River Soundscapes:
Ecological Perspectives in the Music of Annea Lockwood, Eve Beglarian, and Leah Barclay

by

Jamilyn Richardson

A Thesis Presented in Partial Fulfillment
of the Requirement for the Degree
Master of Arts

Approved December 2012 by the
Graduate Supervisory Committee:

Sabine Feisst, Chair
Ted Solís
Kay Norton

ARIZONA STATE UNIVERSITY

December 2012

ABSTRACT

Throughout history composers and artists have been inspired by the natural world. Nature's influence on music is extraordinary, though water in particular, has had a unique magnetic pull. The large number of compositions dealing with water, from Handel's *Water Music* (1717) to Ros Bandt's and Leah Barclay's *Rivers Talk* (2012), reflects this continuous fascination. Since the late 1940s, composers have ventured further and brought actual sounds from the environment, including water recorded on tape, into the musical arena. Moreover, since the 1960s, some composers have nudged their listeners to become more ecologically aware. Much skepticism exists, as with any unconventional idea in history, and as a result compositions belonging to this realm of musique concrète are not as widely recognized and examined as they should be.

In this thesis, I consider works of three composers: Annea Lockwood, Eve Beglarian, and Leah Barclay, who not only draw inspiration from nature, but also use their creativity to call attention to pristine environments. All three composers embrace the idea that music can be broadly defined and use technology as a tool to communicate their artistic visions. These artists are from three different countries and represent three generations of composers who set precedents for a new way of composing, listening to, performing, and thinking about music and the environment. This thesis presents case studies of Lockwood's *A Sound Map of the Danube River,* Beglarian's Mississippi River Project, and Barclay's *Sound Mirrors.*

This thesis draws on unpublished correspondence with the composers, analytical theories of R. Murray Schafer, Barry Truax, and Martijn Voorvelt, among others, musicological

publications, eco-critical and environmental studies by Al Gore, Bill McKibben, and Vandana Shiva, as well as research by feminist scholars. As there is little written on music and nature from an eco-critical and eco-feminist standpoint, this thesis will contribute to the recognition of significant figures in contemporary music that might otherwise be overlooked. In this study I maintain that composers and sound artists engage with sounds in ways that reveal aspects of particular places, and their attitudes toward these places to lead listeners toward a greater ecological awareness.

ACKNOWLEDGEMENTS

Pursuing a Master of Arts degree at Arizona State University has given me many opportunities for creativity for which I am grateful. I wish to thank a number of people who have supported me throughout this journey.

I am deeply grateful to my advisor Dr. Sabine Feisst. As chair of my committee, as well as a mentor throughout my undergraduate and graduate studies, her patience, determination, and dedication pushed me to be a better thinker, researcher, writer, and teacher. Under her tutelage I have grown as an individual and she has proved to be one of the best mentors of my collegiate experience. Sincere appreciation is also due to Dr. Kay Norton and Dr. Ted Solís who also served on my committee. Their wisdom and perceptive recommendations were very helpful in the completion of this document.

Dr. Katherine McLin deserves a special thank you. After studying with her as an undergraduate and graduate student, she fully supported me in my decision to pursue a Musicology degree. Her encouragement and assurance throughout my musical studies will always be in my heart. I would also like to thank Dr. Benjamin Levy for pointing me in the right direction at the onset of this project. His expert advice regarding sources for the analysis of musique concrète works is greatly appreciated. Many thanks to Dr. Danwen Jiang, Dr. James DeMars, Dr. Robert Oldani, and Dr. Catherine Saucier for further enriching my development as a musician and musicologist.

A warm thank you to Annea Lockwood, Eve Beglarian, and Leah Barclay for giving me the opportunity to ask questions. Their insight has given me a deeper understanding of their work and a richer perspective on music. Lockwood's open-minded philosophies on music inspired this

project and her willingness to engage in a dialogue with me was invaluable. Sincere thanks to Leah Barclay for making unpublished texts, graphs, and other important sources available to me. Her musical endeavors continue to inspire me to think beyond myself.

I owe much to my fellow classmates, friends, and musicology peers, Caleb Boyd, Joseph Finkel, Kerry Ginger, Garrett Johnson, and Katie Palmer for enlightening me with conversation about music, art, life, and the like. Thank you, Joe, for your thoughtful criticisms, technological expertise, and, especially, for your good humor and friendship. To my oldest and dearest friend, Stephen Cook, thank you for your advice, kindness, and much needed comic relief. You saved my sanity many times over.

My most heartfelt thanks go to my parents for their unwavering love and support throughout this process. I am forever grateful for the years they have invested in my musical training and education. Their patience, understanding, and humor lifted my spirits on countless occasions. Sincere thanks to my siblings, Jeff, Jarod, Rachel, and Sara, for their optimism and encouragement throughout my college years.

TABLE OF CONTENTS

PAGE

LIST OF FIGURES vii

CHAPTER

1. INTRODUCTION 1

I. Research in the Field 1

II. Methodology 5

III. Terminological Clarifications 6

IV. Layout of Content 7

V. Significance of Study 8

2. MUSIC AND NATURE: AQUATIC SOUNDSCAPES OF THE PAST 9

I. Water: Source of Life and Inspiration 9

II. Nature's Remarkable Influence 10

III. Nature in Nineteenth-Century Music 12

IV. Musical Evocations of Water in the Twentieth Century and Beyond 22

3.NEGOTIATING MUSIC, POLITICS, AND TECHNOLOGY: MUSICAL DEVELOPMENTS IN RECENT DECADES 26

I. Environmental Philosophies 28

II. Ecologically-Conscious Music 31

III. Music Technology and Nature 37

CHAPTER PAGE

4. ANNEA LOCKWOOD: COMPOSING THE DANUBE RIVER....40

I. First Inspirations....41

II. Composing the Danube River....44

III. Theoretical Frameworks....47

IV. A Closer Look at Danube....49

5. EVE BEGLARIAN: A SONIC JOURNEY DOWN THE MISSISSIPPI RIVER....60

I. Influences and Stylistic Considerations....61

II. The Mississippi River: History, Environment, and Culture....63

III. A Sonic Journey Down the Mississippi....67

6. LEAH BARCLAY: MUSICAL EXPLORATIONS OF WORLD RIVERS....82

I. Environmentally-Inspired Projects....83

II. Sound Mirrors: A Sonic Response to Rivers Across the World....86

III. World Rivers: “River of Mirrors,” “Nakshatra,” and “Han River”....89

7. CONCLUSION....106

BIBLIOGRAPHY....108

IRB EXEMPT STATUS....119

LIST OF FIGURES

FIGURE PAGE

1. Ludwig van Beethoven: *Pastoral Symphony,* "Scene by the Brook," mm. 1 to 4.....14

2. Bedřich Smetana: *Vltava,* mm. 5 to 9 16

3. Richard Wagner: *Das Rheingold*, mm. 1 to 28 17

4. Franz Schubert: *Die schöne Müllerin,* "Der Müller und der Bach, " last 13 mm.....19

5. Franz Liszt: *Les jeux d'eaux à la Villa d'Este,* mm. 1 to 5 21

6. Maurice Ravel: *Jeux d'eau,* mm. 1 to 6 23

7. Map of the Hudson River.....43

8. Sectional Layout of Annea Lockwood's *A Sound Map of the Danube River*.....46

9. Map of the Danube River.....46

10. Annea Lockwood: *A Sound Map of the Danube River,* "Bregquelle to Immendingen" (9 minutes and 54 seconds).....50

11. Annea Lockwood: Representation of the Frequency Spectrum at 6'50'' 53

12. Annea Lockwood: Representation of the Frequency Spectrum at 7'05'' 53

13. Annea Lockwood: *A Sound Map of the Danube River,* "Fridingen to Ulm" (7 minutes and 20 seconds).....54

14. Annea Lockwood: *A Sound Map of the Danube River,* "Inzell to Traismaur" (16 minutes and 8 seconds).....55

15. Map of the Mississippi River.....65

16. Eve Beglarian: *The Flood,* mm. 1 to 15.....73

17. Eve Beglarian: *I'm Worried Now, But I Won't Be Worried Long,* mm. 38 to 55.....75

18. Eve Beglarian: *Well-spent,* mm. 1 to 33.....78

19. Map of the Noosa River 90

20. Leah Barclay: *Sound Mirrors,* "River of Mirrors" (3 minutes and 14 seconds) 92

21. Map of the Pamba River 94

22. Leah Barclay: Spectrogram Analysis for *Sound Mirrors,* "Nakshatra" (11 minutes and 33 seconds long) 96

23. Map of the Han River 100

24. Leah Barclay: Spectrogram Analysis for *Sound Mirrors,* "Han River" (15 minutes and 6 seconds long) 102

CHAPTER 1: INTRODUCTION

Throughout history composers and artists have been inspired by the natural world. Many natural phenomena seem to attract a composer's interest, but the powerful and inherent nature of water, has had a particularly alluring quality. The tremendous number of compositions dealing with nature, and water specifically, from Handel's *Water Music* (1717) to Ros Bandt's and Leah Barclay's *Rivers Talk* (2012), reflects this continuous fascination. Since the 1970s, composers worldwide have nudged their listeners to become more environmentally aware. In this thesis, I consider the contributions of three composers: Annea Lockwood, Eve Beglarian, and Leah Barclay, who not only draw inspiration from nature, but also use their creativity to call attention to pristine natural environments. These composers also use technology as a tool to communicate their artistic visions. Further, they embrace the idea that music does not need to be rigidly defined and can include both conventional musical and environmental sounds. Pioneered by experimental artists such as Luigi Russolo, Ottorino Respighi, Pierre Schaeffer, Edgar Varèse, and John Cage, the use of environmental sounds and expression of ecological concerns in compositional frameworks is a continuously broadening field. In this study, I will argue that such compositions may contribute to the betterment of our fragile habitats and that such artists set precedents for a new way of composing, performing, listening to, and thinking about music and the environment.

I. Research in the Field

Little has been written about the music of Lockwood, Beglarian, and Barclay. Frank J. Oteri's extensive interviews with both Lockwood and Beglarian have provided necessary

biographical information on both artists as well as illuminated other important aspects of their work such as compositional style and philosophies.[1] Jennifer Hymer, Michael Lee, and Miriama Young, among others, published articles which detail some of Lockwood's environmental work.[2] Michael Dellaira's 2002 interview with Beglarian helped elucidate her early career.[3] For information on Beglarian's musical projects I relied on coverage in various newspapers as well as on her own website.[4] Further, experimental music literature such as Kyle Gann's *American Music in the Twentieth Century*, Thom Holmes's *Electronic and Experimental Music,* and Tara Rodger's *Pink Noises: Women on Electronic Music and Sound* was also essential to the present

---

[1] Frank Oteri, "Annea Lockwood Beside the Hudson River," *NewMusicBox* 33 (2004): 1-15; and "Eve Beglarian: In Love with Both Sound and Language," *NewMusicBox* 40 (2011): not paginated.

[2] Michael Lee, "Annea Lockwood's Burning Piano, Scruffed Stones, and Noble Snare: Feminist Politics and Sound Sources in Music," *Women & Music 3,* (1999): 59-68; Miriama Young, "Sonic Maps: The Musical Worlds of Annea Lockwood," *Music in New Zealand* 13, no. 36 (Summer 2000): 36-40; and Jennifer Hymer, "From Burning Pianos to Sound-Mapping the Danube: The Sound World of Annea Lockwood," *European Journal of American Culture* 25*,* no. 2 (2006): 41-52.

[3] Michael Dellaira, "Overstepping with Eve Beglarian," *Twenty-first Century Music* 9, no. 8 (August 2002): 1-7.

[4] Ron Clements, "Composer's Solo Becomes Group Trek Down Mississippi," *The Telegraph,* October 19, 2009; Paul Freeman, "Eve Beglarian: The Music is the Journey," *The Mercury News,* March 12, 2010; and Kathryn Shattuck, "Composer Finds a Muse in the Mississippi," *The New York Times,* March 9, 2009.

study.[5] Elizabeth Hinkle-Turner's work on women and electronic music was invaluable in illuminating the history of women composers and womens' contributions to music technology.[6]

Ecomusicology, a nascent branch of musicology, builds on environmental studies and explores connections between music, culture, nature, and ecology. Scholars who have done important work in this field include Steven Feld, Nancy Guy, Brooks Toliver, and Denise Von Glahn, among others.[7] Guy discusses pollution and climate change reflected in Taiwanese music, and Toliver addresses the role of music in tourism and natural park politics.[8] Von Glahn and Andra McCartney published on music, nature, and ecofeminism.[9] David Rothenberg and Marta Ulvaeus feature environmentally concerned musicians and their works in *The Book of Music and*

---

[5] Kyle Gann, *American Music in the Twentieth Century* (New York: Schirmer Books, 1997); Thom Holmes, *Electronic and Experimental Music, second edition* (New York: Routledge, 2002); and Tara Rodgers, ed., *Pink Noises: Women on Electronic Music and Sound* (Durham: Duke University Press, 2010).

[6] Elizabeth Hinkle-Turner, *Women Composers and Music Technology in the United States* (Burlington: Ashgate, 2006).

[7] Steven Feld, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression* (Philadelphia: University of Pennsylvania Press, 1982); and Denise Von Glahn, *The Sounds of Place: Music and the American Cultural Landscape* (Boston: Northeastern University Press, 2003).

[8] Nancy Guy, "Flowing Down Taiwan's Tamsui River: Towards an Ecomusicology of the Environmental Imagination," *Ethnomusicology* 53, no. 2 (2009): 218-243; and Brooks Toliver, "Eco-ing in the Canyon: Ferde Grofé's Grand Canyon Suite and the Transformation of Wilderness," *Journal of the American Musicological Society* 57, no. 2 (Summer 2004): 325-367.

