

Effects of Pile Driving on Marine Mammal Behavior in Puget Sound, Washington, USA. (Poster)

Topic

Controlled exposure experiments (CEE) or Behaviour response studies (BRS) in the field

Stress response of animals exposed to sound

Sound source

Pile driving

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Marine mammal (MM) monitoring was conducted during in-water pile driving (PD) at Hood Canal, Washington, during fall 2011. Monitoring was performed on construction days, during active-construction ("AC", defined as 30 minutes prior to, during, and 30 minutes after PD) and non-construction ("NC", downtime) periods. Baseline surveys were also conducted throughout Hood Canal on days when no PD occurred. Monitoring and baseline surveys occurred over 53 days. Marine Mammal Observers (MMOs) recorded 1,207 sightings totaling 2,269 individual MM. Species observed included California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*), and harbor porpoise (*Phocoena phocoena*). Harbor seals were the most frequently observed MM on construction days (n=782 sightings) and baseline survey days (n=197 sightings). The only cetaceans observed were harbor porpoise (n=68 construction, 34 baseline sightings). Harbor seal sighting rates were lower on construction days than on baseline days (0.73 and 1.80 sightings/observer hour [obs hr], respectively). Harbor porpoise were sighted less often on construction days than on baseline days (0.13 and 0.31 sightings/obs hr, respectively). On construction days, harbor seal sighting rates were actually higher during AC periods than NC periods (3.31 and 0.23 sightings/obs hr, respectively). MMOs noted that harbor seals (particularly juveniles) appeared to be attracted to PD, and often moved towards the construction area when PD was initiated. On construction days, harbor porpoise were most often observed "traveling". During AC, 27% fewer harbor porpoise were observed "traveling" vs. NC periods (n=18). Overall, only minor behavioral disruptions were observed in relation to PD.

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