

## **APPENDIX 10.2**

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**Underwater Noise Model results**



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PTS	Permanent Threshold Shift, the component of hearing absolute threshold shift for a given listener is increased through noise exposure that shows no recovery with time after the apparent cause has been removed.
SEL	Sound Exposure Level, a measure of the sound exposure in decibels. On this scale 0db corresponds to a steady sound pressure whose root mean square frequency-weighted sound pressure equals the reference pressure (1µPa underwater), persisting for a reference time of 1 second. Sound Exposure level can be applied to single events, as well as to noise of a continuing character.
SPL	Sound Pressure Level, at a given point is defined as $SPL = 10\log_{10}(p_{rms}/p_{ref})^2$
TTS	Temporary Threshold Shift, the component of hearing absolute threshold shift for a given listener is increased through noise exposure that shows a recovery with time after the apparent cause has been removed. Recovery usually occurs within a period ranging from seconds to hours.

# Blasting and Pile Driving SEL impact on Dolphin

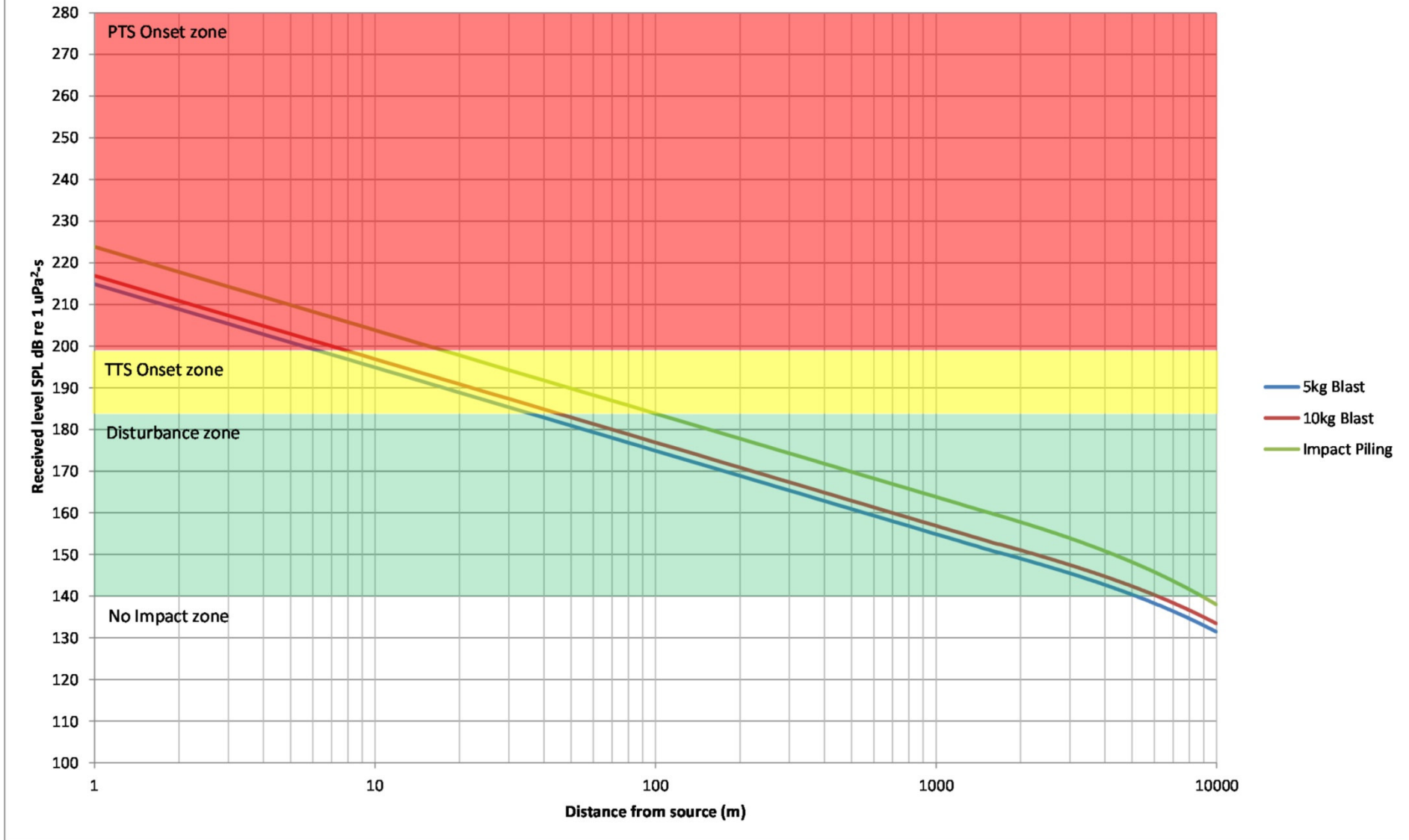


Figure 1 - Blasting and Pile Driving SEL impact on Dolphin

## 24 hour-Blasting and Pile Driving SEL impact on Small Fish

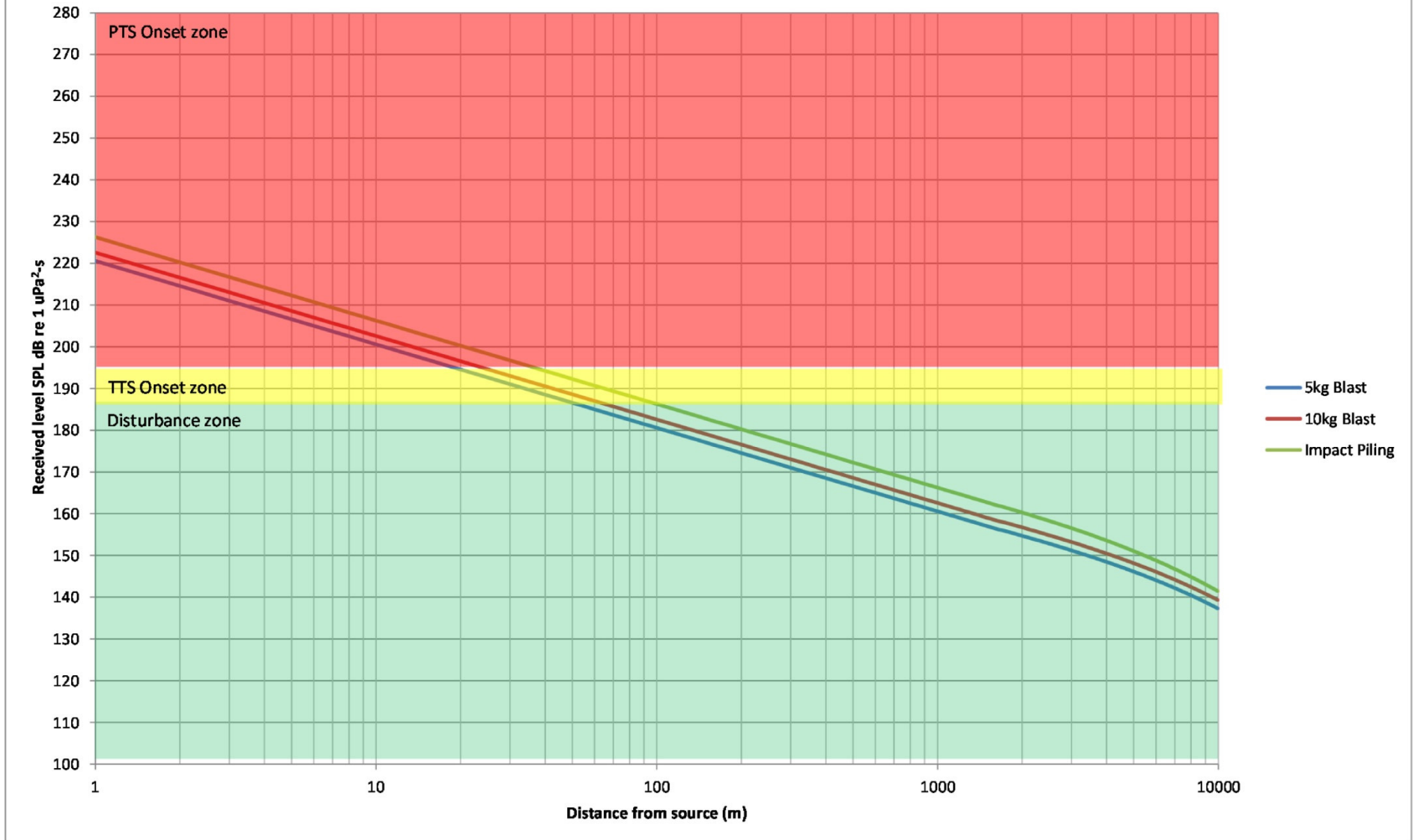


Figure 2 - 24 hour-Blasting and Pile Driving SEL impact on Small Fish

### Blasting and Pile Driving SEL impact on Otter

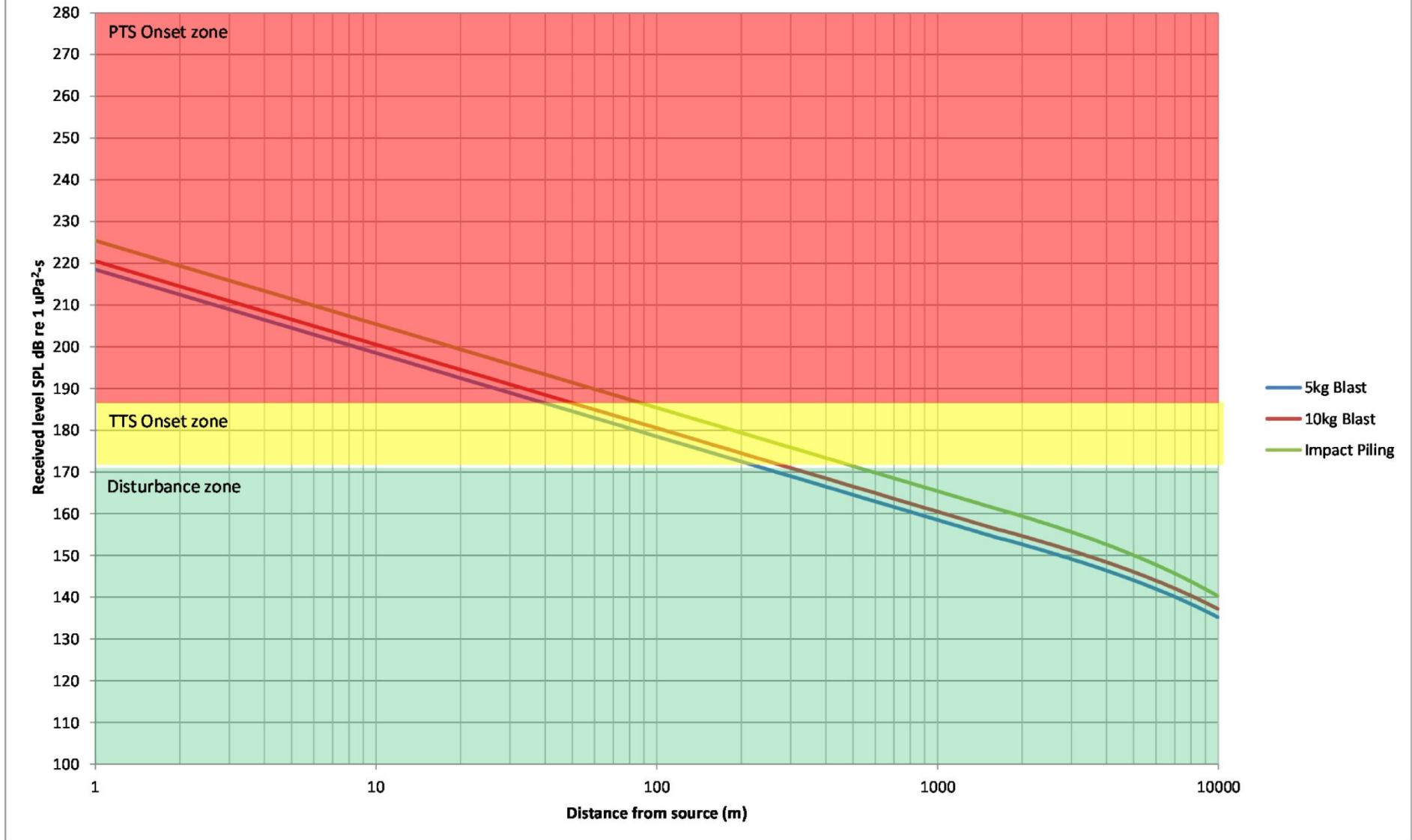