[9] Denise Von Glahn, "American Women and the Nature of Identity," *Journal of the American Musicological Society* 64, no. 2 (Summer: 2011): 399-403; and Andra McCartney, "Soundwalk in the Park," *Musicworks: Exploration on Sound* 33, no. 72 (1998): 6-15.

Nature.[10] R. Murray Schafer, Hildegard Westerkamp, and Barry Truax, who along with others, founded the World Soundscape Project at Simon Fraser University, published important research about various sonic environments and soundscape analyses.[11]

Awareness of the global environment's degraded condition has resulted in an increase of literature concerning this issue. Rachel Carson's 1962 book *Silent Spring*, for example, was one of the most important early studies to heighten public awareness of environmental problems.[12] Bill McKibben's 1989 study *The End of Nature,* was seminal in reaching a general audience regarding global warming, and one of the first of its kind. Al Gore's 2009 book *Our Choice: A Plan to Solve the Climate Crisis,* is the best known source on climate change today.[13] Environmental activist and scientist Vandana Shiva, an expert on the destruction of the earth's water supply, water rights, damming, aquafarming, and the like, has contributed greatly in bringing awareness regarding conflicts over natural resources, such as water.[14]

---

[10] David Rothenberg and Marta Ulvaeus, eds., *The Book of Music and Nature* (Middletown, CT: Wesleyan University Press, 2001).

[11] R. Murray Schafer, *The Tuning of the World* (New York: Knopf, 1977); Barry Truax, "Soundscape, Acoustic Communication and Environmental Sound Composition," *Contemporary Music Review* 15, nos. 1-2 (April 2002): 49-65; and Hildegard Westerkamp, "Linking Soundscape Composition and Acoustic Ecology," *Organised Sound* 7, no. 1 (2002): unpaginated.

[12] Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962).

[13] Al Gore, *Our Choice: A Plan to Solve the Climate Crisis* (London: Bloomsbury, 2009); Rachel Carson, *Silent Spring* (City: Houghton Mifflin, 1962); and Bill McKibben, *The End of Nature* (New York: Anchor Books, 1999).

[14] Vandana Shiva, *Water Wars: Privatization, Pollution, and Profit* (London: Zed Books, 1988).

Although these contributions are significant, there is still much to cover regarding music and nature from an eco-critical and eco-feminist standpoint. In this thesis, I will build on these scholars' work to help fill this gap.

II. Methodology

For this study, I use several methods to better elucidate the work of Lockwood, Beglarian, and Barclay. At the center of my thesis are three works, Lockwood's *A Sound Map of the Danube River,* Beglarian's Mississippi River Project, and Barclay's *Sound Mirrors,* each of which has ecological, political, geographical, and technological implications. For this reason, an interdisciplinary approach to the study of this music is necessary; thus, I review scholarship that considers the relationship between nature, politics, place, and technology.

In the last three chapters of this thesis, I present case studies on each artist. I use published and unpublished scores as well as rely on audio visualizing technology for works with no score as the basis for my analysis. I corresponded with each of the three composers and build on their own ideas and writing. I also present necessary biographical context for Lockwood, Beglarian, and Barclay, respectively, and likewise, provide historical context for each artists' work. A close reading of the works mentioned above will be key in showing each composers' motives as well as understanding the overarching environmental and ecological significance of their music.

III. Terminological Clarifications

A few terminological clarifications are in order. The concept of nature is complex. First, the term "nature" itself can be interpreted in many different ways: the natural world as opposed to or inclusive of the human sphere, the essential quality or character of something, or the inherent force that directs the world. In this study, I will mostly reexamine the first explanation.

Secondly, I also use the complex concept "ecology." Ecology is the branch of biology that deals with the relationships of organisms to one another and to their physical surroundings.[15] The term can also reflect an attitude toward the environment. Both meanings are relevant in the following narrative: the idea of interconnectedness of elements and environmental activism.

Finally, the term "soundscape" is also important throughout this thesis. In general, it derives from the words sound and landscape and refers to an environment's layout of sound.[16] This term was coined by Canadian composer and environmentalist R. Murray Schafer.[17] However, it has been misapplied in scholarship to encompass "any aural area of study." Schafer's original intent points to ideological and ecological messages regarding sounds that, in his opinion, matter, versus sounds that do not matter. Schafer believes a great imbalance exists between "good" natural and "bad" manmade urban sounds. But it has also been argued that what

---

[15] For a good explanation of ecology and how it relates to music see Aaron S. Allen's, Daniel M. Grimley's, Alexander Rehding's, Denise Von Glahn's, and Holly Watkin's "Ecomusicology: Ecocriticism and Musicology," *Journal of the American Musicological Society* 64, no. 2 (Summer 2011): 391-394.

[16] R. Murray Schafer, *The Tuning of the World* (New York: Knopf, 1977), 131.

[17] Ibid.

makes noise and sound significant is the sonic and cultural context from which it is derived.[18] In this study I maintain that composers and sound artists engage with sounds in ways that reveal aspects of particular places, and their attitudes toward these places to lead listeners toward a greater ecological awareness. In my thesis I will use the idea of soundscape broadly, suggesting a sonic environment.

IV. Layout of Content

This thesis is divided into seven chapters. The next chapter traces some of the historical roots of composers who have drawn inspiration from nature since Greek Antiquity. It shows nature's influence on music and how water in particular has had a special impact on composers. Numerous composers of the past and present have paid tribute to water in many different forms. As water has become an ever-precious resource, environmental concerns have grown, and these issues have affected Lockwood's, Beglarian's, and Barclay's compositional output.

In chapter three, I focus on environmental philosophies that affected these composers, beginning broadly with the emergence of the environmental movement in the 1960s and proceeding, to specific movements such as deep ecology, which embraces the idea that the Earth does not exist as a resource to be exploited solely by humans. I will also illuminate how composers have more recently used sound recording technology to capture the actual sounds of certain environments. Because all my case studies focus on women, I will consider eco-feminist thought and issues of the gendering of technology. Furthermore I address conflicts regarding

---

[18] For a critical discussion see Ari Y. Kelman, "Rethinking the Soundscape: A Critical Genealogy of a Key Term in Sound Studies," *Senses and Society* 5, no. 2 (2010): 212-231.

technology and nature, drawing on such writings as Leo Marx's *The Machine in the Garden: Technology and the Pastoral Ideal in America.*[19]

In chapters four through six, I discuss in detail and contextualize one significant environmental composition: Lockwood's *A Sound Map of the Danube River,* three pieces from Beglarian's Mississippi River Project, and Barclay's sound installation *Sound Mirrors,* respectively.

V. Significance of Study

Since the 1970s, interest in the relationship between humankind and the natural world has increased throughout academia and beyond. My thesis builds on this trend. Lockwood, Beglarian, and Barclay and their music may not have entered the awareness of many music lovers, but their work is undoubtedly significant. This thesis will fill an important lacuna and with it I seek to enhance the recognition of these artists' work and inspire further interest in the areas of music and nature, environment awareness, technology, and gender.

[19] Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 1964).

CHAPTER 2: MUSIC AND NATURE: AQUATIC SOUNDSCAPES OF THE PAST

Nature's influence on musicians, poets, writers, and artists alike has been extraordinary. Nature has always been a part of human music, and although we may have lost touch with this idea over time, it is clear environmental sounds and other art forms have played an important role in shaping the way humans conceive music. As nature's impact on music has been remarkable, water, has been especially appealing. In this chapter, I will trace the history of Western composers who have drawn inspiration from nature. Additionally, I will delve deeper into specific examples of water-inspired compositions from the nineteenth century, a time when artists felt an especially close affinity with nature. But first, I will consider the meaning and influence of water, since it is an important thread throughout this study.

I. Water: Source of Life and Inspiration

Of all the non-human aspects of nature, water has been such an important source of inspiration for the arts because it has taken on so many different positive meanings throughout history: religious, medicinal, therapeutic, and symbolic, to name a few. Water is a driving force of our planet and serves as a lifeline for all organisms. In some religions, the renewing process of water represents the cycle of life. Water is a symbol of devotion and purity, among other things. The Bible references water in many ways, from "water of life" in Revelations, to the Biblical flood, in which water was the ultimate power in cleansing sin and corruption. In Eastern philosophies, such as Chinese Taoism, water is the most powerful element. It can find passage around any obstruction, take the shape of whatever contains it, fill any hollow, yield to every protrusion, and erode rocks and mountains. Eastern philosophies suggest that by becoming lower

than anything else, water eventually becomes larger. For example, a trickling brook eventually finds its way to the vast ocean. Water's therapeutic effects are felt from infancy to old age, from the calming sound of running water, to the healing steam of a sauna.

Seventy-five percent of the Earth's surface is comprised of water. It is also the principal component of living matter: seventy percent of human body weight is made up of water. The average human can survive much longer without food than water. These facts designate water's crucial role in sustaining all life -- plants, animals, humans, or other life forms. Water is also a force more powerful and unpredictable than humans can control. Shifts in the environment can lead to catastrophic events such as droughts, hurricanes, floods, and other devastating disasters. An excess or minimal amount of water can also be responsible for the destruction of life.

Water's physical properties and visual appearances also contribute to its mysterious and alluring quality. Water exists in many shapes and states (e.g. liquid, solid, or gas), and this accounts for the myriad ways it has been depicted in literature, art, and music. Water also has a strong and varied acoustic presence. Its different states and forms produce many different sounds, including rushing waterfalls, torrent rivers, babbling brooks or streams, tapping raindrops, or even the blanketing silence of snow.

II. Nature's Remarkable Influence

In Greek Antiquity, Aristotle and Plato suggested that art should imitate nature. Aristotle believed that if art did not reflect an aspect of nature, it was not art. Thus, references to nature were significant in all the arts, from poetry and visual art depicting seascapes and landscapes, to non-human species. Artists in the sixteenth century were mainly inspired by two Greek ideas:

natura naturata, or created nature -- nature in the passive sense, and *natura naturans*, or creating nature -- nature in the active sense.[20] At this time, nature was considered to be a divine phenomenon, perfect in its "original" state. Thus, artists who chose such naturally appealing subjects, thought to create work of unsurpassed beauty. This inevitably led composers to convey natural phenomena through tone and word painting and onomatopoetic effects in the seventeenth, eighteenth, and nineteenth centuries.

Composers during the Renaissance often featured aquatic creatures such as nymphs, naiads, and sirens in their compositions. Guillaume Du Fay's motet *Salve flos tusce* (1436), for example, praises the maidens of Florence, comparing them to nymphs, naiads, Amazons, and Venus. Another work reflecting a water muse is Claudio Monteverdi's secular vocal work, *Lamento della ninfa* (1638).

Jean-Jacques Rousseau, well known for his belief that humans should go "back to nature," celebrated the influence of nature on the soul. He also championed the holistic view that humans are a part of nature, and that nature has always been a part of human music.[21] His view influenced eighteenth-century artists. Jean-Philippe Rameau depicted natural sounds in his operas and harpsichord pieces. In his opera *Hippolyte et Aricie* (1735), Rameau uses strings and flutes to portray a stormy sea and high winds. Handel's *Water Music* (1717), entitled as such because it was performed near water, is a site-determined outdoors work that foreshadows the

---

[20] John N. Deely, *Four Ages of Understanding: The First Postmodern Survey of Philosophy from Ancient Times to the Twenty-first Century* (Toronto: University of Toronto Press, 2001), 137.

[21] Allstair C. Crombie, *Science, Art, and Nature in Medieval and Modern Thought* (London: Hambledon Press, 1996).

site-determined work of such contemporary composers as Alvin Curran.[22] Haydn's *Creation* (1798) celebrates the Earth, bodies of water, and plant life among other things, and so also illustrates an affinity with the natural world. In the second section of this tripartite oratorio, Haydn commemorates the creation of sea creatures, birds, animals, and lastly, humanity. In No. 16, "Und Gott schuf grosse Walfische" [And God Created Great Whales], Haydn exploits symphonic textures to evoke the sound of water.

III. Nature in Nineteenth-Century Music

Many artists in the nineteenth century were drawn to nature. Embracing the irrational and imaginative, among other things, these artists were fascinated by nature's untamed and mysterious power. The Industrial Revolution and urbanization emphasized an opposition between humans and nature. Rapid population growth, the expansion of cities, mass production of goods, pollution, and stress on humans, to name a few factors, made people yearn for unspoiled nature. Thus, a deepening appreciation of non-urban natural environments became the overriding concern and artists looked to nature's supposed simplicity and solace for inspiration. As large bodies of water became increasingly polluted, many composers focused on natural appearances of water, seeking to evoke the essence or a pure image of water.

Composers such as Beethoven and Schubert musically evoked unspecified babbling brooks in "Scene by the Brook" of the *Pastoral Symphony* (1808) and the song cycle *Die schöne Müllerin* (1824), respectively. The grandiosity of specific rivers was reflected in such diverse

[22] See for example Alvin Curran's *Maritime Rites* (1979) for musicians, ship/fog horns, and other maritime sounds, which is a work to be performed on and near bodies of water.

compositions as Bedřich Smetana's programmatic symphonic poem *Vltava* from *Má Vlast* (1874-79), and Wagner's opera tetralogy *Der Ring des Nibelungen* (1847-1874). Along side this symphonic and operatic repertoire, composers such as Franz Liszt produced unique pieces for the piano that sought to depict water through an advanced harmonic language.

