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TITLE: Impulsive pile driving noise elicits alarm responses in squid (Doryteuthis pealeii)

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ABSTRACT:

Pile driving occurs during construction of marine platforms, including offshore windfarms, producing intense sounds that can adversely affect marine animals. We quantified how a commercially and economically important squid (Doryteuthis pealeii: Lesueur 1821) responded to pile driving sounds recorded from a windfarm installation within this species' habitat. Fifteen-minute portions of these sounds were played to 16 individual squid. A subset of animals (n = 11) received a second exposure after a 24-h rest period. Body pattern changes, inking, jetting, and startle responses were observed and nearly all squid exhibited at least one response. These responses occurred primarily during the first 8 impulses and diminished quickly, indicating potential rapid, short-term habituation. Similar response rates were seen 24-h later, suggesting squid re-sensitized to the noise. Increased tolerance of anti-predatory alarm responses may alter squids' ability to deter and evade predators. Noise exposure may also disrupt normal intraspecific communication and ecologically relevant responses to sound.

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