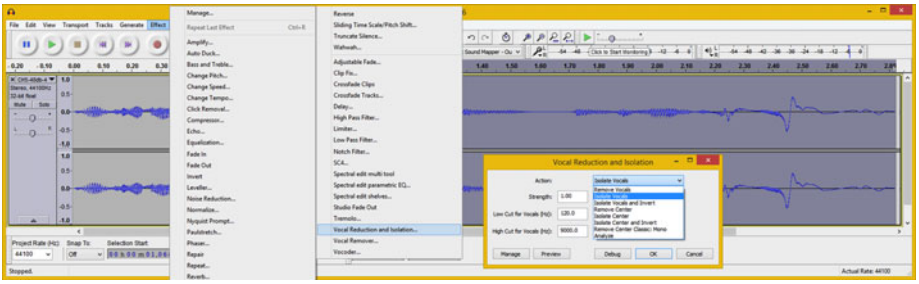

Figure 7-7. *Use the Effect ➤ Vocal Reduction and Isolation menu*

I tried the default settings in the **Vocal Reduction and Isolation** dialog, as I always do, but the **High Cut** (which controls the high pitch you are trying to eliminate) setting of 9000 Hz (9 kHz) is too high to eliminate this chirping artifact.

My process was to reduce this number by 1000, and I therefore tried 8000, and then 7000, and then 6000, and finally 5000, but I still heard evidence of the chirping artifact.

Next, I tried 4000. This eliminated the chirp artifact but also affected (muddied) the vocal tones, so I added 100 back on the 4000 value at that point; ultimately, 4500 (half the suggested value) was the value that eliminated the chirping artifact and it didn't affect the vocals too perceptibly.

I did try 4600 just to make sure, but heard the chirping artifact at that setting, so I decided to stay with a High Cut setting of 4500 Hz (4.5 kHz) as my final setting. I left a full-strength algorithm application (default) setting of 100% and a **Low Cut** setting of 120 Hz, as I was not trying to remove a lower pitch artifact. You could also set the Low Cut setting to 0.

Figure 7-8 shows the selected portion of this waveform, as well as the Vocal Reduction and Isolation dialog and final settings.

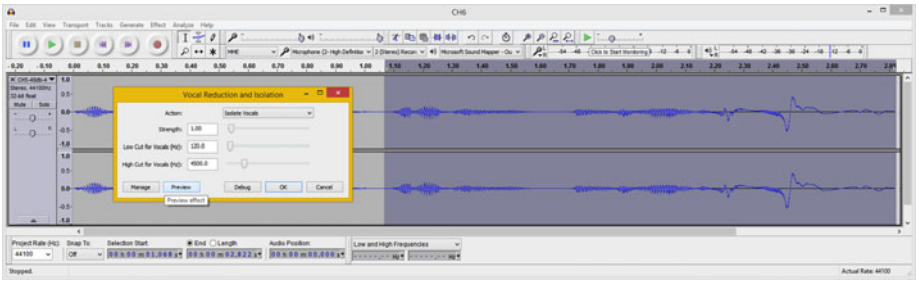

Figure 7-8. *Set the High Cut data field to 4500 Hz and click OK*

Also notice that the Vocal Reduction and Isolation dialog has a **Preview** button so that you can preview your settings in real time. If you enter a number into one of the three data fields, and then click **Preview**, this has the same effect as hitting your Enter key, which "enters" the data value in the data field.

As you can see in Figure 7-9, the data sample waveforms look vastly different after the significant waveform editing "moves" were implemented over the course of the chapter.

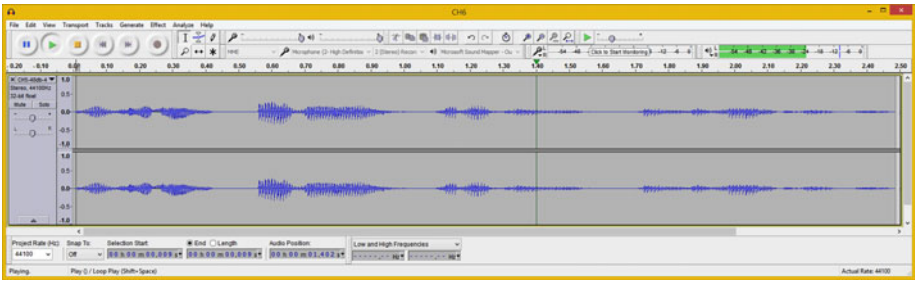

Figure 7-9. *The algorithm processed sub-sample looks far better*

Clearly, those sci-fi-sounding, high-pitch chirp artifacts were contained in that wild-looking tail at the end of the data sample (see Figure 7-8) and that have now been eliminated by using the Audacity Vocal Reduction and Isolation filter (effect) algorithmic processor (see Figure 7-9). As you might suspect, this data sample probably is a lot less to compress.

Let's take a look at just how much less data the cleaned-up sample takes than the original 316 KB data sample. This will be the primary focus of the data footprint optimization chapter, as you may have guessed. This is because noise and artifacts are difficult to compress.

Removing noise and artifacts may significantly reduce the data footprint a; in this case, it was approximately 300%, which is amazing if you ask me.

If something is accomplished in this book that has a significant effect on the data footprint, I would be remiss not to point it out or to explain the reasons why it happened.

As you can see in Figure 7-10, when I utilized the **File ➤ Export Audio** menu sequence and dialog, I got a 112 KB FLAC file, which is about three times, or 300% smaller than the 316 KB baseline file that I saved after I recorded the original data sample back in Chapter 5. You can refer to Figure 5-5 if you need to.

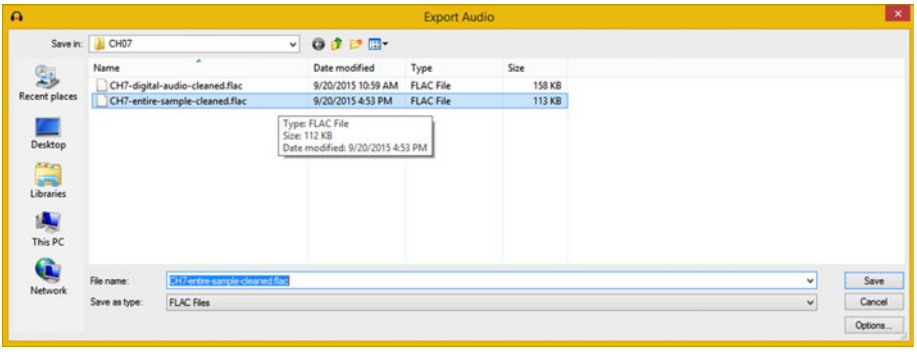

Figure 7-10. *Exporting the cleaned sample using the FLAC format*

You've now cleaned up and greatly reduced the data for this vocal sample, using manual editing tools and the noise reduction and the vocal reduction and isolation algorithms.

Summary

In this chapter, you explored the process of editing the data sample to change how it sounds. In this case, the objective was to remove the chirping artifacts from Chapter 5, where you learned how to remove background noise. Since then you have learned how to use the silence audio tool, which is an alternate work process to using the noise reduction algorithm. You looked at how to select and preview audio to find artifacts, how to have Audacity align the insertion (position) indicator using the **silence audio** tool, and how to remove artifacts algorithmically using the **Vocal Reduction and Isolation** tool.

In the next chapter, you learn about **algorithmic digital audio data processing** concepts, tools, and techniques.