With the *Pastoral Symphony*, Beethoven created one of the best-known orchestral musical landscapes, which he, however, explained to be "more the expression of feeling than painting."[23] This symphony became a model for program music, one of the most important genres of musical expression in the nineteenth century. Beethoven's *Pastoral Symphony* reflects his deep affinity to nature. In a letter to Theresa Malfatti dated 1810, he writes, "How delighted I shall be to ramble for a while through the bushes, woods, under trees, through grass and around rocks. No one can love the country as much as I do."[24] The second very expansive movement, "Scene by the Brook," scored for a pair of flutes, oboes, clarinets, bassoons, horns, and strings is cast in a traditional sonata form. Capturing the relaxing and static character of such a scene, he uses the subdominant key of the symphony, with conservative excursions to other keys. Emphasis on the subdominant as opposed to the dominant accentuates the relative absence of tension characterizing this movement, giving it a more pastoral quality. The overall harmonic language is not highly chromatic, as compared to other Beethoven symphonies, and its slower harmonic rhythm fits well into the pastoral style. The movement's 12/8 time signature,

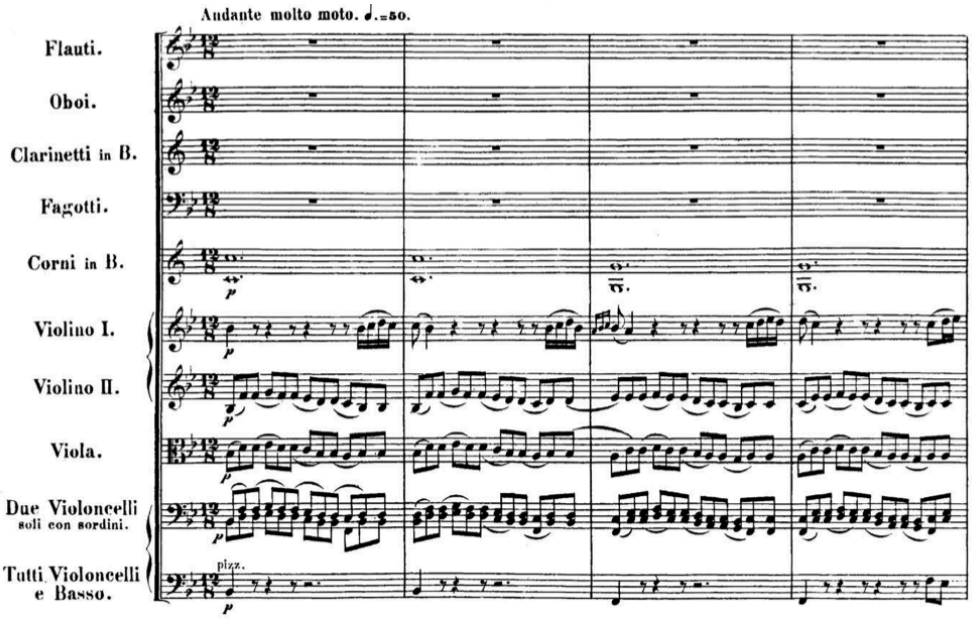
---

[23] Beethoven quoted in Emily Anderson ed., *The Letters of Beethoven* (London: St. Martin's Press, 1961), 273. This is probably a defensive statement because tone painting was considered "French trash" or "Frenchified trash" at this time, according to H.C. Robbins Landon in *Haydn: His Live and Music* (Bloomington: Indiana University Press, 1988), 316-337.

[24] Ibid.

essentially a lethargic 6/8, depicts the slow, wavelike motion of a murmuring brook. In this suggestive meter, Beethoven evokes the gentle flow of the stream orchestrally with continuous sextuplet motion in the accompaniment. The strings' undulating texture is a "musical metaphor for the endless flow of the brook."[25] On top of this oscillating texture, the slow-moving melody in the first violins and woodwinds depicts the course of the stream and the movement's overall repose (see Figure 1).[26]

Figure 1. Beethoven: *Pastoral Symphony,* "Scene by the Brook," mm. 1-4.



[25] David Wyn Jones, *Beethoven: Pastoral Symphony* (Cambridge: Cambridge University Press, 1995), 62.

[26] Ludwig Van Beethoven, Symphony No. 6 in F Major, Op. 68 "Pastoral" (Leipzig: Breitkopf & Härtel, 1863), 1.

Stylistically, this symphony illustrates several pastoral qualities such as its emphasis on the subdominant, slow harmonic rhythm, folk-like themes, repetition, use of pedals, and absence of rhythmic complexity.[27] Although several "idyllic" pastoral qualities are present in this symphony, this and many other pastoral works reflect an unspoiled image of nature, which is clearly a romantic view.[28]

A more extended programmatic illustration of water is Smetana's *Vltava.* This work depicts the river that runs through Prague towards its junction with the Elbe, the longest river in the Czech Republic. Smetana encourages an association by specifically entitling this piece and demonstrates, as musicologist Denise Von Glahn pointed out, "[that] places can inspire art, and [that] musical responses can, at some level, evoke those places."[29] With nationalistic zest, Smetana's musical tribute to the Vltava effectively suggests, through tone painting, the perceived greatness of his country. Although the Czech lands were not an autonomous nation at the time, Smetana is widely recognized as the founding father of Czech music. His style became closely identified with his country's aspirations to independent statehood.[30]

Smetana's scoring for large orchestra, including piccolo, four horns, two trumpets, three trombones, tuba, timpani, bass drum, triangle, cymbals, and harp, evokes the river's grandiosity.

---

[27] Ibid.

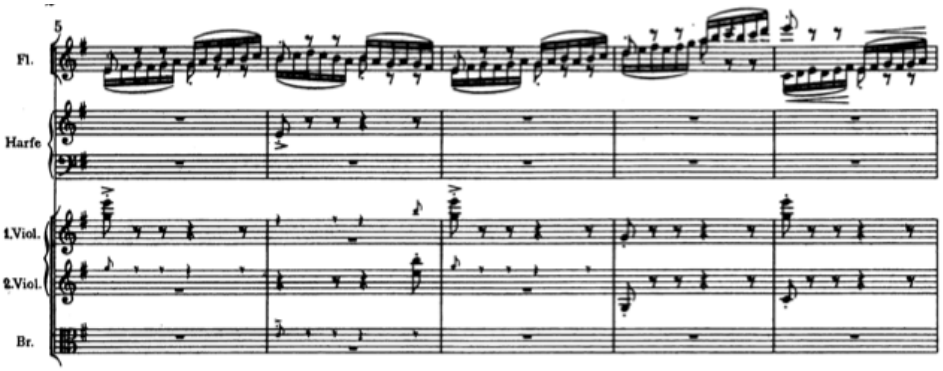
[28] For an in-depth discussion on the symphonic pastoral see Aaron S. Allen, "Symphonic Pastorals," *Green Letters: Studies in Ecocriticism* 15, no. 1(2011): 22-27.

[29] Denise Von Glahn, *The Sounds of Place: Music and the American Cultural Landscape* (Boston: Northeastern University Press, 2003), 2.

[30] Marta Ottlová, "Smetana, Bedrich," *Grove Music Online* (Accessed August 18, 2011).

At the beginning of this work, the flutes represent the first "cold" source, and soon after the clarinets introduce the second "warm" source. A dialogue makes its way to the lower strings until the first violins interrupt with the river's main theme in E minor. From the onset, the river's motion is felt in the swirling woodwinds written in 6/8 meter. Again, this duple meter evokes the undulating motion of the river; albeit faster than Beethoven's brook, it creates the same flowing effect (see Figure 2).[31]

Figure 2. Bedřich Smetana: *Vltava,* mm. 5-9.



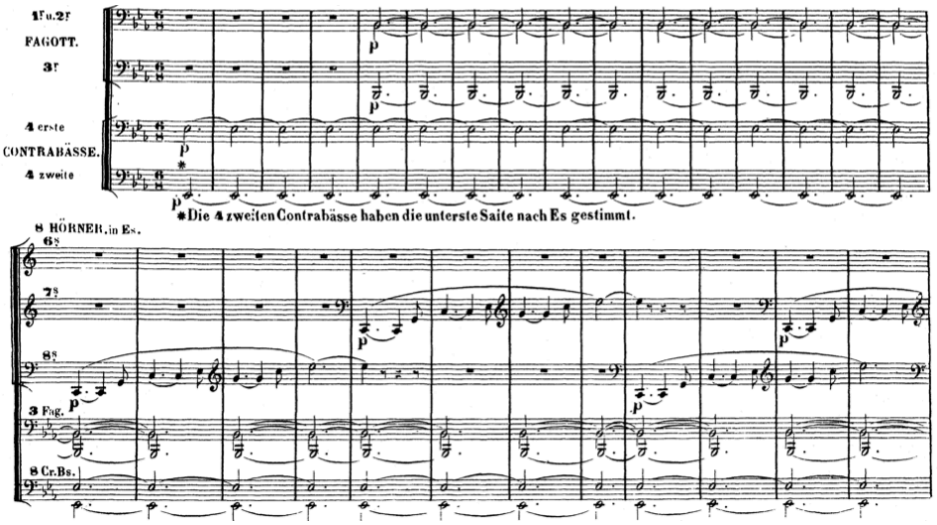
Smetana's orchestration, the texture's contrapuntal motion, and meter all contribute to a vivid though idealized depiction of the Vltava. At the time of the work's genesis, this river was not devoid of water pollution due to population growth and heavy industry. Many factories with their consequent pollution were located by rivers, including the Vltava.

Wagner depicts the expansiveness of the Rhine River in his opera tetralogy *Der Ring des Nibelungen*. The grandiosity of the entire work is foreshadowed in the prelude to the first opera *Das Rheingold* with 136 measures of static harmony devoted solely to E-flat major. It suggests

[31] Bedřich Smetana, *Má Vlast* "Vltava" (Leipzig: Breitkopf & Härtel, 1930), 2.

the depths and original purity of the Rhine River. The basses begin quietly and sustain an E-flat. Five measures later the bassoons enter on B-flat. This open fifth creates a "hollow" sounding sonority and sets the stage for the eight horns to enter in canon.[32] The horns each enter on an ascending dotted rhythm that successfully imitates the motion of a flowing river. The static opening provides great contrast to the rolling motion of the waves heard first in the cellos, and subsequently in the upper strings. The overall texture builds in tension with each additional layer. By the end of this massive E-flat crescendo, Wagner has effectively evoked the vastness of the Rhine (see Figure 3).[33]

Figure 3. Richard Wagner: *Das Rheingold,* mm. 1-28.



[32] Thomas May, *Decoding Wagner: An Invitation to His World of Music Drama* (Pompton Plains: Amadeus Press, 2004), 119.

[33] Richard Wagner, *Der Ring des Nibelungen,* "Das Rheingold" (New York: G. Schirmer, 1985), 1.

In a larger sense, Hunter G. Hannum's eco-critical reading of this music drama suggests that this work portrays environmental destruction.[34] He argues that this opera cycle points to crimes against nature, the theft of the Rhine's gold, a natural resource, and that the characters' power struggle and undermining of the earth's balance, consequently, end in destruction.[35] In short, humanity's greed and quest for the earth's resources, wealth, power, and world domination ultimately destroy human beings along with nature in an ecological collapse through fire and flood at the end of this tetralogy. Although Wagner's mythic story might seem decorative and fanciful to some, it critiques the anthropocentric view of nature that is all too common today.

More intimate representations of water in the nineteenth century are also prevalent. Water-inspired music for voice and piano can be traced at least since Schubert's Lieder through Liszt's song transcriptions and solo piano works. Schubert wrote numerous Lieder that contain musical references to water.[36] From songs depicting a spring or brook, such as "Der Jüngling an der Quelle" (1821) or the song cycle *Die schöne Müllerin*, to songs portraying vast oceans such as "Meeres Stille" (1815) or "Am Meer" (1828). He also wrote a variety of music with characters whose lives are entangled with water, such as the fisherman in "Der Fischer" (1815), or the boatman in "Der Schiffer" (1820). Six of twenty songs in *Die schöne Müllerin* illustrate his aptitude for pianistic water imagery including the sounds of a babbling brook. A wavelike

---

[34] For more information on this eco-critical reading of Wager's Ring Cycle, please see the following online publication: Hunter G. Hannum, "Wagner and the Fate of the Earth: A Contemporary Reading of The Ring," *New Economics Institute* (2001): 1.

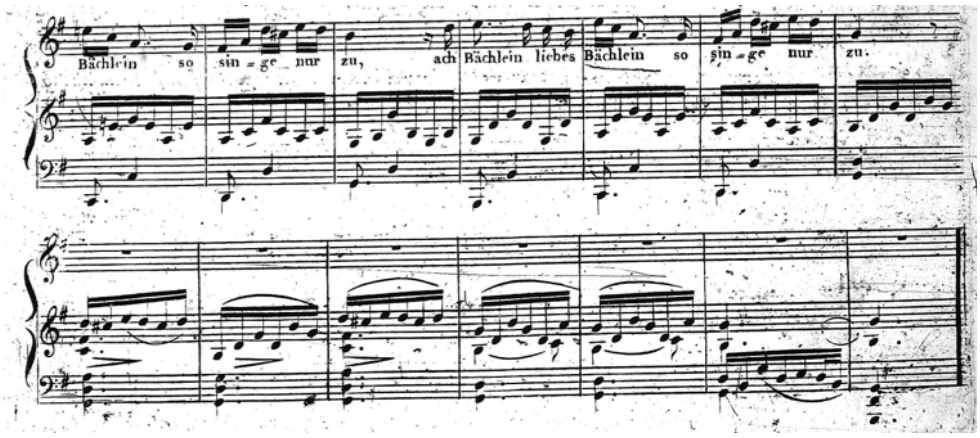
[35] Ibid., 3.