Figure 3 - Blasting and Pile Driving SEL impact on Otter

### Blasting and Pile Driving SEL impact on Porpoise

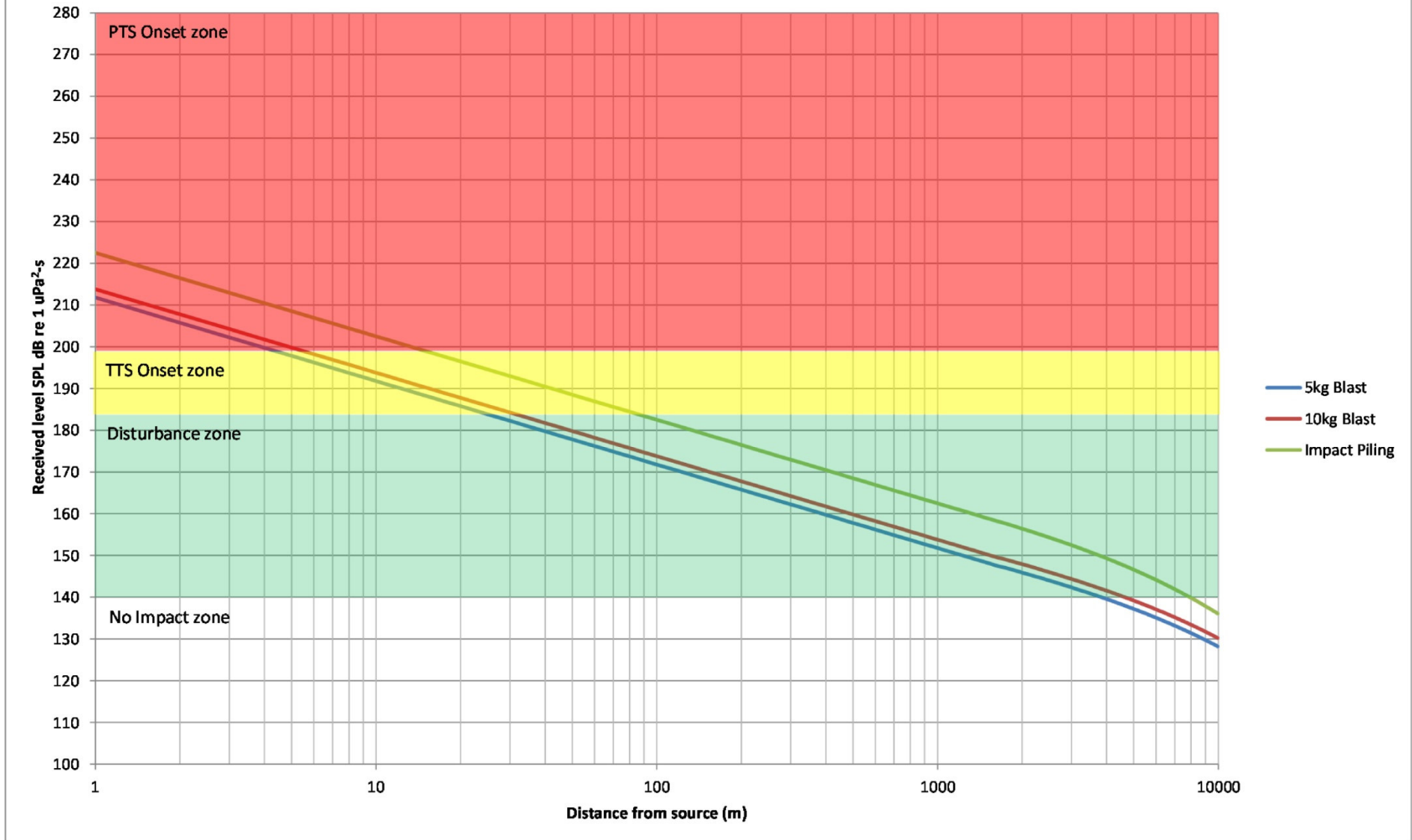


Figure 4 - Blasting and Pile Driving SEL impact on Porpoise

### Blasting and Pile Driving SEL impact on Seal

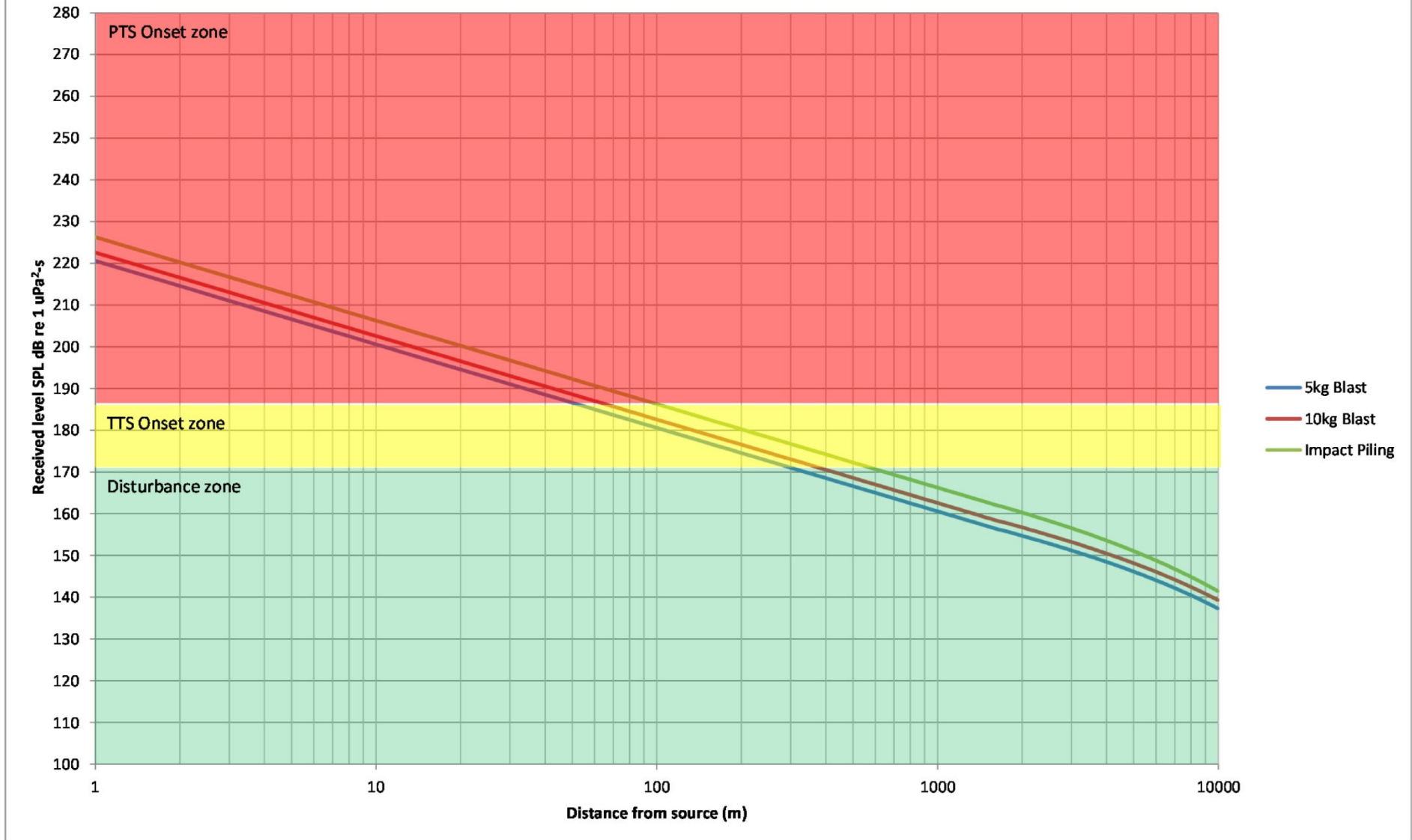


Figure 5 - Blasting and Pile Driving SEL impact on Seal



## Blasting and Pile Driving peak SPL impact on Cetaceans

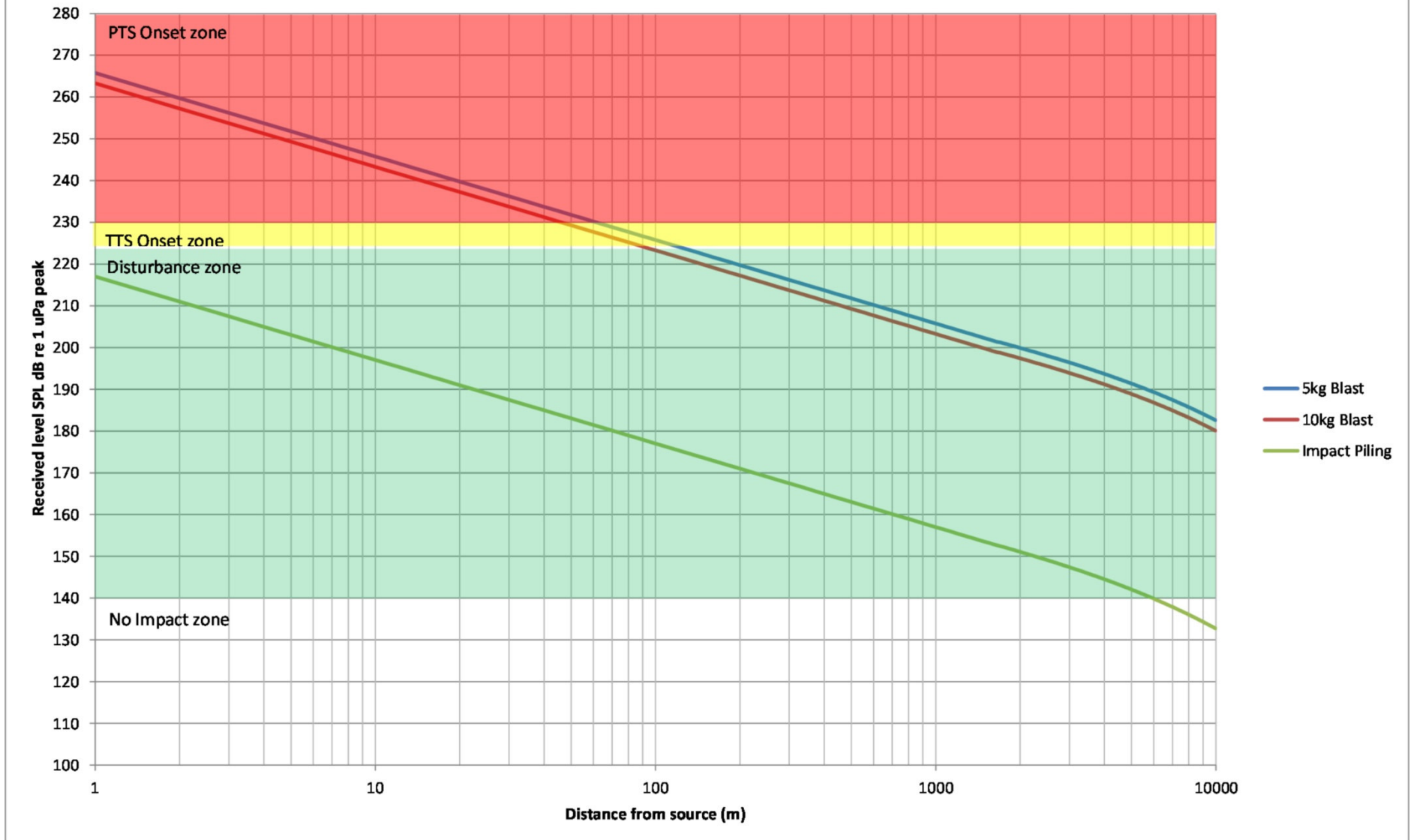


Figure 6 - Blasting and Pile Driving peak SPL impact on Cetaceans

