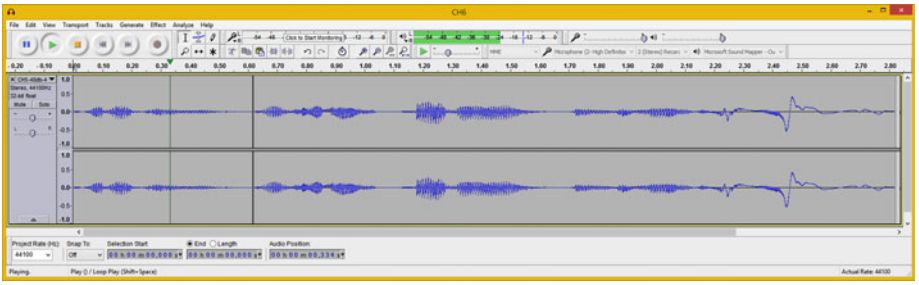

Figure 6-10. *Vocal is now "Editing Digital Audio Fundamentals"*

Practice using these fundamental digital audio editing tools in Audacity, because this forms a foundation for the workflow in your digital audio work process as a multimedia producer or a digital audio engineer.

Summary

In this chapter, you looked at digital audio data-editing–related concepts and principles, such as trimming audio samples, extracting audio subsamples, and rearranging audio subsamples. You also looked at how your resolution, color channels, color depth, and alpha channel can contribute to data footprint reduction.

In the next chapter, you learn about **manual digital audio sample editing** concepts, techniques, and work processes.

CHAPTER 7

The Manual Labor of Digital Audio: Sample Editing

You now know how to trim unused space around your sample so that it triggers more surgically. You also know how to have Audacity position the digital audio editing insertion point for you and how you can move portions of your sample around with the cut, copy, and paste functions. Now let's look at how to edit and affect the sample data itself by removing those high-pitched "chirping" artifacts that were introduced from using the noise reduction algorithm in Chapter 5.

This chapter explores how to find isolated chirps using tools such as **zoom**, **select**, and **preview**, and how to replace these chirps using the **silence audio** function. You will see how to **algorithmically remove** several chirps (artifacts) that exist in the second half of the sample. These sample artifacts are fused together with, or are a part of, the vocal sound wave itself.

Audio Data Editing: Changing the Sample

In this chapter, you are going to change the digital audio sample data so that it actually sounds different. Don't worry, you are going to make it sound better by removing the chirps caused by applying the noise reduction algorithm. I call these **artifacts**, as they are a side effect of algorithmic processing.

One example of a visual artifact is image data degradation, initiated by JPEG (image) or MPEG (video) compression algorithms and causing a discolored area (usually green, purple, or yellow) of pixels to appear in parts of the image or video. Chirps are the aural equivalent of this, and they are especially noticeable, so I am going to tell you how to remove these. Doing this also gives you more practice with the fundamental editing tools in Audacity, and introduces you to another Effect menu tool because some of these artifacts (chirps) are isolated and some are integrated within the audio sample waveforms.

Electronic supplementary material The online version of this chapter (doi:10.1007/978-1-4842-1648-4_7) contains supplementary material, which is available to authorized users.

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Cleaning the Sample: Removing Isolated Artifacts

You can find isolated chirp artifacts either by **scrubbing** (a feature you learned about in Chapter 6) or by playing the entire sample by clicking the **play** button and watching the position of the **vertical line** that shows where in the sample Audacity is playing that audio from, which is how I did it. Once you think you see the artifact, select the area of the sample containing the artifact, and again use the play button to preview just the selected area to see if this in indeed the artifact that you've selected. Figure 7-1 shows this along with the **silence audio icon**, which I circled in red. Clicking the silence audio icon removes the first of the chirping artifacts.

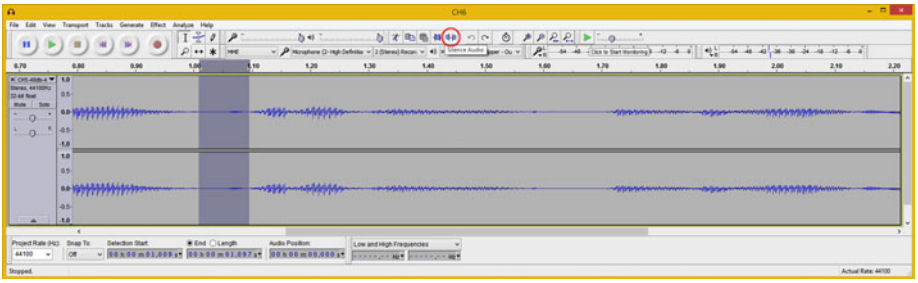

Figure 7-1. *Select the first artifact and preview it*

Find the next isolated chirp artifact, and again, select it and click the **play** button to preview only the artifact, as shown in Figure 7-2. You can tell I am previewing sample audio by the **level meters** on the right side of the screenshot. Notice in Figures 7-1 and 7-2 that this artifact looks more like a rectangle than a sound waveform, which is a clue that it is a tone, chirp, or pulse of some sort.