[36] Over forty Schubert Lieder contain musical references to water. For a more complete list, see John Reed's *The Schubert Song Companion* (Manchester: Manchester University Press, 1985).

melodic motion can be seen throughout the song cycle; however, some songs deal with the brook more explicitly. Schubert's treatment of the brook in song number nineteen, "Der Müller und der Bach" [The Miller and the Brook], illustrates his talent for transforming piano accompaniments into soundscapes that capture the nature of water.

In the first section of this tripartite and through-composed song, the miller expresses his misery to the brook in G minor while the piano drones a fifth on a G minor harmony. This opening is somber and the supporting chord's uneven rhythm reflects the miller's uneven state of mind. In the second more optimistic section in G major, the brook speaks to the miller and the brook's presence is emphasized with continuous undulating motion in the right and then in the left hand, creating a sense of balance and stability.

Figure 4. Schubert: *Die schöne Müllerin* "Der Müller und der Bach," last 13 mm.



In the final section, Schubert imposes the miller's despair over the voice of the brook. Towards the end of this section, the voice imitates the undulating motion in the piano, although

more chromatically, and ends on a G major sonority (see Figure 4).[37] The miller eventually surrenders to the brook and pleads, "dear brooklet please just sing on." The brook's rippling motion, gradually moving lower in register, suggests the young man sinking to his death in the water. This points to an ecological relationship since all living beings inevitably become one with nature. In "Der Müller und der Bach," Schubert's emphasis on musical expressivity sets the stage for his successors to explore new methods of musical expression. With such a wide variety of songs depicting water, Schubert's hand in establishing a piano repertoire in this vein cannot be ignored.

Liszt transcribed a variety of water-inspired songs by Schubert for the piano. Some of Liszt's most notable original water pieces include *Au bord d'une source* [Beside a Spring] (1830s), *St. François de Paule marchant sur les flots* [St. Francis of Paola Walking on the Water] (1863), and *Les jeux d'eaux à la Villa d'Este* [Fountains of the Villa d'Este] (1867-77).

Liszt's inspiration for *Jeux d'eaux* came from the magnificent fountains at the Villa d'Este in Tivoli near Rome, where he sojourned on numerous occasions.[38] *Jeux d'eaux* belongs in the third book of the *Années de pèlerinage* [Years of Pilgrimage] and showcases Liszt as an innovative composer. In this work, Liszt uses advanced harmonic language, elaborate figurations, and the piano's vivid coloristic capabilities to represent the fountains at the Villa

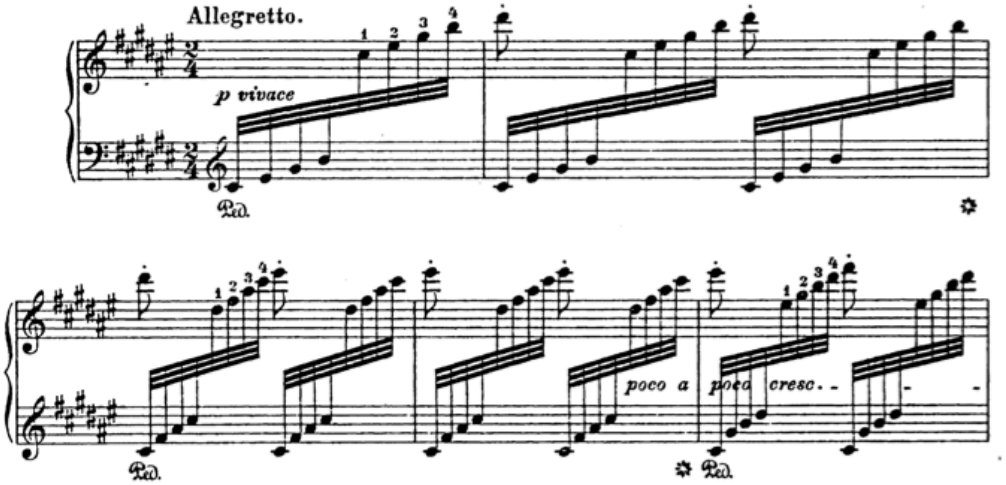
---

[37] Franz Schubert, *Die schöne Müllerin,* "Die Müller und der Bach" (New York: G Schirmer, 1895), 51.

[38] Ian Bradley, *Water Music: Making Music in the Spas in Europe and North America* (New York: Oxford University Press, 2010), 25.

d'Este. The piece's striking beginning includes a series of diatonic arpeggiated seventh chords to suggest the upward motion of water spouting from a fountain (see Figure 5).[39]

Figure 5. Franz Liszt: *Les jeux d'eaux à la Villa d'Este,* mm. 1-5.



Throughout the work Liszt avoids tonality-defining language and instead uses more static harmonies. After this ten-bar opening, the musical fountain settles down, gradually lowering in register and dynamic. Liszt often uses a tremolo, which creates the image of bubbling water, a figuration that permeates this work. He also employs a rapid sixteenth-note motive in a high register, which evokes the image of splashing water. After the culmination in measure 214, Liszt uses the lower range of the piano and thus evokes the fountain's majestic quality. *Les jeux d'eaux* ends tranquilly with several restatements of the main theme. Every measure in *Les jeux d'eaux* is teeming with water imagery. Liszt's novel language in this piece not only suggests the

[39] Franz Liszt, *Années de pèlerinage,* "Les jeux d'eaux à la Villa d'Esta" (Leipzig: Breitkopf & Härtel, 1916), 22.

effervescent quality of the fountains at the Villa d'Este, but also provides an example of unique compositional techniques for later composers to follow.

IV. Musical Evocations of Water in the Twentieth Century and Beyond

In the early twentieth century, new technologies, increased communication, an expanding economy, and new artistic movements helped facilitate rapid change in the arts. Symbolist poets, for example, vaguely alluded to water imagery rather than describing nature directly. Painters sought to capture impressions of light and atmosphere, rather than depicting nature images traditionally. Composers continued to write tonally, but many expanded their compositional languages.

Ravel paid homage to Liszt in his own fountain piece *Jeux d'eau* [Water Fountains] (1901). Ravel stated:

> *Jeux d'eau,* inspired by the noise of water and the musical sounds emitted by fountains, waterfalls and streams, is based on two themes, on the model of a sonata first movement, but without conforming to the classical plan of key relations.[40]

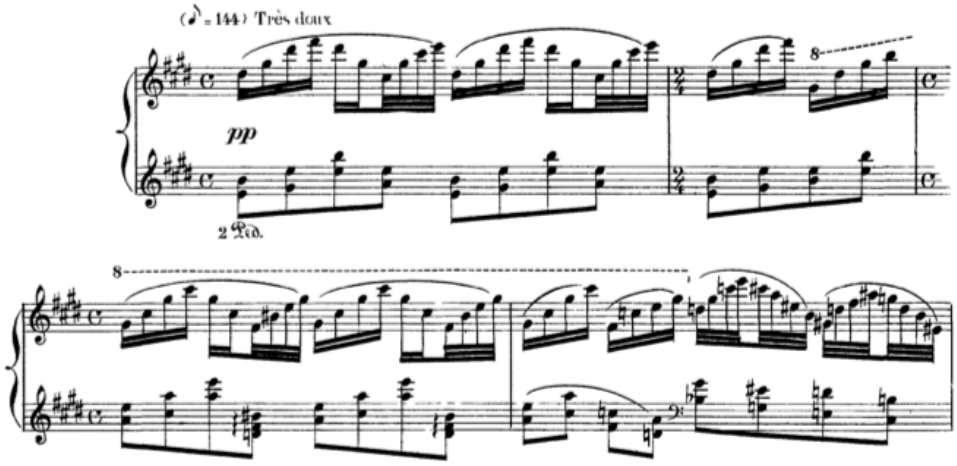
Ravel expresses fluidity in *Jeux d'eau*, most prominently, with colorful melodic elements and harmonies, such as pentatonic, octatonic, whole-tone, and semi-tone scales, and with irregular rhythmic patterns, a broad range of registers, dynamics, and a new formal design. The subtle opening of this piece effectively conveys the delicate aspect of water. The pianissimo dynamic

---

[40] Maurice Ravel quoted in Rollo H. Myers, *Ravel: Life and Works* (Westport, CT: Greenwood Press, 1960), 156.

coupled with the fluid motion of alternating E/A major seventh sonorities, evokes the essence of water (see Figure 6).[41]

Figure 6. Maurice Ravel: *Jeux d'eau,* mm. 1-6.



Ravel features rapidly moving sextuplets, which brings to mind Liszt's use of rapid sixteenth notes; both figurations imitate the sound of delicately splashing water. Ravel showcases the piano's upper registers to enhance this image. Following Liszt's example, Ravel blurs tonality, which is especially evident in the cadenza where he employs nondiatonic pitch collections.[42] Ravel uses Stravinsky's famous "Petrushka chord" to create water-like sounds that give this piece its character. Steven Baur notes that because *Jeux d'eau* was composed ten years earlier than *Petrushka* (1911), Igor Stravinsky may have picked it up from Ravel:

---

[41] Maurice Ravel, *Jeux d'eau* (New York: G. Schirmer, 1985), 1.

[42] Steven Baur, "Ravel's "Russian" Period: Octatonicism in His Early Works, 1893-1908," *Journal of the American Musicological Society* 52, no. 3 (Autumn 1999): 564.

> Ravel drew heavily and consistently from the harmonic practices of the nineteenth-century Russian composers as manifested in the ubiquitous mediant and tritone relationships that pervade his early works. The *Petrushka* chord in *Jeux d'eau* is an extension of those practices.[43]

Integral in capturing the fluidity of water is Ravel's treatment of rhythm and meter. As compared to Liszt, Ravel takes many more liberties in this respect. Ravel changes meter often, from 4/4 to 2/4 and even to 3/4, whereas Liszt, although blurring the pulse by phrasing over the bar lines, stays in a duple meter. Both composers use smaller note values in abundance, which helps imitate the rapid, irregular and fluid motion of water. Though several parallels can be drawn from these water pieces, Liszt's first explorations of water imagery undoubtedly influenced Ravel to expand this new language and ultimately take music into a new sonic realm.

Many other twentieth-century composers sought to evoke water, among them Claude Debussy, Ralph Vaughan Williams, Arnold Schoenberg, and Charles Ives, to name a few. Debussy conjured up the sea in his orchestral work *La Mer* (1905). Although there is not an explicit program, descriptive titles of each movement suggest oceanic activity. Other composers used the sea as a setting, such as in Vaughan Williams's one-act opera *Riders to the Sea* (1937). In this short opera, Vaughan Williams depicts stormy weather and the struggle of man against nature. Schoenberg experiments with instrumental color, taking his inspiration from a lake, in the third movement of his Five Pieces for Orchestra (1909/1949), entitled "Farben" [Colors]. Ives, a lover of nature and deeply influenced by the Transcendentalist movement, wrote the song "The New River" (ca. 1912), which conveys an eco-critical message. The setting suggests a peaceful river soundscape, which is suddenly overshadowed by the loud noises made by modern society.

---

[43] Ibid.

In his tone poem “The Housatonic at Stockbridge” from *Three Places in New England* (1903-1914), Ives evokes mist and running water, musically, by use of ostinatos, static harmonies, and shimmering effects in the strings, to name a few devices, and produces strikingly realistic impressions of water sounds.

A wide variety of musical approaches and relationships between composers and nature exist, but few examples reveal an ecocritical tendency. This perspective changes in the second half of the twentieth century and, in addition, the stylistic palette broadens due to technological innovations.

CHAPTER 3: NEGOTIATING MUSIC, POLITICS, AND TECHNOLOGY: MUSICAL DEVELOPMENTS IN RECENT DECADES

From the second half of the twentieth century into the present, composers created much music inspired by nature, but an increasing number have reflected environmental disasters and deterioration in their work. The composers' outlook on nature has changed, as well as their choices of compositional means. To better understand why many composers have taken such an interest in environmental degradation, I will first elucidate aspects of the environmental awakening and philosophies that have had a special impact on musicians. I will then illustrate how selected composers of the recent past and present have paid musical tribute to nature, specifically regarding its preservation. Lastly, I will elaborate on some of the emerging technological means by which male and female composers have created this music.

The environmental movement gained traction in reaction to industrialization, the growth of cities, and thus, air and water pollution. Disastrous events such as the 1952 Great Smog of London or the regular occurrence of oil spills all over the world have caused much concern and created a need for major solutions. Water-related problems such as water scarcity and contamination have also become a growing concern in the second half of the twentieth century. In 1998, twenty-eight countries experienced water stress or scarcity. This number is expected to rise to 56 by 2025.[44] Water use has long been a major sustainability issue in Africa, the American West, and Australia, the residence of composer Leah Barclay. During times of drought, water restrictions in Australia apply to conserve water. Australian waterways are also facing environmental issues such as contamination, water degradation, and salinity, to name a few.

---

[44] Mark De Villiers, *Water: The Fate of Our Most Precious Resource* (New York: Houghton Mifflin, 2000): 17.