### Blasting and Pile Driving peak SPL impact on Seals and Otters

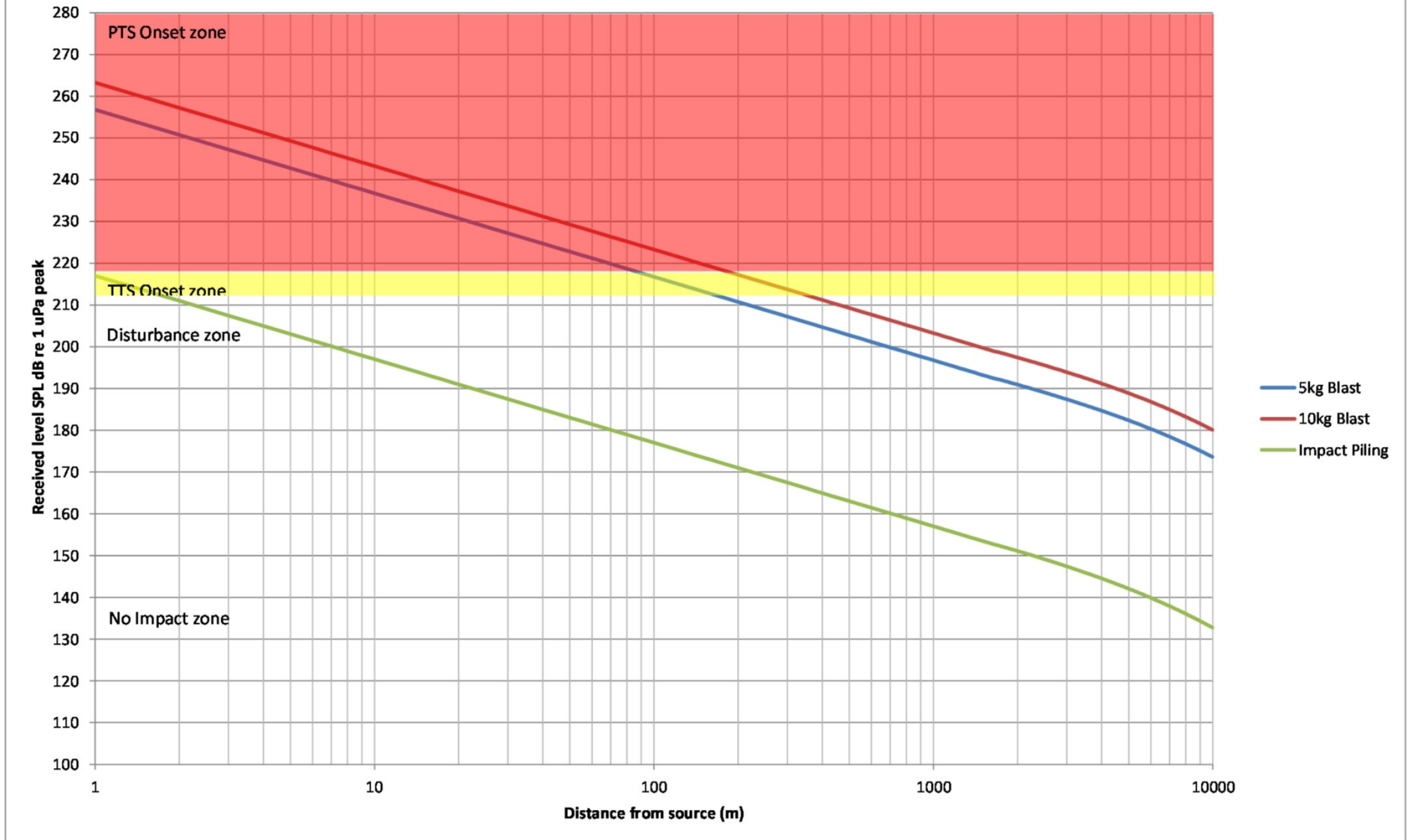


Figure 7 - Blasting and Pile Driving peak SPL impact on Seals and Otters

### Construction SEL impact on Dolphin

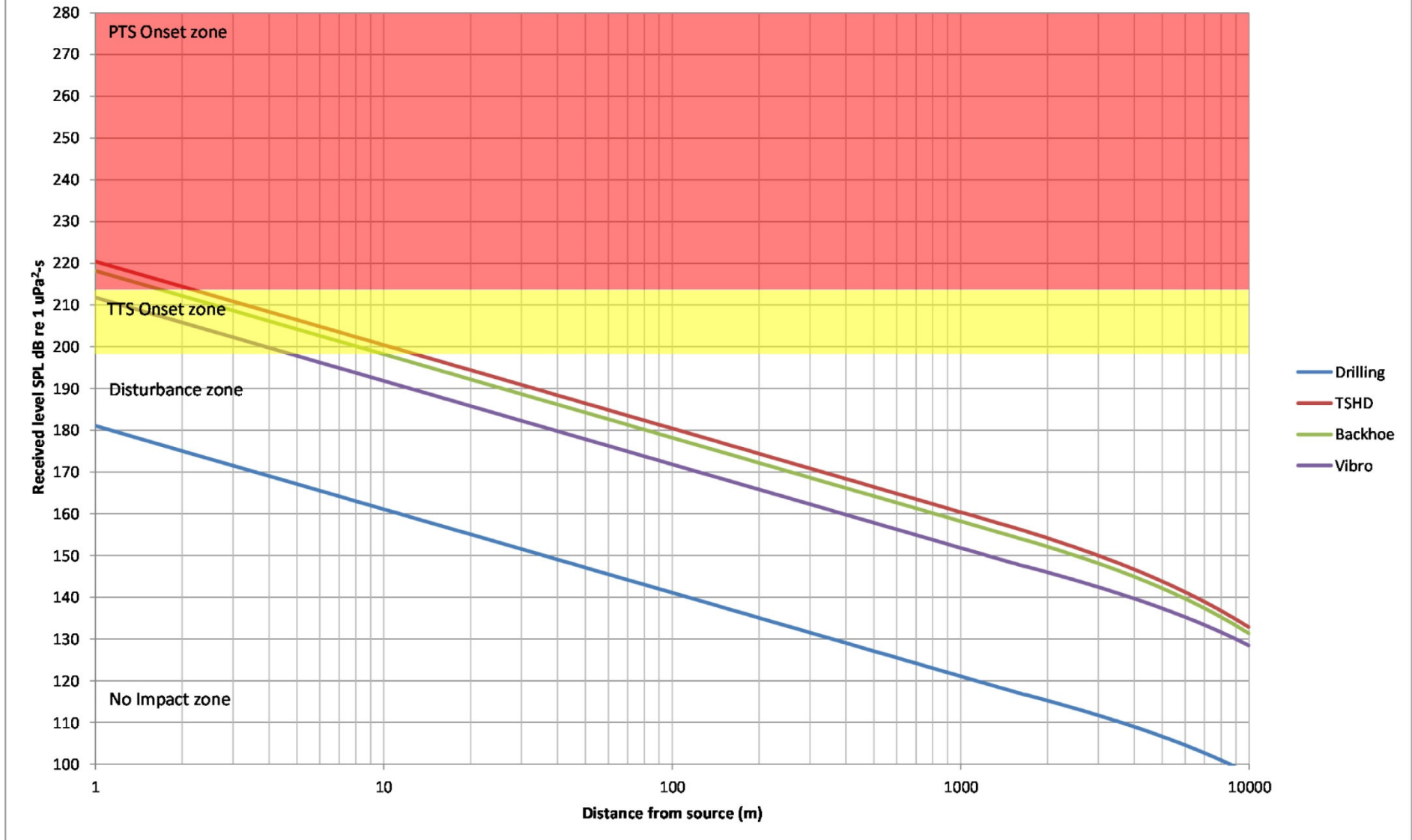


Figure 8 - Construction SEL impact on Dolphin

### Construction SEL impact on Small Fish

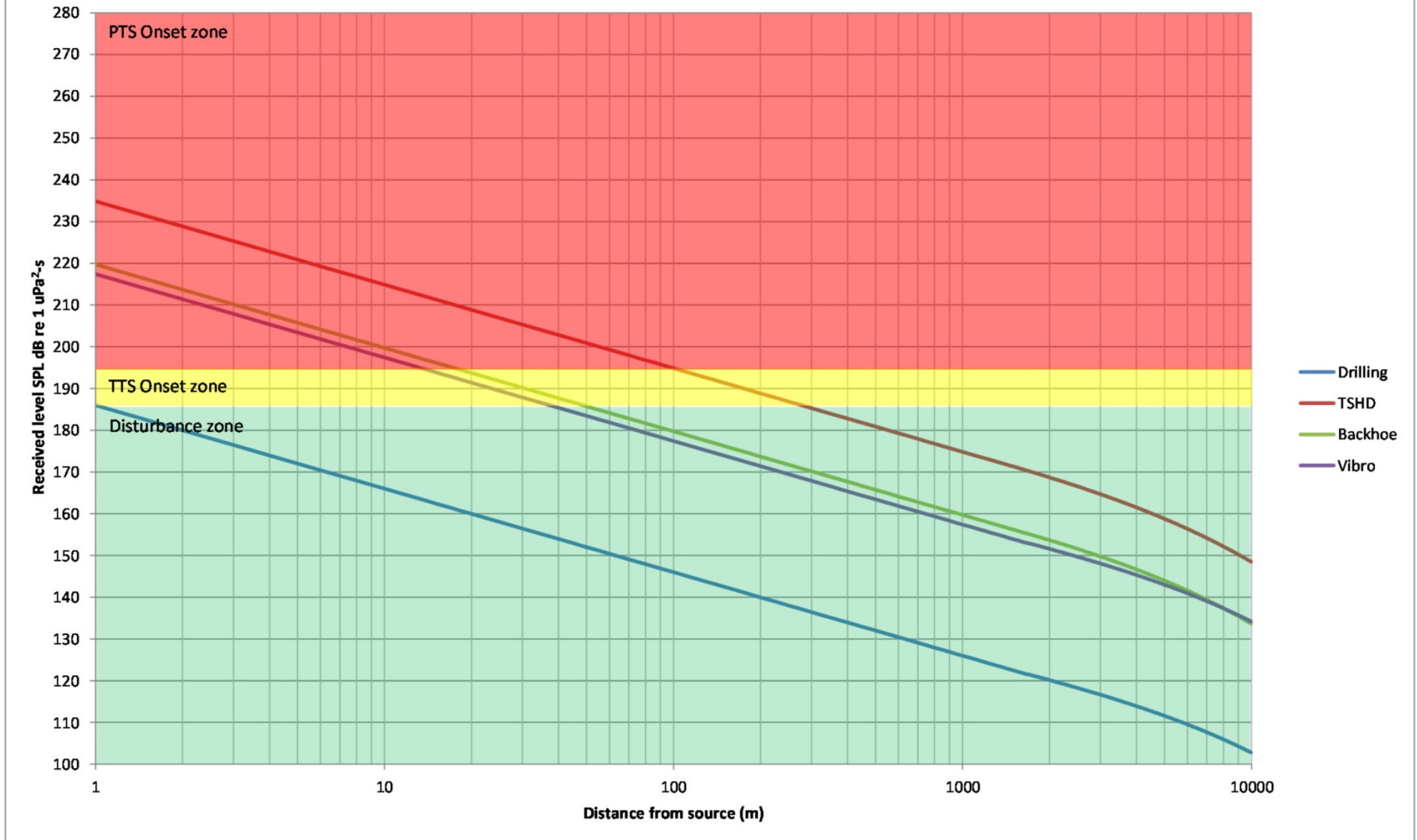


Figure 9 - Construction SEL impact on Small Fish

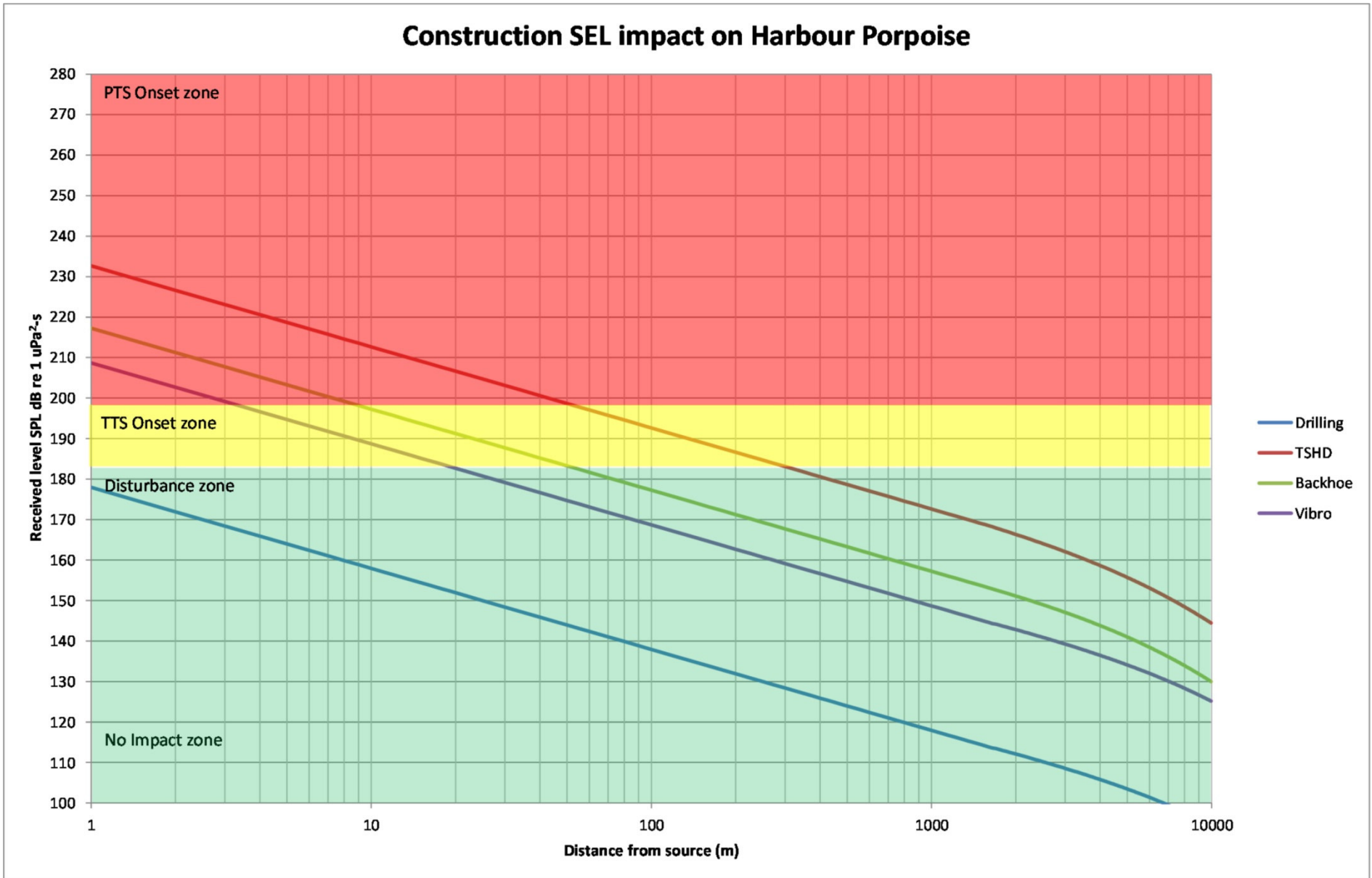


