Fortunately, even a quarter-second of sample data at 44.1 kHz contains over 11,000 data samples of noise at a 32-bit resolution, so there are still trillions of bits of noise data. This is certainly enough for the algorithm to find a noise profile so that it can remove this data pattern from the rest of the data sample and (hopefully) leave the vocals intact.

Once you click Get Noise Profile, which gives the noise reduction algorithm the data it needs to process, the **OK** button becomes enabled. You then proceed to Step 2 to actually process the noise data and remove it from your vocal audio sample, hopefully in its entirety.

The Audacity noise reduction effect is really more like a filter in the way that it operates; it is worth the cost of Audacity 2.1 alone. Hey! Wait a minute! Audacity is free! Sorry about that, I forgot, as it certainly seems like paid software.

Noise Reduction: Removing the Background Noise

Make sure to deselect any selected portion of your sound wave before applying the noise reduction algorithm, because only the selected section will be processed. This is quite handy to know when selective noise reduction is what you want to achieve. I used the following default settings for my initial noise reduction algorithm "pass": a **Noise Reduction** of 12 decibels, a **Sensitivity** of 6, and the **Frequency smoothing bands** at 0, as shown in Figure 5-3.

As you can see in Figure 5-4, the algorithm did a fairly good job of removing the background noise in my voice-over data sample.

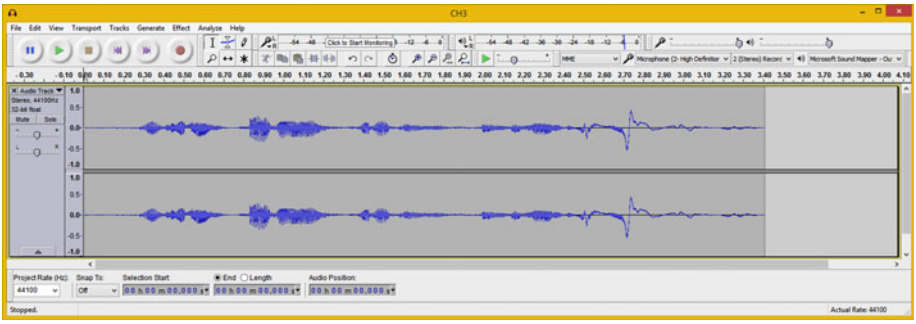

Figure 5-4. *Deselect the waveform and apply the default setting*

Play the audio sample using the green **play** icon in the control transport, seen in the top-left corner of Figure 5-4. Listen carefully for any background hiss. I don't hear too much hissing in the first part of this sample; however, there is hissing in the second part (end) of the data sample.

To improve the noise reduction result, you may need more extreme settings than the defaults suggested by Audacity in this dialog. The process for doing this includes using the **Edit ➤ Undo Noise Reduction** menu sequence, and subsequently trying different decibels, sensitivity, and frequency smoothing settings in Step 2 of the Noise Reduction dialog.