Water pollution is often due to careless use of technologies and greed. In the United States, the 2010 Deepwater Horizon oil spill in the Gulf of Mexico has been a poignant reminder of that fact. Several documentaries even point to the disturbing fact that water is taking over oil as our scarcest natural resource.[45] Further, deforestation and mining have destroyed the capabilities of water catchments to retain water. The growing use of fossil fuels has led to atmospheric pollution and climate change, and thus is responsible for recurrent floods, cyclones, and drought.[46]

Women as eco-pioneers have played significant roles in exposing environmental degradation. In the United States, Ellen Swallow Richards researched river and stream pollution in the 1870s and Alice Hamilton conducted studies on lead and mercury poisoning in the 1890s. Seven decades later, Rachel Carson's 1962 book *Silent Spring*, which documented the disastrous environmental and health effects of the pesticide DDT, was one of the most important early studies to heighten the awareness of environmental issues. These and many other women paved the way for what became known as ecofeminism in the 1970s.

The early 1970s was a significant time regarding the history of environmentalism. In 1970, American President Richard Nixon founded the Environmental Protection Agency, authored the Water Pollution Control Act (Clean Water Act of 1977), and banned the toxic pesticide DDT. Alongside these acts, important activist groups such as the Friends of the Earth

---

[45] Such documentaries include *Flow: Love of Water,* DVD, directed by Irena Selena (Oscilloscope Pictures, 2008); and *Blue Gold: World Water Wars*, DVD, directed by Sam Bozzo (Purple Turtle Films, 2009), among others.

[46] Vandana Shiva, *Water Wars: Privatization, Pollution, and Profit* (Cambridge: South End Press, 2002): 1-9.

and Greenpeace formed to raise awareness about environmental issues such as commercial whaling. In increasing numbers, artists joined these initiatives.

I. Environmental Philosophies

Among the branches of environmentalist thought, Deep Ecology and bioregionalism have had a special impact on musicians. The Norwegian philosopher Arne Naess coined the term Deep Ecology in the early 1970s. He believed that the right to live is a universal right, which cannot be quantified. Deep ecologists value all living species, and believe that the living environment (human and non-human) should have equal rights to live and prosper.[47] Deep ecologists seek to develop this point of view by focusing on deep experience, deep questioning, and deep commitment. Such composers as John Luther Adams, David Dunn, Laurie Spiegel, Annea Lockwood, and Leah Barclay have shown an affinity with deep ecological thought.

Bioregionalism highlights the unique ecology of a certain region by encouraging the consumption of local foods, the use of local materials, and the cultivation of native plants.[48] Ultimately, this kind of environmentalist thought encourages sustainability, especially within a region. Culturally, native arts of a particular region are nurtured and appreciated and thus its association with and preservation of that specific life form or place are encouraged. Adams, Dunn, Richard Lerman, and Spiegel have created many musical works reflecting bioregionalist ideas.

---

[47] For an in-depth discussion on "Deep Ecology" see David Rothenberg, *Ecology, Community, and Lifestyle* (New York: Cambridge University Press, 1993).

[48] For more information on "Bioregionalism" see Michael Vincent McGinnis, *Bioregionalism* (London: Routledge, 1998).

Ecofeminism or ecological feminism, a highly complex idea, is a merging of ecological and feminist concerns. Françoise d'Eaubonne introduced the term ecofeminism in 1974 to draw attention to women's past achievements and environmental potential for bringing about an environmental revolution. Ecofeminists share a basic belief in a special connection between women and the natural world. Some argue that this connection is rooted in women's history of oppression by a patriarchal society.[49] Deep ecologists and ecofeminists both desire to replace anthropocentric environmental concepts, and in this way are connected. Some ecofeminists, such as Rosemary Radford Ruether and Karen J. Warren, have argued that the goals of both the women's movement and the environmental movement are mutually reinforcing because they promote worldviews and practices that are not based on domination. In 1975, Ruether wrote in her book *New Woman, New Earth:*

> Women must see that there can be no liberation for them and no solution to the ecological crisis within a society whose fundamental model of relationships continues to be one of domination.[50]

Many subsequent feminist authors have believed that there are important connections between feminism and environmentalism, an appreciation of which is essential for the success of both the women's movement and environmental movement. Deep associations between women and nature continue to exist in many cultures. An essentialist argument might attribute this to biological factors, or from a position that explains it as a social construct. Vandana Shiva claims

---

[49] Heather Eaton, *Introducing Ecofeminist Theologies* (New York: T & T Clark International, 2005): 30-31.

[50] Rosemary Radford Ruether, *New Woman, New Earth: Sexist Ideologies and Human Liberation* (New York: Seabury Press, 1975): 204.

that women have a special connection to the environment through their daily interactions with it.[51] Some radical or cultural ecofeminists argue that women possess a biological connection or spiritual affinity with nature that men do not.[52] However, the interconnectedness of life, a belief held by innumerable cultures, suggests that one group of people cannot be closer to nature than another. Nonetheless, the numerous nature-inspired compositions of post-World-War II women composers including Lockwood, Beglarian, Barclay, Pauline Oliveros, Maggi Payne, and Spiegel may be understood in light of ecofeminist thought.

Great environmentalist thinkers, such as Henry David Thoreau, Aldo Leopold, and James Lovelock, have also influenced composers. In the mid-1800s, transcendentalists such as Ralph Waldo Emerson, Thoreau, Nathaniel Hawthorne, and the Bronson Alcott family, among others, shared a deep affinity with nature, and inspired others to hold the same kind of reverence for the natural world. Thoreau, in particular, was an early environmentalist whose major work *Walden* (1854), anticipated developments in environmental philosophy. His writings became very popular among such composers as John Cage, Dominick Argento, and Victoria Bond. In the 1970s, Leopold, whose works are considered the foundation of the science of wildlife management, was dedicated to finding the balance of nature and our relationship to its preservation. He inspired Bond among other composers. The Gaia Theory, developed by chemist Lovelock in the 1960s, proposes that all organisms and their inorganic surroundings on earth are closely integrated to form a single and self-regulating complex system, which greatly affects the

---

[51] Vandana Shiva, *Staying Alive: Women, Ecology, and Development* (London: Zed Books, 1988).

[52] Greta Gaard, *Ecofeminism: Women, Animals, Nature* (Philadelphia: Temple University Press, 1993): 22.

chemistry and conditions of earth's surface. The Gaia Theory has inspired ideas for economic systems, scientific inquiry, and artistic work by composer Libby Larsen and others.

II. Ecologically Conscious Music

Some of the earliest composers who wrote ecologically conscious music include Ives, Ravel, and Percy Grainger. Ives was deeply influenced by the Transcendentalist movement. As mentioned before, in his song "The New River" (ca. 1912), Ives criticizes humans' indifference toward nature, especially modern society's acoustic pollution of a quiet river soundscape. Ravel, who honored nature in many of his works, wrote an entire opera, *L'Enfant et les sortilèges* (1917-1925), based on an ecological message: the importance to respect nature and animals and grant them their freedom. Grainger's *Jungle Book* cycle (1898-1947), based on Rudyard Kipling, is a protest against civilization. Among its songs, "Tiger-Tiger" highlights this species' endangered status, and likewise, "The Beaches of Lukannon" calls attention to the, at that time, over-hunted white seal.

Since the 1960s composers around the world have increasingly addressed the role of sound in encouraging environmental and ecological awareness in music. In the late 1960s, Canadian composer R. Murray Schafer initiated studies in Acoustic Ecology at Simon Fraser University, British Columbia, to investigate sounds occurring in natural and built environments. Schafer coined the term "soundscape" to describe a sound or a combination of sounds that forms or arises from any environment.[53] Acoustic ecology focuses on the relationship between sound and the environment. Critically observing "noise pollution" in Vancouver, Schafer began

---

[53] R. Murray Schafer, *The Tuning of the World* (New York: Knopf, 1977): 131.

teaching a course about urban and industrial sonic pollution.[54] In 1971 Schafer and some of his followers developed the World Soundscape Project, dedicated to the recording and examination of the sonic environment, which emphasized the importance of listening to the environment to foster more balanced sonic landscapes. Musically, this ideal manifests itself in the form of soundscape composition, a form of electroacoustic music, and it is best described as "the presence of recognizable environmental sounds and contexts."[55] Schafer believes that the composer plays an integral role in helping create a soundscape awareness in listeners.[56]

Adams, Barclay, Dunn, Lerman, Lockwood, and Hildegard Westerkamp can all be considered soundscape composers, at least in part, because they study the sounds of a specific environment, and then create a work that best represents each place. Lockwood and Barclay's soundscape works will be explored more thoroughly in the following chapters.

Adams's oeuvre is almost entirely nature and place related and his music expresses a spiritual connection to his home, Alaska. Adams settled there in 1978 and fully immersed himself in this environment before composing *Earth and the Great Weather* (1989-1993). This piece, a good example of bioregionalism, was inspired by the landscapes of the Arctic National Wildlife Refuge for whose preservation he lobbied. In the 1970s Adams used specific stylistic elements to portray the vast openness of Alaska, inserted indigenous words for natural phenomena, and wove

---

[54] Schafer was challenged by Ari Y. Kelman in "Rethinking the Soundscape: A Critical Genealogy of a Key Term in Sound Studies," *Senses and Society* 5, no. 2 (2010): 212-231.

[55] "Soundscape Composition," http://www.sfu.ca/~truax/scomp.html (Accessed November 10, 2011).

[56] Martijn Voorvelt, "The Environmental Element in Barry Truax's Compositions," *Journal of New Music Research* 36, No. 1 (1997): 50.

in and recorded environmental sounds from the Alaskan environment.[57] He has also concerned himself with environmental threats related to climate change, such as melting glaciers, receding sea ice, erosion of costal land and wildfires in such works as *Dark Waves* (2007) for orchestra and tape, which was written in reaction to hurricane Katrina.

Richard Lerman, an Arizona-based composer, uncovers the musicality of natural sound sources of the Southwestern desert such as indigenous plants and insects. Lerman primarily works with inexpensive technology such as self-built piezo disks (piezoelectric transducers-small, flat pieces of metal) to amplify small sounds.[58] By enhancing the sounds of small creatures and plants, or otherwise inaudible life forms, Lerman "chang[es] our human sense of scale" and thus encourages a non-hierarchical ideal, sympathetic with the deep ecology movement.[59] Some of his works also reflect bioregionalism, *Sonora* (2001) and *Desert Pieces* (2008), in that he uses the native sounds of each place. In *Sonora*, Lerman uses his piezo disks in a field recording of the Sonoran Desert, amplifying hundreds of desert ants walk over the contact microphones. A bass clarinetist improvises over this recorded sonic environment. Other sounds in this piece include rain on the needles of a saguaro cactus, wasps spinning around in the sand,

---

[57] Sabine Feisst, "Music as Place, Place as Music: The Sonic Geography of John Luther Adams," *The Farthest Place: The Music of John Luther Adams,* ed. Bernd Herzogeurath (New England: University of New England Press, 2011), 23-47.

[58] David Rothenberg and Marta Ulvaeus, eds., *The Book of Music and Nature: An Anthology of Sounds, Words, Thoughts* (Middletown, CT: Wesleyan University Press, 2001), 243.

[59] Ibid.

carpenter bees, and the rustle of small red weeds.[60] Lerman calls attention to creatures and plants that might otherwise be overlooked.

Based in New Mexico, David Dunn sees his work as "a philosophical quest to listen to nature more deeply."[61] In *Chaos and the Emergent Mind of the Pond* (1990) Dunn recorded sounds made in vernal pools in North America and Africa.[62] Recorded entirely underwater, Dunn calls attention to the "amazing complexity and apparent intelligence" of water beetles in the *Berosus* family.[63] In this work, Dunn highlights the beauty and complexity of these otherwise unheard sounds. The sound sources heard in this recording are the "faint sounds [emitted] under water for purposes of warning and mating."[64] Dunn came to recognize a pattern in these sounds, and believes that these sounds are "an emergent property of the pond: something that speaks as a collective voice."[65] He expresses how "we usually associate the intelligence of life forms with how big they are or with their proximity to us on the evolutionary tree."[66] In other words, Dunn reminds us that often nature affords more complexity.

---

[60] Ibid.

[61] David Rothenberg, "Nature in Music," *NewMusicBox* 13 (January 2004): not paginated.

[62] Dunn uses a pair of omnidirectional hydrophones.

[63] Rothenberg and Ulvaeus, eds., *The Book of Music and Nature*, 106.

[64] Ibid.

[65] Ibid.

[66] Ibid.

Many women composers have expressed their appreciation of and respect for the environment through composition, and are thus aligned with eco-feminist ideals. One of Schafer's most important protégés, Hildegard Westerkamp, extensively explores aspects of the acoustic environment (urban and wilderness soundscapes) in her work. Westerkamp is credited with developing the practice of Soundwalking, which she sometimes uses as a component of composition, as well as a listening practice. Soundwalking is best described as "any excursion whose main purpose is listening to the environment."[67] Westerkamp believes that environmental sound can be understood as a type of language, and that each soundscape has something to say.[68] She is primarily concerned with the ecological balance of our planet and believes that a soundscape composition makes these issues audible.[69] In *Beneath the Forest Floor* (1992), a two-channel tape work recorded in the Carmanah Valley on Vancouver Island, Westerkamp encourages listeners to visit a place like Carmanah (half of which has been destroyed by clear-cut logging). Much of Westerkamp's work leans towards this kind of gentle activism and calls attention to the much-needed balance of a healthy ecosystem.

In the 1970s Pauline Oliveros developed a new musical practice based on intense "sonic awareness," which is the ability to consciously focus attention on environmental and musical sound. Much of her creative activities focus on improvisation, heightened sonic awareness, and

---

[67] Andra McCartney, "Soundwalk in the Park," *Musicworks* 33, no. 72 (1998): 7.

[68] Hildegard Westerkamp, "Linking Soundscape Composition and Acoustic Ecology," *Organised Sound* 7, no. 2 (2002): 1.