Figure 10 - Construction SEL impact on Harbour Porpoise

### Construction SEL impact on Otter

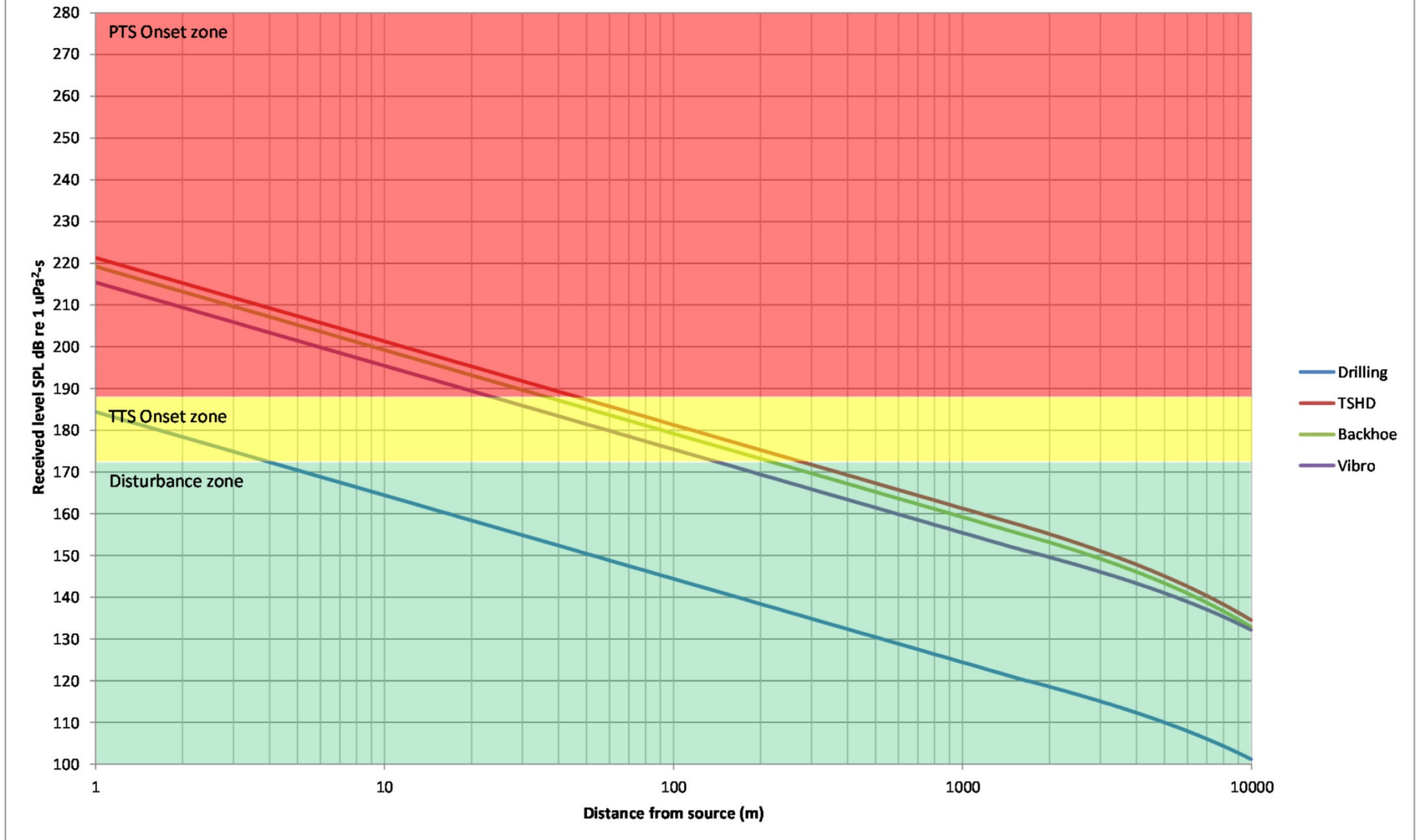


Figure 11 - Construction SEL impact on Otter

### Construction SEL impact on Seal

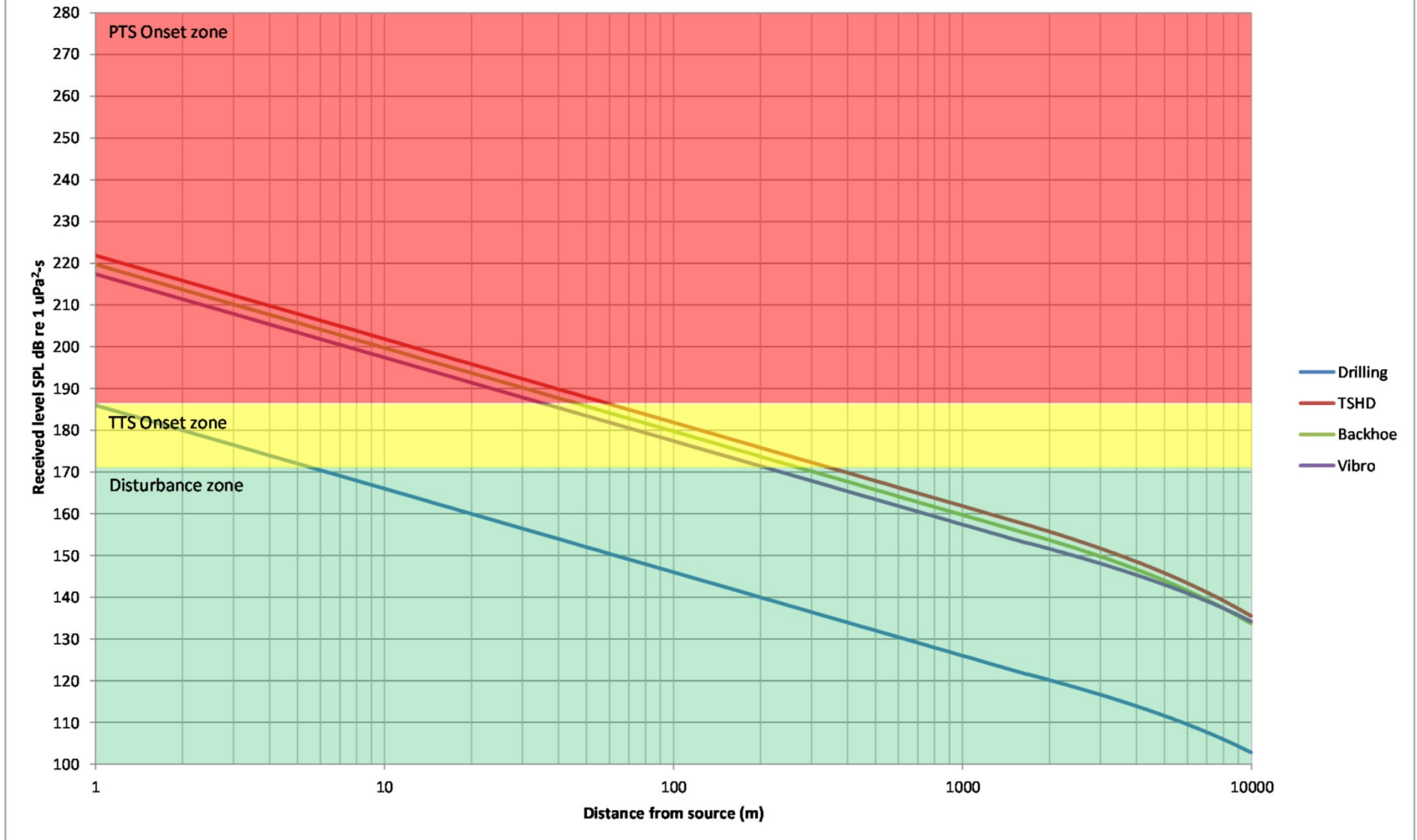


Figure 12 - Construction SEL impact on Seal

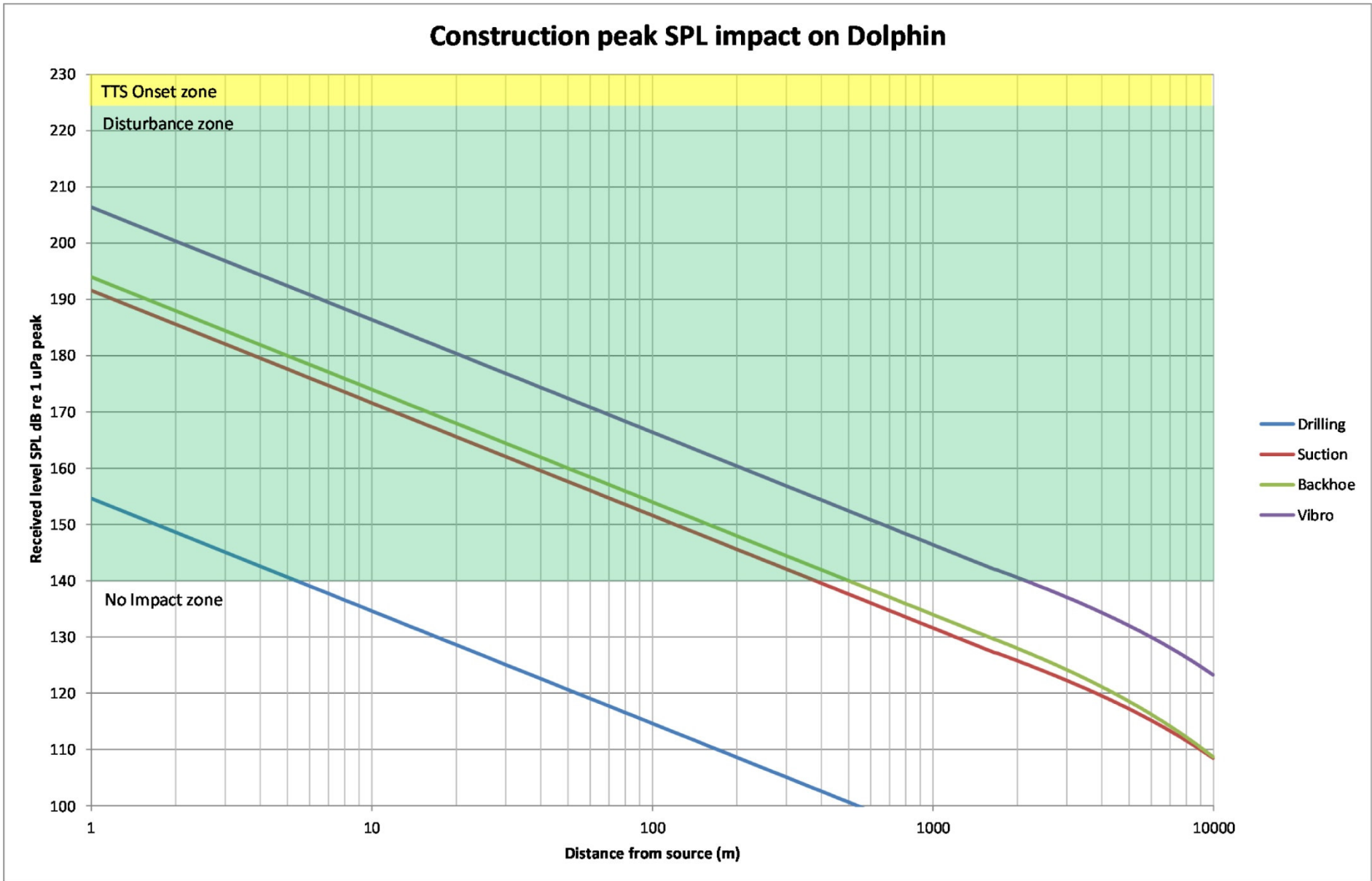


Figure 13 - Construction peak SPL impact on Dolphin



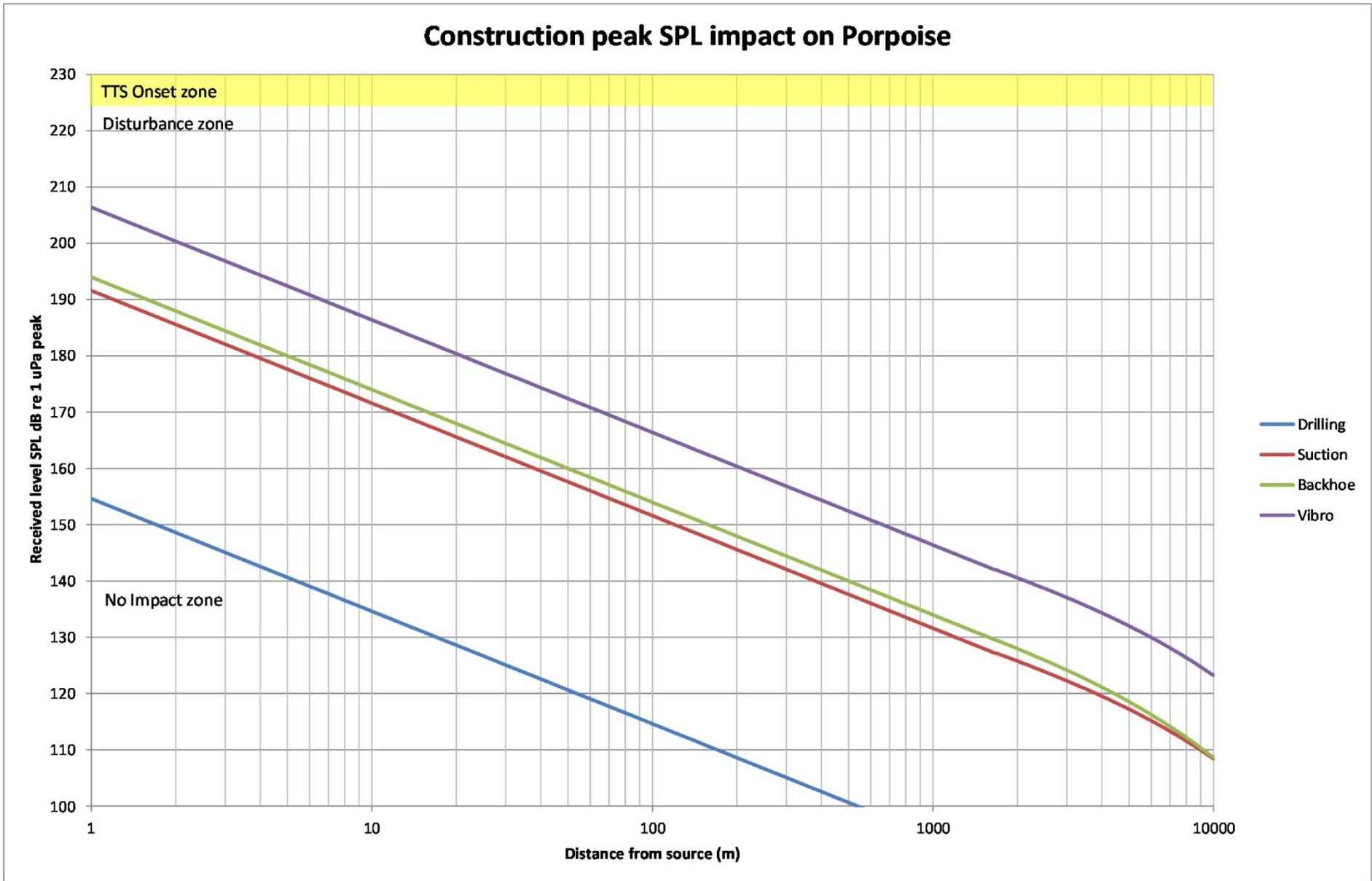


Figure 14 - Construction peak SPL impact on Porpoise

