal pattern to their structure. For marine mammals that must find prey that is often widely distributed in patches, the underlying temporal predictability in potential foraging opportunities in marine corridors may be important drivers in their use. Here we used data from land-based sightings and nineteen harbour seals (*Phoca vitulina*) tagged with high resolution GPS tags to investigate the spatial and temporal distribution patterns of seals in a narrow tidal channel. These seals showed a distinctive pattern in their distribution; all seals spent a high proportion of their time within the narrow channel (mean=0.66, range=0.25-0.97) and appeared to target its narrowest point. There was also a distinctive, and highly regularised tidal pattern in the use of the channel; sightings of seals in the water peaked during the flood tide and were at a minimum during the ebb tide. Although the underlying behavioural mechanism remains uncertain, frequent observations of prey capture at the surface suggest that it is related to prey availability or foraging efficiency, and that this is modulated by the underlying tidal pattern in the water movements through the channel. These results highlight the importance of coastal channels for marine mammals and illustrate their potential as dynamic habitat corridors that marine mammals can use to ambush prey that move through them.