[69] Hildegard Westerkamp, "The Local and Global 'Language' of Environmental Sound," presentation at *Sound Escape: An International Conference on Acoustic Ecology* (July 2000): not paginated.

innovative uses of music technology. Since the 1980s, she has taught the philosophy and practice of Deep Listening, which requires alertness and an inclination towards persistent listening. This state allows musicians and non-musicians to connect with each other and their environment, which paved the way for other musicians to explore ecological listening and music making.[70]

Libby Larsen wrote an entire mass for the Earth, *Missa Gaia* (1991-1992). The composer notes:

> Mass for the Earth is a creed for our times. The form and spirit of the traditional mass combined with words that speak of human beings' relationship to the Earth. I am reminded that the human notion of dominion over nature is only that, a notion. The truth is that the Earth lets us live with it.[71]

This thirty-five minute work is scored for mixed choir, soprano solo, oboe, percussion, string quartet, and four-hand piano. The texts are drawn from the Bible, Native American poets, and medieval mystics. A circular theme pervades the work, which represents our relationship to the Earth.

Victoria Bond's *Thinking Like a Mountain* (1994) is an orchestral tribute to Leopold's vision of balance in nature. This work is scored for narrator and orchestra, and the text is taken from Leopold's essay "Thinking Like a Mountain" from *A Sand County Almanac* (1944), a book on nature and the environment. Bond chose this seminal essay to "paint a portrait of a mountain" but instead of imitating natural sounds, this piece "gives voice to a natural order built on the

---

[70] Sabine Feisst, "Oliveros, Pauline" *The New Grove Dictionary of American Music*, second edition, edited by Charles Hiroshi Garrett, forthcoming.

[71] "Libby Larsen," http://libbylarsen.com (Accessed December 10, 2011).

primary elements of acoustics."[72] Bond was also influenced by the work of Thoreau and her music is filled with sounds inspired by nature.

Other women composers advancing ecological awareness include Kristi Allik, Ros Bandt, Emily Doolittle, Joan La Barbara, Cécile Le Prado, Andra McCartney, Maggi Payne, Andrea Polli, Laurie Spiegel, Mariolina Zitta, and Ellen Taaffe Zwilich, among countless others.

III. Music Technology and Nature

Soundscape composers use technology as a necessity to capture sonic environments. This technology requires electricity and energy to work, perhaps creating a philosophical paradox. However, documenting the sounds of endangered species, pristine bodies of water, and so on, can help bring awareness to an otherwise unknowing audience. With modern technology, composers can go straight to the source and document the environment's musical voice. Recording technology enables artists to include nature and environmental sounds in their work. Although, ecologically speaking, this creates a conflict because the sound is divorced from its environment once it is on tape, it is a necessary technology devoted to a greater purpose. David Rothenberg suggests that if "technology relates user and context in an ecological, symbiotic way," it can broaden awareness and bring humans closer to nature.[73] Its contribution to the betterment of our environment arguably offsets modern society's carbon footprint.

---

[72] "Thinking Like A Mountain," http://www.victorabond.com (Accessed December 10, 2011).

[73] Please see the online publication: David Rothenberg, "Deep Technology," *Wired Magazine,* October 1995 (Accessed October 30, 2012): 1.

Much exploration of music technology and electro-acoustic composition has been undertaken since the 1960s. Among the female pioneers in electronic and electroacoustic music are Ruth Anderson, Oliveros, Daphne Oram, Daria Semegen, and Spiegel, and although some of these women have received reasonable recognition, the majority have remained obscured and thus their contributions to this field are largely unknown. Oliveros contributed significantly to the growth of music technology in California during the 1960s and 1970s and her success in using modern technology continues today. Her Telematic Circle, for example, is an interest group that uses and develops applications that specifically addresses broadband transition systems as a new medium.[74] Spiegel has worked extensively in computer graphics and even developed "Musical Mouse*,"* an algorithmic composition software. Other electroacoustic composers, among them Beglarian, Lockwood, Priscilla McLean, and Payne, have ventured into the realm of multimedia and other technologies to realize their artistic visions.

Moreover, certain stereotypes exist regarding the manner in which women and men use technology in their compositions. In reaction to women's marginalized role in the technological arena, Elizabeth Hinkle-Turner argues, "while women use technology because it enables them to realize their compositional ideas, their male colleagues seem to spend considerable time just fooling around and playing with new equipment."[75] Although this claim might aim to level the playing field, it more obviously negates a more significant issue. Although it is important to highlight women and their contributions to music and technology, especially in regards to the

---

[74] Sabine Feisst, "Oliveros, Pauline."

[75] Elizabeth Hinkle-Turner, *Women Composers and Music Technology in the United States* (Burlington, VT: Ashgate, 2006): 250-251.

stereotypical notion that technology is considered male territory, the higher purpose is to highlight female *and* male composers who use technology as a tool to relay a more significant message: environmental and ecological awareness. In her article "I recycle sounds: Do Women Compose Differently," Eva Rieger suggests that "male composers are changing their attitudes towards the role of music in society." Perhaps some men have taken the lead from an eco-feminist aesthetic, but more importantly, the underlying objective regarding a deep concern for the environment and a well-balanced ecosystem, unites both men and women.

In the following three chapters, I will look at selected environmentally inspired works of three female composers, who each express their relationship with nature in different ways. Lockwood captures the voice of the Hudson and Danube Rivers and speaks to her audience through the sonorities of water, the river's inhabitants, the voices of people living nearby, and other ambient sounds of nature and life near the river. Perhaps influenced by Lockwood, Beglarian traveled down the Mississippi River, which motivated her to write an abundance of new music, drawing inspiration from her environment as well as communities she encountered. Australian composer Leah Barclay illustrates her deep affinity with nature in her recent sound installation *Sound Mirrors,* a response to significant rivers worldwide. Barclay traveled through Australia, India, Korea, and China, documenting the sounds of rivers and their surrounding communities. These three women born in different countries, New Zealand, the United States, and Australia, represent three generations of artists who share a fascination with rivers and seek to advance environmental awareness.

CHAPTER 4: ANNEA LOCKWOOD: COMPOSING THE DANUBE RIVER

Many artists have been inspired by and thus written music that pays homage to great rivers. As mentioned earlier, Smetana, in his symphonic poem *Vltava* (1875) evoked the Moldau river in its entirety. A few composers have paid tribute the great Danube River. Among them, Johann Strauss II, in his waltz *The Blue Danube* (1866), Ivan Ivanovich, in his popular Romanian waltz *The Waves of the Danube* (1880), and more recently, Annea Lockwood (b. 1939), in *A Sound Map of the Danube River* (2005), a tape recording representing the river's entire expanse. Lockwood took the idea of composing a work about a river to a new level, using techniques of musique concrète. With technology, Lockwood went straight to the source and captured the river's musical voice. In her work since the early 1970s, Lockwood has shown great sensitivity to the musical potential of the natural environment and thus sets forth an alternative perspective on music today. Finding electronic music based on sound synthesis far too structured and predictable, she turned instead to natural sound sources such as glass, fire, and water. Lockwood's belief that all sounds including noise are acceptable within the classical music domain resonates strongly in most of her oeuvre. In this chapter, I will first provide background information on Lockwood including some of her earlier environmentally-inspired works that will elucidate her deep affinity with nature. Then, I discuss theoretical frameworks based on which I develop my own methods to analyze her most important environmental work, *A Sound Map of the Danube River.* Lastly, I illustrate ways in which Lockwood exhibits thoughtful musical design as well as an astute awareness of the river's musical voice.

I. First Inspirations

A native of New Zealand, Lockwood was fascinated by the rich natural sounds of her homeland. From an early age she was drawn to water and other natural phenomena. She explains:

> I remember one day picking up a particular stone and trying to figure out what that stone felt like, what it felt like to be that stone, what it feels like to be something other than human with a complete belief that there's an inherent being in all of those other phenomena. So when I'm working with rivers, I'm trying to hear and sense and think my way into what the nature of a river is.[76]

Lockwood's *Glass Concerts* (1966-1973) was written for live audio/visual performance with amplified glass pieces ranging from wine glasses to industrial shards and glass tubing. About this time, she said:

> I was just one of a whole cluster of people wanting to suggest, as Cage and other people started us thinking, that any sound is potentially interesting or many, many, many sounds outside the musical universe are really interesting to listen to no matter where they came from.[77]

Tiger Balm (1970), a twenty-minute tape piece, is concerned with how our bodies respond to sound and the role of music in introducing trance states. This intense sonic journey begins with a tape loop of a tiger's purr, and includes gamelan tones and breathing sounds. *World Rhythms*, an important tape work from 1975, suggests the significance of listening and responding to our environment. Sound sources include tree frogs, rivers, a lake in calm and active states,

---

[76] Frank Oteri, "Annea Lockwood Beside the Hudson River," *NewMusicBox* 33,(November 2004): 1.

[77] Ibid, 7.

volcanoes, earthquakes, fire, and breathing.[78] In addition to these only minimally processed sounds, a live performer plays the gong, striking when it complements the performer's internal rhythm. Lockwood's interest in simple yet powerful sounds she calls "intrinsic" has remained constant throughout her work.[79] In *Delta Run* (1981), Lockwood interweaves the voice of a dying man with the sounds of wind, water, and other ambient sounds, thus embodying her belief that dying is a part of living, and that "in dying, we are incorporated back into the elements from which we emanate."[80] This ecological relationship recalls Schubert's *Die schöne Müllerin,* in which the young man drowning himself in the brook is united with Mother Nature in the last song.

Among Lockwood's most significant environmentally inspired works are her river archives. She feels attracted to water and "the special state of mind and body that the sounds of water create when one listens intently to the complex mesh of rhythms and pitches."[81] She started recording rivers in the mid-sixties, but until *A Soundmap of the Hudson River* (1982), she had not yet recorded a river along its entire course.[82] The Hudson River Museum in Yonkers commissioned this work, and she spent a year going up and down the river, from Lake Tear of

---

[78] Annea Lockwood, "Composers Speaking for themselves," *The Musical Woman: An International Perspective* 2 (1987): 302.

[79] Annea Lockwood to the author, e-mail of April 18, 2009.

[80] Annea Lockwood, "Liner Notes," *Breaking the Surface* (New York: Lovely Music, 1999), not paginated.

[81] Annea Lockwood, "Liner Notes," *A Soundmap of the Hudson River* (New York: Lovely Music, 1983), not paginated.

[82] Annea Lockwood, "Sonic Maps," *Music in New Zealand* 13, no. 36 (Summer 2000): 37.

the Clouds to the Atlantic Ocean. This sonic journey is one hour and eleven minutes long. Each of its fifteen separate locations has its own sonic texture and varies according to the terrain, weather, season, direction of flow, and the human environment whose sounds are woven into the river's.

Figure 7. Map of the Hudson River.[83]

[83] "Hudson River," online website, www.vacationstogo.com/cruise_port/Hudson_River.cfm (Accessed November 25, 2012).

II. Composing the Danube River

Twenty years later, Lockwood decided to take on another, even mightier river, the Danube, the second longest European river. It extends 1785 miles from Germany's Black Forest to the Black Sea. It flows through or forms the borders of ten countries, including Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova, and Ukraine, and is an important trade conduit between east and west. The lower Danube is a major avenue for freight transport and the upper Danube is an important source for hydroelectricity. The river passes through low, forested mountains, rich farmland, and historical cities, such as Vienna. The diverse geographical, political, and historical domain the river traverses is the reason why Lockwood chose this river in particular. She felt sure of finding much variety in terms of soundscapes.[84] However, the Danube River and its shores are not idyllic places.

According to the International Commission for the Protection of the Danube River (IPDR), several environmental issues including water pollution, floods, and droughts, among others, have caused concern regarding this river and the surrounding landscapes. The main pollution problem is the excessive amount of agricultural fertilizers entering the river through run-off. Hazardous and toxic substances, made worse by industrial accidents, pose additional threats. The effects of floods in the last years have worsened due to deforestation, the destruction of natural foodplains, and human induced global-warming. Further, the inhabitants of the Danube shores are also negatively affected by human-made changes in water depth and flow velocity,

[84] Annea Lockwood to the author, email of February 7, 2012.

due to the construction of dams and canals. Many fish are endangered or close to extinction by being disconnected from their breeding grounds and over-exploitation.[85]

A Sound Map of the Danube (2005) was composed during the winter of 2001 through the summer of 2004. Lockwood made five field-recording trips, recording the river's sounds at the surface and underwater, aquatic insects, and various inhabitants of its banks. Fifty-nine sites where Lockwood recorded the river are featured in thirteen different musical sections, which also include interviews. A map of the Danube River is shown in Figure 9. The entire work is approximately two hours and forty-six minutes in length, with the longest musical portrayal of a site lasting just under twenty minutes and the shortest just over seven minutes.

[85] For an in-depth discussion on environmental concerns regarding the Danube River see www.icpdr.org/ (Accessed February 10, 2012); and Petre Gastescu, "The Danube Delta: Geographical Characteristics and Ecological Recovery," *GeoJournal* 29, No. 1 (January 1993): 57-67.

Figure 8. Sectional Layout of Annea Lockwood: *A Sound Map of the Danube River.*

Location	Time
Bregquelle to Immendingen	9 min 54 sec
Fridingen to Ulm	7 min 20 sec
Lauingen to Weltenburg	14 min 12 sec
Passau to Jochenstein Dam	8 min 53 sec
Inzell to Traismauer	16 min 8 sec
Orth to Haslau	9 min 11 sec
Donauwirt to Šamorín	13 min 5 sec
Esztergom to Keselyüs	10 min
Batina to Vukovar	15 min 7 sec
Backo Nova Selo to Dobra	14 min 50 sec
Kazan Gorges to Tutrakan	17 min 6 sec
Popina to Rasova	11 min 26 sec
Nufaru to the Black Sea	19 min 34 sec

Figure 9. Map of the Danube River.[86]

[86] "EuroWorld Holidays," online website, www.euroworldholidays.com/incentive/itinerary.shtml (Accessed November 25, 2012).