### Construction peak SPL impact on Seal and Otter

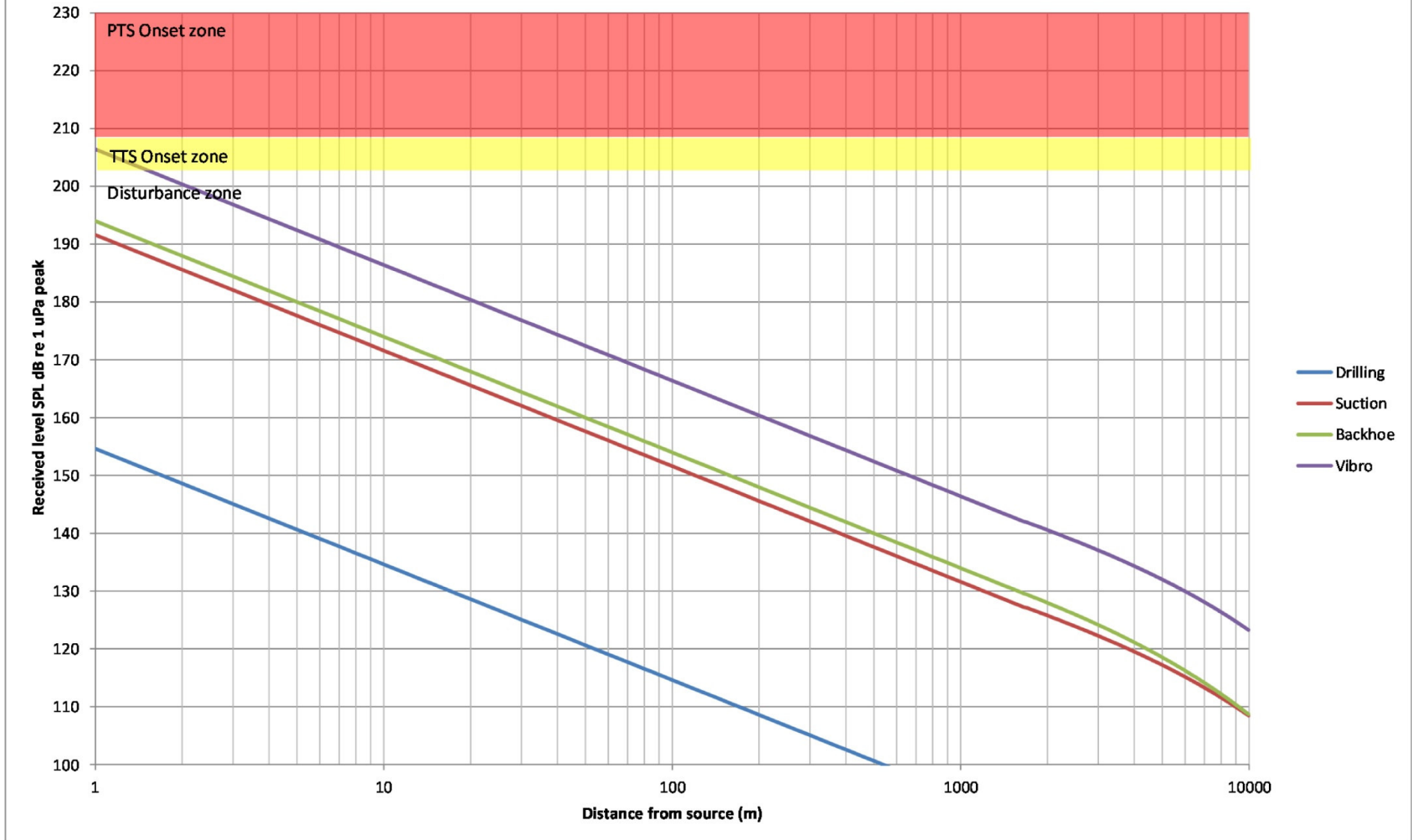


Figure 15 - Construction peak SPL impact on Seal and Otter

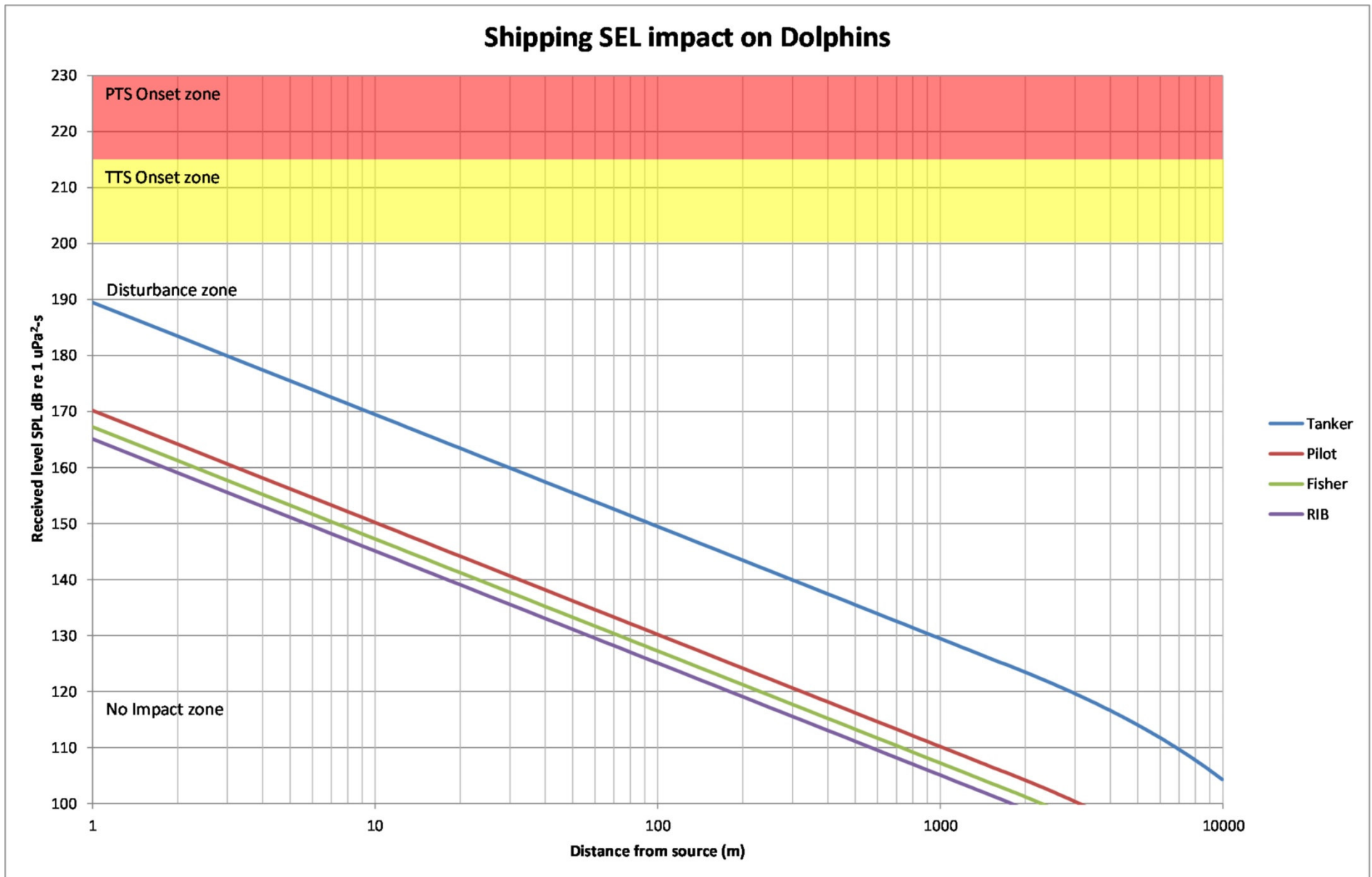


Figure 16 - Shipping SEL impact on Dolphins

### Shipping SEL impact on Small Fish

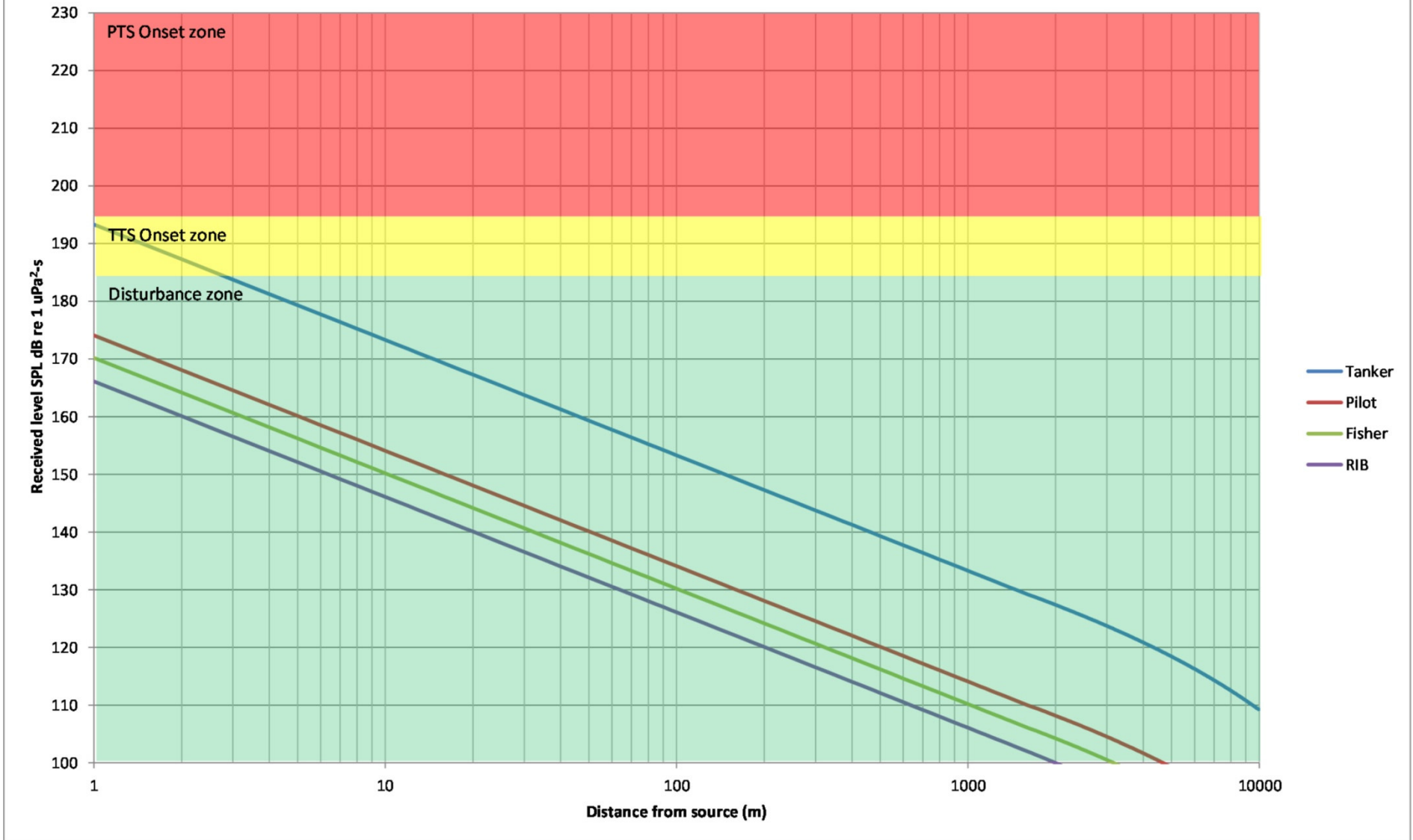


Figure 17 - Shipping SEL impact on Small Fish

### Shipping SEL impact on Harbour Porpoise

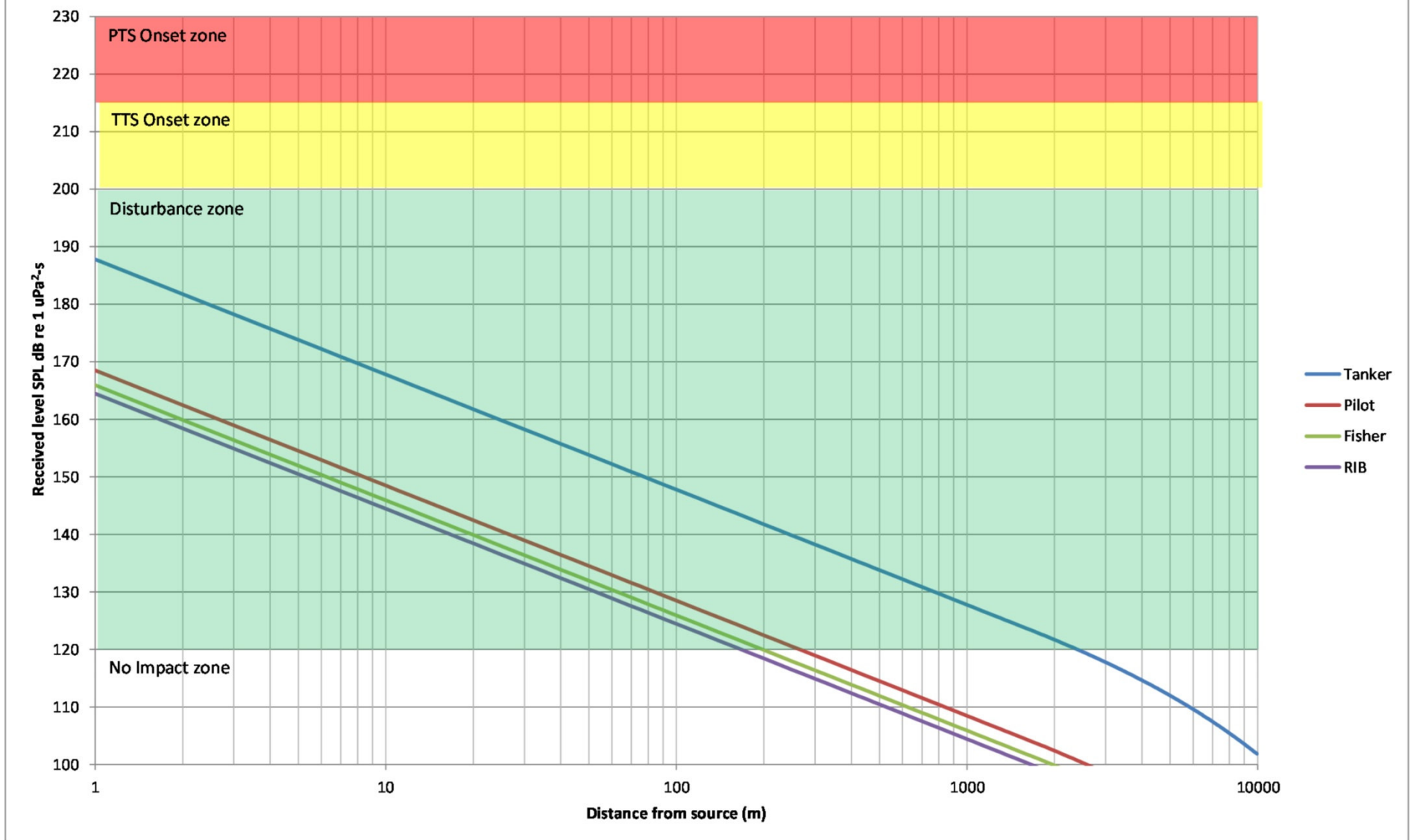


Figure 18 - Shipping SEL impact on Harbour Porpoise