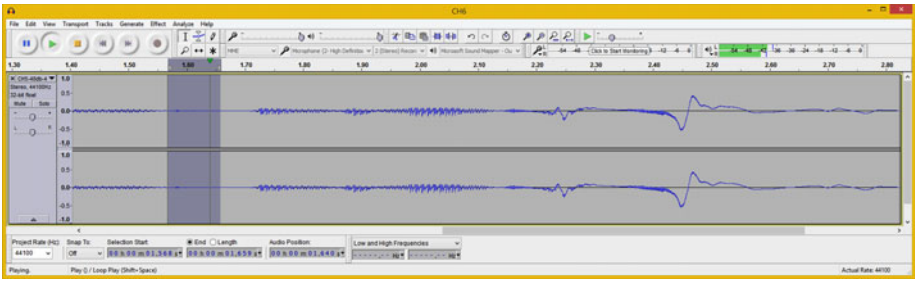

Figure 7-2. *Select a second artifact, and preview it*

If you also want to see the artifact visually, there's a **View ➤ Fit in Window** menu sequence as well as the **Fit Selection** icon, shown circled in red at the top of Figure 7-3. Notice that I removed the artifact in the selected area shown in Figure 7-2 (when the chirp artifact was still intact).

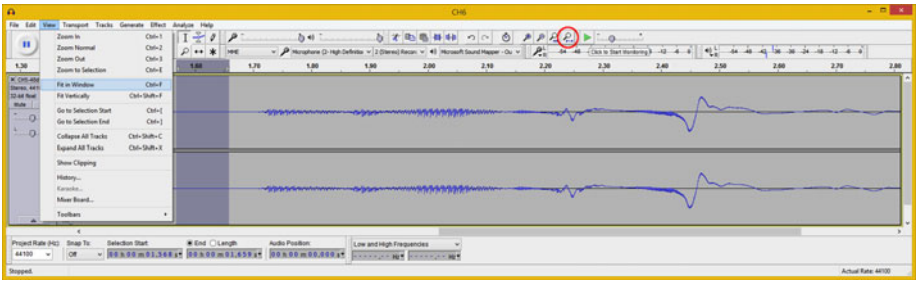

Figure 7-3. *You can zoom into a selection, using Fit in Window*

Now that you have removed your isolated chirp artifacts, which are the easiest to locate, the next level of complexity is to remove the chirps that are actually **attached to** these sample waveforms. Let's take a look at how this is done.

Sample Data Surgery: Removing Attached Artifacts

As you were previewing the entire data sample, you probably noticed that there was a chirp artifact on the front part of the word "audio." This subsample is shown selected in Figure 7-4, along with the **Fit Selection** icon, shown circled in red. I clicked the icon to fit the selection into the Audacity editor area so that I could see what I was doing while I extracted the artifact, which again has **no waveform variation** and seems to have the same rectangular shape as the other artifacts. I did this using 100% zooming of the data sample.

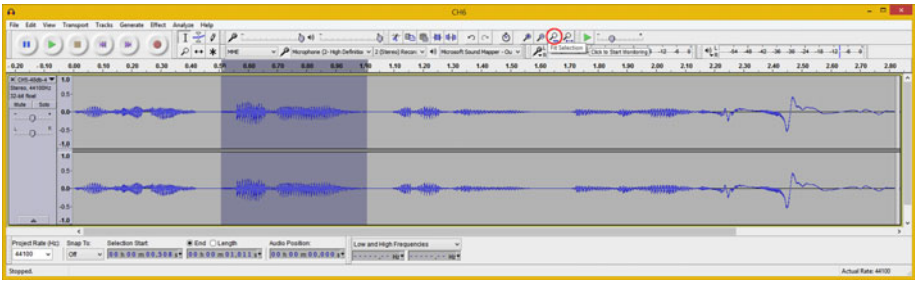

Figure 7-4. *Select only your vocal sample for the word "audio"*

Select the data that represents the chirp artifact. This is the first part of the waveform, shown zoomed in on the left side of Figure 7-5. Use the **play** button to preview it, make sure that this is the chirp, and then use the **Silence Audio** icon to remove it. You can see by the selection area that I ascertained where the vocal waveform should start by looking at the **pattern** of the wave (seen to the right of the selection area). I made the end point of the selection area match up with this waveform so that the pattern was consistent through the subsample.