In *Danube*, an electro-acoustic composition and sound installation, Lockwood uses listening as a compositional tool to capture the voices of the Danube River. She uses the sounds of water, the river's inhabitants, the voices of people living nearby, and other ambient sounds of nature and life near the river to communicate with audiences. Lockwood demonstrates her artistic mastery by highlighting naturally powerful sound sources with a microphone, the way a watercolorist might paint a sunset, or a photographer, a cascading waterfall with a brush or a camera. She explains, "Rivers are usually entirely visual. They're not sonic entities. They're not sound worlds. I wanted to bring a river into the body in a different way than through the eyes."[87] Taking a closer look at three different scenes in *Danube* I will illustrate Lockwood's astute musical ear and *Danube*'s artistic design.

III. Theoretical Frameworks

Many of the nature sounds used by composers after World War II are on tape. When analyzing tape pieces, traditional approaches to music analysis are not helpful; harmonic modulations and cadences cannot be labeled to validate structural concepts and aesthetic values. However, other means of investigating this work's musical design can be useful. In elucidating Lockwood's structural and timbral architecture, I will build on analytical concepts pioneered by R. Murray Schafer, as well as consider other theorists' and composers' analytical frameworks and terminology. Schafer developed terms to help reveal the structure and significant features of a soundscape composition. The terms most appropriate for analyzing *Danube* include: "keynote" sounds, which are reference points for all other sounds created by a soundscape's sound sources,

---

[87] Frank Oteri, "Annea Lockwood Beside the Hudson River," 12.

such as water, wind, birds, insects, and animals; "sound signals," which are foreground sounds that constitute acoustic warning devices such as bells, horns, and sirens; and "soundmarks," derived from landmark, which refer to a community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community, such as church bells.[88] All of these terms aid in understanding the ideological and ecological messages regarding sounds that, according to Schafer, matter.[89] These terms help reveal the structure of a soundscape, or any acoustic environmental composition. Thus they can disclose aspects of particular places and lead listeners toward a greater environmental awareness. Theorists such as Martijn Voorvelt and François Delalande have contributed to the development of analytical tools for tape music including time axis maps, which I will use in my own analysis.[90]

Audio engineering technology can also help understand such works through visualization and I will also draw on visualization devices to analyze and illuminate the sonic textures of *Danube.* In lieu of a score, and in an attempt to reveal the musical structure of soundscapes, I

---

[88] R. Murray Schafer, *The Tuning of the World* (New York: Knopf, 1977), 9 and 271-275.

[89] Ari Y. Kelman, "Rethinking the Soundscape: A Critical Genealogy of a Key Term in Sound Studies," *Senses & Society* 5, no. 1 (2010): 214.

[90] Martijn Voorvelt, "The Environmental Element in Barry Truax's Compositions," *Journal of New Music Research* 37*,* no. 1 (1997): 48-69; and François Delalande, "The Technolgical Era of 'Sound': A Challenge for Musicology and A New Range of Social Practicices," *Organized Sound* 12, no. 3 (2007): 251-258. Although Voorvelt discusses the quality of synthesized sound rather than recorded environmental sound, his descriptions and general organization are helpful in ascribing a design to an environmental composition. Delalande supports various types of analysis including representation orientation, that is, representation in the form of a map for a city, and at the very least, a time axis map for music. I will adapt his conception of a time axis map as it is useful for the conceptual action of the overall shape of an environmental composition.

used such audio engineering tools as SpectoGraph and Voxengo Span**,** to visualize *Danube*'s overall shape, and identify each soundscape's individual characteristics.

IV. A Closer Look at Danube

In *Danube*'s thirteen different movements*,* Lockwood employs a variety of layers. In general, she uses as few as one and up to six at a time, with an average between two and four. Lockwood holds interviews with ten males and one female in ten of the thirteen movements. There is an equal balance of rushing and ebbing rhythms, as well as dense and less dense sonic textures. During the recording process, Lockwood tried to estimate how long a listener could remain immersed in a site, and then she designed her cross-fades between successive sites accordingly. Space is suggested in a variety of ways. For example, in one scene, hatching tadpoles in the foreground and high cheeping birds in the background are heard simultaneously against a river flowing in the middle ground, suggesting a wide acoustic space. Almost all of the scenes bleed into the next, creating a continuous flow of sound, much like the river's constant movement.

In the opening movement, "Bregquelle to Immendingen," which is just under ten minutes in length, Lockwood uses seven different sound sources including: four distinct water textures and the song of high cheeping birds, which can be labeled as keynote or background sounds, and two interviews, which are best described as sound signals because they are in the foreground and

intended to be consciously perceived.[91] Categories of water sources include surface and underwater sounds, as well as a variety in water flow volume and dynamic level. Lockwood streams these sources together seamlessly to produce compelling flow. Although she uses relatively few layers of sound concurrently, producing a transparent texture, the unique quality of each water source gives this movement much vitality. Figure 10 shows how the sound sources overlap as well as the scene's overall shape.

Figure 10. Annea Lockwood: *A Sound Map of the Danube River,* "Bregquelle to Immendingen" (9 minutes and 54 seconds).

Time	0 min	1 min	2 min	3 min	4 min	5 min	6 min	7 min	8 min	9 min
Interview 1		1m 28s	----------	3m 8s						
Interview 2				3m 38s	4m 20s					
Birds (periodic)	----------	----------	----------	----------	----------	---------	--------	7m 7s (loudest)	-------	---------
Steady flow	----------	----------	2m 5s							
Underwater		1m 50s	2m 59s					7m 15s	-------	---------
Slow flow				3m	4m 52s					
Med-fast stream						5m	--------	----------	-------	---------

The first half includes both interviews and lower dynamic levels in water textures; the second half does not include interviews but achieves balance with higher dynamic levels and more presence in water texture. Both halves include high, cheeping birds. The first half of this movement opens with a steady, semi-regular flow of water, which evolves long enough for an audience to stay captivated before the first interview begins. The man speaking is Lambert

[91] Keynote Sounds are not intended to be focused upon; they are overheard but not overlooked. The keynote sounds of a landscape are those created by its geography and climate, such as water, wind, birds, insects, and other animals. Sound Signals, however, are foreground sounds that are listened to consciously.

Spadinger, a window manufacturer in Bräunlingen, Germany. The following is a translation of his interview:

> Yes, water is life, and in the river there is also life, plant life, animals, etc, and then I should mention, into the Breg also flow small streams, and one little stream flows past my house, the Brändbach. Flows past my house. And as school kids we were always barefoot, wading in the stream. We played, swam, and once in a while we built a boat and tried to sail it. Like an old folk song, it was always interesting, yes. There were trees, grass, all sorts of animals and plants. There was always life, river life. The memory stays with you into later life. We love to walk along the stream, listening to birds; it's always interesting. I think it's the same the whole world over, no?

After the man begins speaking, the sound delicately transitions into a subtler, underwater texture. This darker timbre at the beginning of the interview helps underscore the male's voice. The interviewee's response is approximately three minutes long. The male's voice is medium-low and his speech tempo varies. His voice is somewhat abrasive and in the middle of the interview it sounds as if he is battling with the voice of the river. Just before the second interview, Lockwood presents the third water source; lower in dynamic than the first two. She allows the audience to settle into the river's new voice before the second interview begins. The second interview is the, at the time, Mayor of Donaueschingen, Bernhard Everke. It is only two minutes in length and his speaking pattern is slower than that of the first interviewee. Both men speak in German, although the Mayor has a more regular speech pattern and a gentler voice. The following is a translation of his response:

> The Danube is a moving, living water and there's certainly nothing more beautiful than to know that our earth doesn't stand still, and there is no end, rather always life, and a flowing water, exactly like a waterfall, exactly like a spring. That is a very good symbol for life, thus permanent optimism. And when I am in Vienna, or in Passau, or in Budapest and I see the Danube, then that's naturally a joyful thing for me.

Although both of these gentlemen's responses present a positive perspective of the Danube, they are undoubtedly idealized because this river is not without environmental concerns. In the case of the mayor, this statement is also political. The second half of this movement begins after this second interview. Lockwood uses spatialization to fade out the third water source and, at the same time, fades in the last. This last water texture, a steady yet faster stream, dominates the second half of the movement. In this section, the keynote sounds of high cheeping birds' songs above the stream suggests a wide acoustic space. In the final few minutes of this scene, three sound sources are heard simultaneously: the first, a powerful stream, the second, high cheeping birds, and last, the already familiar underwater texture, which sneaks in almost imperceptibly and timbrally blends into the next scene.

In the next movement, from "Fridingen to Ulm," Lockwood allows the river to tell its own story. This movement is seven minutes and twenty seconds long and traces a giant crescendo, climaxing at around six minutes and forty-five seconds, represented in Figure 11, and concludes with a brief diminuendo, represented in Figure 12, for the remaining thirty-five seconds.[92] The graph in Figure 13 illustrates this scene's overall shape.

[92] The following graphs, Figure 11 and Figure 12, were created with Voxengo Span, a real-time audio spectrum analyzer plug-in that represents frequency.

Figure 11. Annea Lockwood: *A Sound Map of the Danube River,* "Fridingen to Ulm," Representation of the Frequency Spectrum at 6'45."

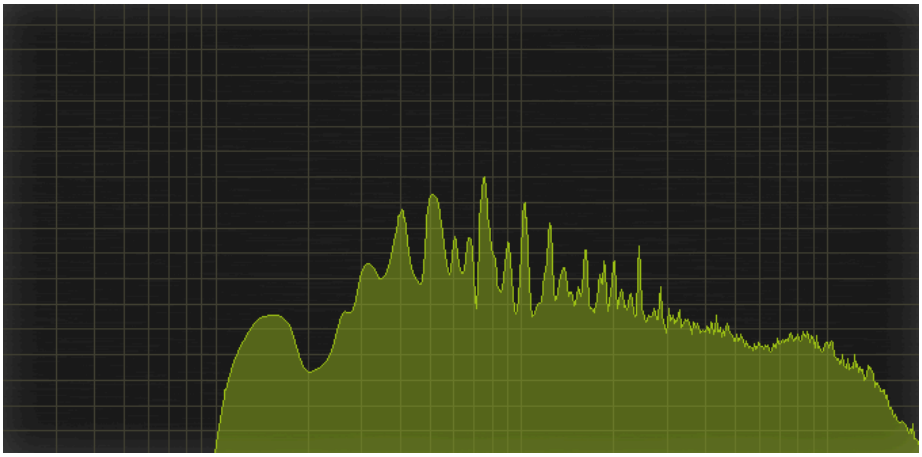


Figure 12. Annea Lockwood: *A Sound Map of the Danube River,* "Fridingen to Ulm," Representation of the Frequency Spectrum at 7'05."

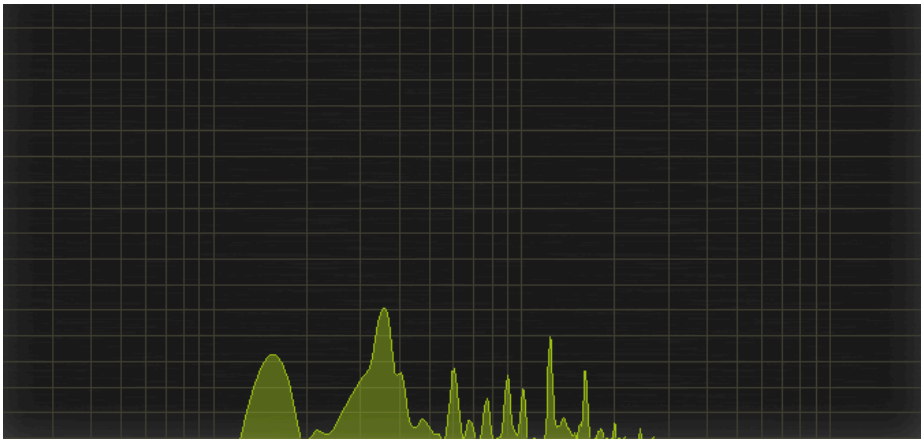


Figure 13. Annea Lockwood: *A Sound Map of the Danube River,* "Fridingen to Ulm" (7 minutes and 20 seconds).

Time	0 min	1 min	2 min	3 min	4 min	5 min	6 min	7 min
Church					4m 20s	----------	----------	----------
Sheep/dogs	----------	1m 5s						
Birds		1m 10s	2m 45s					
Delicate Trickle	50s	----------	----------	----------	----------	----------	----------	7m 5s
Steady	50s	----------	----------	----------	----------	----------	----------	7m 5s
Rushing				3m 45s	----------	----------	----------	7m 5s

After initial sounds of dogs and people herding a flock of sheep into pens for shearing, the river becomes progressively louder, grows in intensity, and finally ends peacefully with the reverberation of fading bells. This movement's strong imaginative presence suggests a traveler visiting a foreign place. The first sounds heard in this movement are the medium-high discordant voices of bleating sheep, which can be considered a Sound Signal because the sheep function as protagonists. The sheep's prelude begins abruptly and then fades into a high-pitched, delicate trickle of water. This high-pitched water gradually picks up in speed, turning into more of a roar, and at the scene's peak, the river and tolling bells battle for control. At its end, only the distant, low sounds of church bells are heard, first sparingly, and then in a cluster. These bells are what Schafer would call a soundmark, unique to a community. Lockwood's use of juxtaposition in this scene creates dynamic points of greater and lesser tension and suggests an imaginative narrative. Also in this movement, in particular, Lockwood tries to capture the river's "natural ordering."[93] The water gains in momentum, changing from a gentle trickle into a rushing stream, much like the downstream order of a river's natural flow.

