Unmitigated sound pressure levels associated with pile types during impact pile driving. All sound levels are measured at 10 m from the pile unless otherwise stated.

Pile Type	Sound Level (single strike)		
12-inch timber pile:[1]	180 dB_{peak}	170 dB_{RMS}	160 dB SEL
18-inch concrete pile:[2]	185 dB_{peak}	166 dB_{RMS}	155 dB SEL
24-inch concrete pile:[2]	188 dB_{peak}	176 dB_{RMS}	166 dB SEL
36-inch concrete pile:[3]	192 dB_{peak}	176 dB_{RMS}	174 dB SEL
12-inch steel H-type – thin[2]	190 dB_{peak}	175 dB_{RMS}	160 dB SEL
12-inch steel H-type – thick[2]	200 dB_{peak}	183 dB_{RMS}	170 dB SEL
24-inch AZ steel sheet[2]	205 dB_{peak}	190 dB_{RMS}	180 dB SEL
13-inch plastic pile[2]	177 dB_{peak}	153 dB_{RMS}	
12-inch steel pipe pile:[4]	207 dB_{peak}	189 dB_{RMS}	173 dB SEL
14-inch steel pipe pile:[2]	200 dB_{peak}	184 dB_{RMS}	174 dB SEL
16-inch steel pipe pile:[5]	200 dB_{peak}@ 9 m	187 dB_{RMS} @ 9 m	
24-inch steel pipe pile:[6]	207 dB_{peak}	194 dB_{RMS}	178 dB SEL
30-inch steel pipe pile:[2]	210 dB_{peak}	190 dB_{RMS}	177 dB SEL
36-inch steel pipe pile:[2]	210 dB_{peak}	193 dB_{RMS}	183 dB SEL
60-inch steel pipe pile:[2]	210 dB_{peak}	195 dB_{RMS}	185 dB SEL
66-inch steel pipe pile: [6]	210 dB_{peak}	195 dB_{RMS}	
72-inch steel pipe pile:[7]	214 dB_{peak}	189 dB_{RMS}	182 dB SEL
96-inch steel pipe pile:[2]	220 dB_{peak}	205 dB_{RMS}	195 dB SEL
126-inch steel pipe pile:[6]	213 dB_{peak} @ 11 m	202 dB_{RMS} @ 11 m	
150-inch steel pipe pile: [8]	200 dB_{peak} @ 100 m	185 dB_{RMS} @ 100 m	

Sound pressure levels associated with pile types during vibratory pile driving/removal. All sound levels are measured at 10 m from the pile unless otherwise stated.[2]

Pile Type	Sound Level (single strike)		
12-inch steel H-type	165 dB_{peak}	150 dB_{RMS}	150 dB SEL
24-inch AZ steel sheet	182 dB_{peak}	165 dB_{RMS}	165 dB SEL
12-inch steel pipe pile:	171 dB_{peak}	155 dB_{RMS}	155 dB SEL
36-inch steel pipe pile:	185 dB_{peak}	175 dB_{RMS}	175 dB SEL
72-inch steel pipe pile:	195 dB_{peak}	180 dB_{RMS}	180 dB SEL

[1]. Timber piles, 12-inches in diameter, have been measured underwater by Illingworth and Rodkin and are published in the 2015 Compendium of Pile Driving Sound Data. Illingworth and Rodkin (2004) have compared the shape of the sound wave between steel piles and timber piles and found that a timber pile produced a more 'rounded' wave than a steel pile. Although the peak sound levels may be similar, the waveform appears more stretched out for a timber pile than for a steel pile and the rise time is relatively slower. A slower rise time means that the shock wave produced with each pile strike is not as severe presumably resulting in less damage to fish. The effect is similar to the difference between a push and a punch.

[2] CalTrans. 2015. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish.

[3] MacGillivray et al. 2007. While there have been no documented fish kills with the installation of concrete piles, the Services may require sound mitigation strategies or monitoring because of the lack of formally documented effects

[4] Laughlin (2006)

[5] Laughlin, Jim. 2004. Underwater Sound Levels Associated with the Construction of the SR 240 Bridge on the Yakima River at Richland. WSDOT, Office of Air Quality and Noise, Seattle, WA. September 2004. 33 pp.

[6] Laughlin (2005b)

[7] Laughlin, Jim. 2011. Underwater sound levels associated with driving 72-inchsteel piles at the SR 529 Ebey Slough Bridge Replacement project. WSDOT Office of Air Quality and Noise, Seattle WA.

[8] Thorson and Reyff (2003)