Short course in SOUND (noise)

Noise (sound) is measured as a pressure measurement, expressed in Pascal's a not particularly usable term.

To define sound pressure we use a logarithmic measurement system called the Decibel (dB). This is not a absolute measurement system, but a ratio measurement between the sound pressure and an agreed upon reference level. The threshold of hearing is 20 micro Pascal's and this is the reference point. A 10 fold increase in pressure say from 20 to 200 is a 20 DB change. A 6db increase in sound pressure level is a doubling of pressure, and the human ear can detect a change of about 3db. It takes about a 10 dB change in sound for a human to perceive a doubling in sound level.

The **ERYC** and others are involved with requesting the State of Maryland to add to its boat noise act provisions to allow the enforcement of boat noise by a standard set by the Society of Automotive Engineers (J1970) for Shore line **PASS BY** Measurement. [the regulation now call for a test per SAE spec J2005, a dockside measurement] The **PASS BY** spec sets a max level of 75 dB(A) at the shore line, no matter how far the boat is away. In that sound dissipates as a function of the Square of the distance, 75 dB(A) at 2400 feet would be 80 dB(A) at 1200 feet, and 85 dB (A) at 600 feet. A boat passing my house at 75 dB(A) would be spewing out 80 to 85db at Oldfields point.

Some reference levels are— Quiet Library 30db, Subway at 200 feet 95db, normal conversation 60dB(A) Loud rock Concert 115dB(A). The level of pain is 120 dB (A), possible hearing loss at a sustained 95dB(A), death of tissue 180dB(A). The max reading so far from my dock is 81dB(A) at 2400 feet.

With a noise level of 71dB(A) there is a loss of 50% in speech intelligibility, at 75dB(A) noise there is a loss of 94% intelligibility.

Ref::: **Measuring Sound** by BRUEL&KJAER (http://www.bk.dk), and **Sound Intensity** the same. These can be downloaded with a no charge registration., they are the world leaders in sound measuring equipment.
Decibel (loudness) Comparison Chart (http://www.gcaudio.com)
Pleasure Motorboat Model Noise Act by R A Lanpheer (google it)

I use a sound level meter by Extech #407730 (http://www.instrumart.com/extech)

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