### Shipping SEL impact on Otter

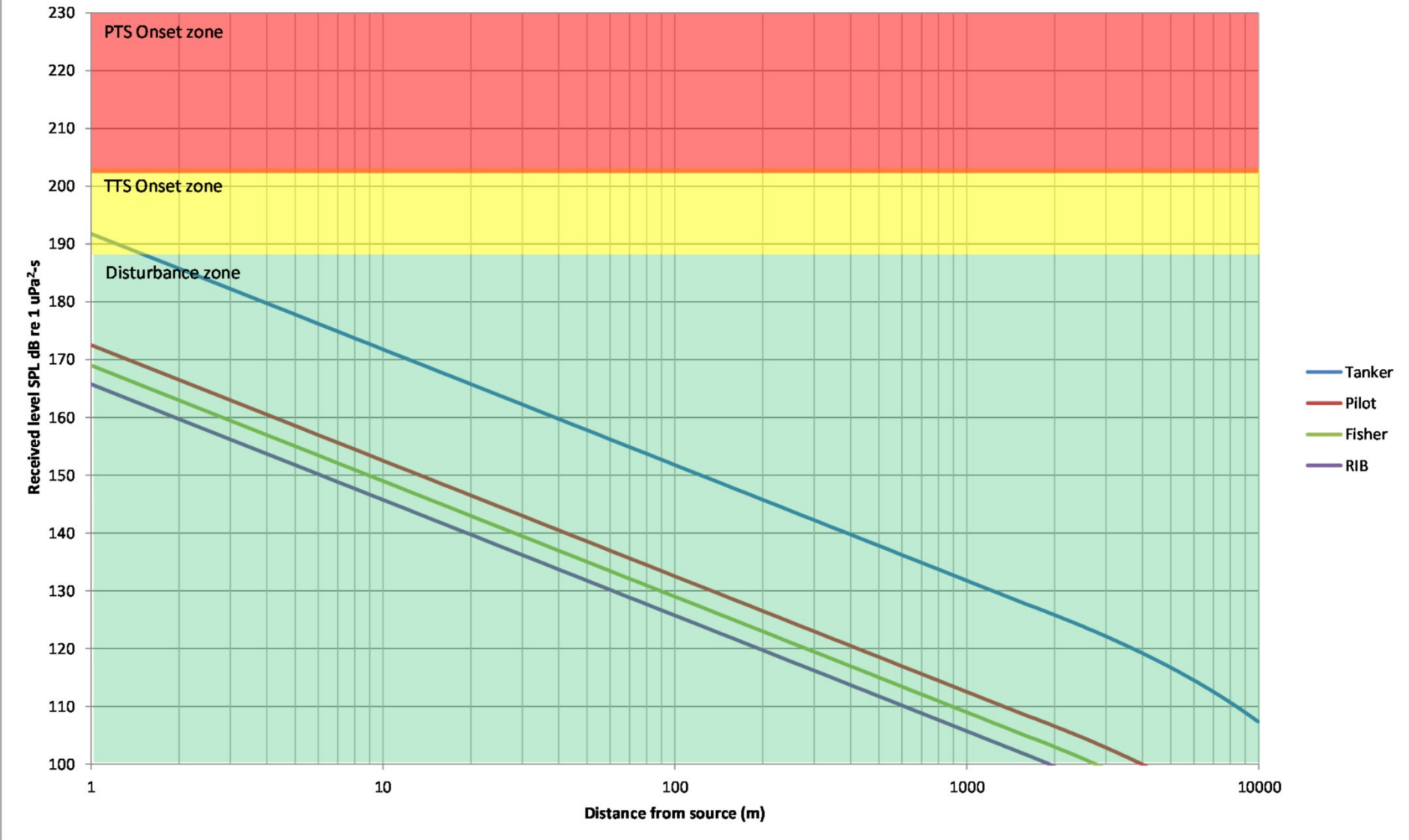


Figure 19 - Shipping SEL impact on Otter

## Shipping SEL impact on Seal

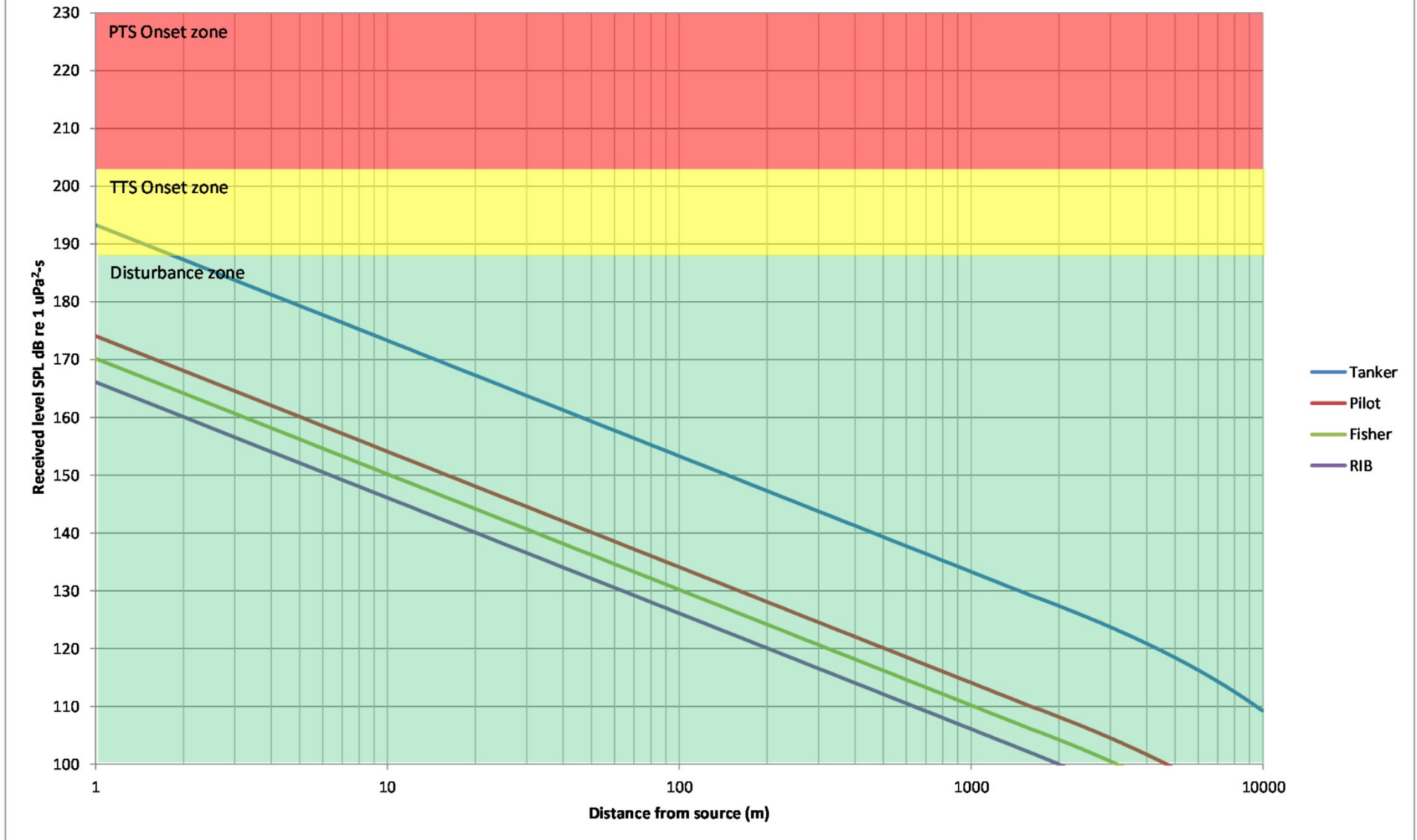


Figure 20 - Shipping SEL impact on Seal

## Shipping peak SPL impact on Dolphin and Porpoise

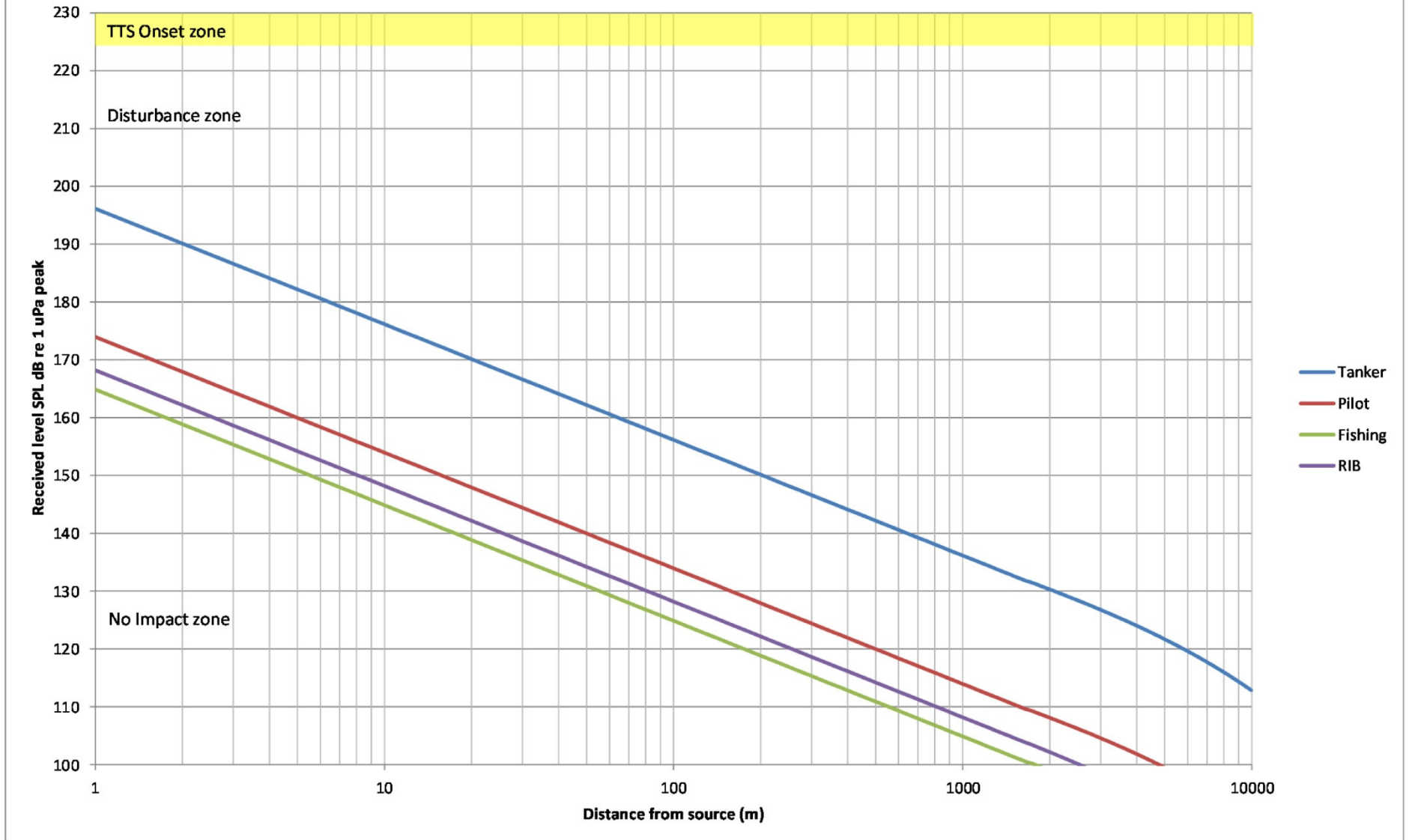


Figure 21 - Shipping peak SPL impact on Dolphin and Porpoise



## Shipping peak SPL impact on Harbour Porpoise

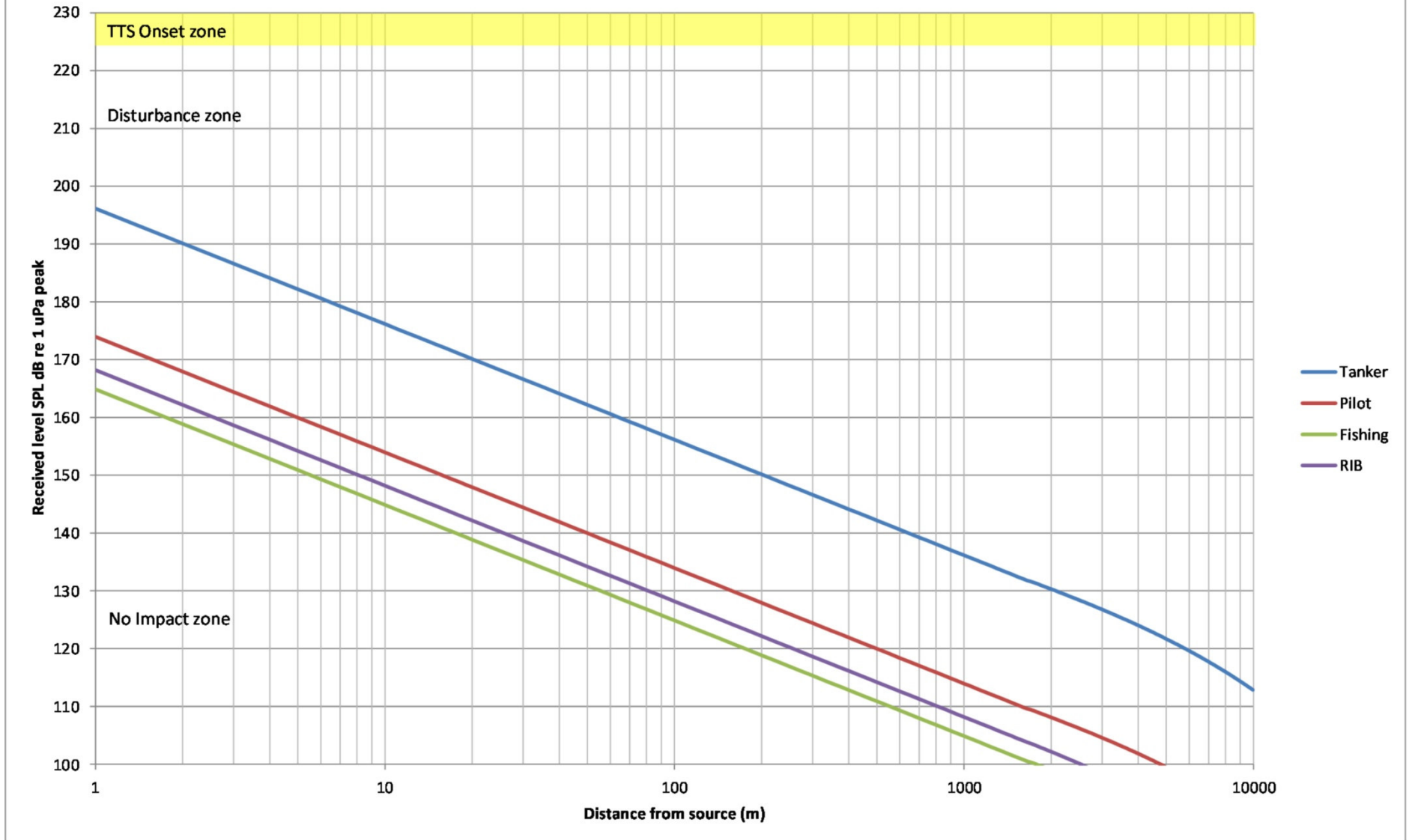


Figure 22 - Shipping peak SPL impact on Harbour Porpoise