[93] Annea Lockwood to the author, email of April 18, 2009.

In the fifth movement, “Inzell to Traismauer,” Lockwood, again, features a wide variety of sound sources, and illustrates her thoughtful artistic design. In this scene, nine different sound sources can be distinguished, including seven keynote sounds: three distinct water textures, various birds, tadpoles hatching, a hissing sound, a metallic rapping, gentle waves perhaps created by a canoeist or someone’s foot swirling in the water, two sound signals, and interviews with men. Figure 14 illustrates this great variety of sound sources.

Figure 14. Annea Lockwood: *A Sound Map of the Danube River,* “Inzell to Traismaur” (16 minutes and 8 seconds).

Time	0 min	1 min	2 min	3 min	4 min	5 min	6 min	7 min	8 min	9 min	10 min	11 min
Interview 1					4m 50s	------	6m 23s					
Interview 2												11m 42s
Metallic rapping		1m 59s	2m 45s									
Hissing										9m 5s	--------	----------
Birds	-------	----------	----------	3m 50s								
Tadpoles												
Gentle stirring	-------	----------	2m 30s									
Underwater			2m 31s	----------	----------	------	6m 46s			9m 26s	--------	----------
Fast stream							6m 43s	---------	8m 2s			
Dripping								7m 48s	--------	----------	10m	

Time	12 min	13 min	14 min	15 min	16 min
Interview 1					
Interview 2	12m 21s				
Metallic rapping					
Hissing	----------	----------	-----	15m	
Birds					
Tadpoles		13m 30s	-----	------	------
Gentle stirring					
Underwater	----------	----------	-----	15m	
Fast stream					
Dripping					

In the beginning of this movement, Lockwood emphasizes space and simplicity with the sound of gentle stirring water close by, and the song of birds heard off in the distance. This

spatialization contributes to the movement's depth and, thus, in the beginning, suggests a wider acoustic space. In the middle of this movement, Lockwood presents one of her most unique and lively water textures: the wide pitch range and irregular rhythms suggesting water dripping from a drain. In the latter half of this movement, Lockwood uses three highly present and complex sounds concurrently, creating tension. This second half contrasts greatly with the first. Lockwood creates continuity in this movement, again, by using water as a thread. This continuous flow of water begins with the delicate sound of swirling water, moves into a more present but darker underwater texture whereupon a burst of water, resembling rain or a fast rushing stream, interrupts. Lockwood then introduces the lively dripping water texture, and finally ends with the familiar underwater source. On top of this layer of water, Lockwood adds other sound sources, from delicate bird song, to the highly magnified sound of hatching tadpoles, another sound signal. Overall, the varieties of timbres in this movement, highlighted by Lockwood's use of layering and design, create great contrast, and take the listener on an unpredictable and captivating journey through the Danube River.

By bringing environmental sounds into the concert hall, so to speak, Lockwood urges us to reconsider the significance of such important natural phenomena and inspires audiences to really listen to the sounds in nature. Nature is often appreciated visually, through photographs, paintings, and other artistic media, but to be exposed to it aurally is a different and just as meaningful experience.

Such a work might be incorrectly placed in the popular and commercial New Age genre of nature recordings. However, Lockwood's *Danube* is a painstakingly crafted work of art drawing attention to ever-precious environments, and should be considered as such. With this

piece, Lockwood helps us understand the connectedness of all things. Humans often privilege themselves at the expense of other living things, not living in an ecologically conscious manner. In *Danube*, we hear nature and humans existing in interdependence, although in my chosen examples this is idealistic. Unfortunately, Lockwood's predominantly male interviewees do not address the river's environmental problems, and thus further perpetuate this issue. Yet often, Lockwood shows that nature is stronger by giving the Danube more time than the humans. This is a powerful metaphor because many scientists have shown that by destroying the environment we are destroying ourselves. The Earth will regenerate itself and humans may go extinct. Bernie Krause, a bio-acoustician, argues that most Western music lacks the true holistic connections to the soundscapes of the wild.[94] In *Danube,* Lockwood emphasizes these "wild soundscapes" and allows the river to speak for itself. The nonhuman world, one might incorrectly assume, has no voice, but in this work Lockwood is giving the river a powerful although disembodied voice.[95] All we have to do is listen, and if we listen closely enough, we will discover that nature will always be the most commanding voice.

Recently Lockwood was commissioned to make a third sound map, *A Sound Map of the Housatonic River,* by Jenny Hersch, a musician and river enthusiast who is planning to build a museum dedicated to that river. The building would be built completely of recycled or renewable resources. Lockwood spent a year recording the river and decided to record only the water and its environment.

---

[94] Bernie Krause, *The Great Animal Orchestra* (New York: Little, Brown and Company, 2012).

[95] By disembodied, the author means taking an environmental sound out of its original context.

Lockwood explains:

> In general, people living along the river seemed much less involved with it than was true of either the Hudson or the Danube and there's very little river 'traffic' -- it's not commercially navigable, so life along the river seemed to me less interdependent with the river's existence, whereas the river's various configurations provided a rich array of soundscapes to relish and record.[96]

This will be her last sound map, so the triptych is complete.[97]

By saturating listeners in the rivers' sounds with as much immediacy as possible, Lockwood hopes that despite the virtual nature of recordings, this will trigger "personal of other rivers, and concern for them in some practical form."[98] Although these sounds are separated from their contexts, Lockwood hopes to "draw listeners into an immersive experience of rivers as vital, live phenomena, [and hopes] their energy [will be] clearly audible through their sounds."[99] Most people increasingly substitute direct experience with virtual experience, but perhaps after listening to such work, the desire to visit a river might be ignited. By giving the Danube such a powerful voice, Lockwood encourages audiences to appreciate and care for Mother Nature and thus can be considered in accordance with ecofeminist ideals. Further, Lockwood captures industrial and other man-made sounds in other sections and thus offers a more critical representation of the Danube and its environments. The act of recording environmental sounds,

---

[96] Annea Lockwood to the Author, email of December 20, 2011.

[97] Ibid.

[98] Ibid.

[99] Ibid.

arguably, displays a form of control over nature. Nevertheless, if one uses technology for good, such as highlighting a fragile environment, it can bring humankind closer to nature.

CHAPTER 5: EVE BEGLARIAN: A SONIC JOURNEY DOWN THE MISSISSIPPI RIVER

A generation younger than Lockwood, contemporary American composer of Armenian descent, Eve Beglarian (b. 1958), experienced rivers in an entirely different way. In the fall of 2009, she embarked on a four-and-a-half-month journey down the Mississippi River. The trip's impetus was, in part, due to the economic meltdown in the United States, as well as a desire to distance herself from her regular routine. Beglarian felt a certain obligation to witness, first-hand, what was happening to her country. Unbeknownst to her, this trip was to coincide with the devastating Deepwater Horizon oil spill, one of the worst environmental disasters in U.S. history. Inspired by Barack Obama's election as the first African-American president of the United States, she acted on her long time "obsession with the Mississippi river; especially the impact of the river on the development of American culture."[100] In her own words, Beglarian was interested in:

> How our relationship to the nature, geography, and ecology of the river is manifested in music, literature, and all the arts. Just as the Mississippi River is one of the defining natural features of the North American continent, so it has also been one of the defining features in the development of American culture; and of music in particular.[101]

Traveling slowly through the heart of the United States, she encountered sights, sounds, and communities that inspired a new body of experimental music. In the following, I will first provide background information on Beglarian's upbringing, compositional training and style, as well as her career. I will then investigate a few of Beglarian's compositions that were inspired by her trek down the Mississippi river.

---

[100] "Eve Beglarian," http://evbvd.com/riverblog/about/ (Accessed June 1, 2012).

[101] Ibid.

I. Influences and Stylistic Considerations

After initial piano and cello lessons, Beglarian attended Princeton University in the late 1970s. In the early 1980s she moved to New York where she attended Columbia University for a masters degree in composition. Trained as a so-called "uptown" composer under Charles Wuorinen and Fred Lerdahl, Beglarian wrote a few twelve-tone and serial compositions.[102] Her first piece of music in the twelve-tone vein was called *Fresh Air* (1985); it was conceived for saxophone quartet, TR-808 drum machine, and a monophonic Pro-1 synthesizer. Beglarian ultimately felt uninspired in academia and developed her own musical and aesthetic values. With a certain Cagean attitude, she explained, "I hope what I'm doing is responding to what each piece needs to be, rather than sitting in a particular stylistic window."[103] However, Beglarian does acknowledge outside influences, and recognizes that minimalism and other artistic movements have had an impact on her work.

It was only a matter of time before she made her way into Manhattan's "downtown" experimental music scene. She went from writing music for ensembles to performing her own music. Around 1989 Beglarian began performing in New York City's bars on Saturday nights, which gave her an opportunity to experiment with electronics. During this time, Beglarian gravitated towards second-generation minimalism and vernacular sources. She created contrapuntal variations on medieval songs, computer-based disco collages, songs of nonsense

---

[102] The term "uptown" composer refers to composers affiliated with Columbia University, an institution located in uptown Manhattan. "Uptown" composers in the 1950s through 1980s were known for writing twelve-tone music, whereas "downtown" composers were known as experimental artists who were not affiliated with academia and active in lower Manhattan.

[103] Paul Freeman, "Eve Beglarian: The Music is the Journey," *The Mercury News,* March 12, 2010.

syllables, and wild theater pieces. Her largest theater piece *TypOpera* (1993-1994), is based on the *Ursonate,* a graphically notated poem of nonsense syllables from the 1920s by the German dadaist painter-poet Kurt Schwitters. She described this as a "music-theater Dada text-sound wacky thing" with singing, speaking, and electronic samples.[104] This piece initiated trends that marked much of her musical oeuvre, such as spoken word and collaborations with other musicians.[105] Around 1995, Beglarian met keyboardist Kathy Supové and formed the electronic duo, Twisted Tutu. This collaboration allowed Beglarian to build on the principles of musique concrète and sampling, as well as explore artistic collages of music, text, and electronics.

While Beglarian has not discussed her attitude toward environmentalism directly in public, her attraction to environmental sound sources even in her heavily sampled electronic music is not difficult to notice. She often uses noise samples. In *No Man's Land* (1995) she employs industrial noises to depict the businesses surrounding the corner of Church Street and White Street in New York. In *FlamingO* (1995), she uses a flat piece of whale baleen swung on a string to create an electronically sounding hum. In *Wonder-Counselor* (1996) for organ and tape, the organ melody is heard over a sampled accompaniment of natural sounds: the ocean, bird songs, and, even, a couple having an orgasm.

Beglarian's output is stylistically eclectic and multi-disciplinary. At the same time, she allows her work to evolve organically and does not feel the need to adhere to strict parameters. Her natural proclivity for technology and unusual creativity in the use of sampling and other

---

[104] Ibid., 4.

[105] Ibid.

electronic and experimental methods, can be seen in her most recent endeavor, the Mississippi River Project, which positions her at the forefront of the ever-changing directions in music.

II. Mississippi River: History, Environment, and Culture

In literature, the Mississippi river has been the subject or setting for many authors, including William Faulkner, Mark Twain, and Herman Melville, to name a few. There have been many Mississippi river travelers, from the participants of the Marquette-Joliet Expedition in 1673, Twain, who explored this river before the American Civil War, to more recent travelers such as Jonathan Raban, Nick Lichter, Eddy Harris, and Byron Curtis, among others. Although Beglarian shares similar views with these river travelers, as a musician and woman, her journey was distinct.

The Mississippi river has been the subject of numerous artistic projects and musicians have responded prolifically to the Mississippi river's beauty as well as environmental issues such as pollution or floods. Examples range from idealized responses, such as Ferde Grofé's *Mississippi Suite* for orchestra depicting scenes along the river and its banks, Johnny Cash's country hit "Big River," and even entire musicals, such as *Show Boat* (1927), whose central musical piece is the spiritual ballad "Ol' Man River," and *Big River* (1984), based on the travels of Huckleberry Finn down the river, to critical responses such as Led Zeppelin's interpretation of Memphis Minnie's blues song "When the Levee Breaks," inspired by the Great Mississippi Flood of 1927. Several popular artists also recorded tribute songs to raise money for Hurricane Katrina survivors, including Prince's "Brand New Orleans," and U2 and Green Day's

collaboration, “The Saints Are Coming.” Although there are many artists who have used the Mississippi as their muse, Beglarian is one of the few academically trained composers to do so.

The Mississippi River, 2,350 miles in length, is the third longest river in North America. It rises in northern Minnesota and flows through Wisconsin, Iowa, Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana before reaching the Mississippi River delta at the Gulf of Mexico. The length of the river may increase or decrease as deposition or erosion occurs at its delta, or as meanders are created or cut off.[106] Much like the Danube, which flows through or forms the borders of ten countries, the Mississippi borders or cuts through ten states at the heart of America. The ten states are, similarly, brought together by one great river.

---

[106] “National Park Service,” http://nps.gov/miss/riverfacts.html (Accessed August 1, 2012); and James M. Coleman, Harry H. Roberts, and Gregory W. Stone, “Mississippi River Delta: An Overview,” *Journal of Coastal Research* 14, no. 3 (Summer 1998): 698-716,

Figure 15. Map of the Mississippi River.[107]

[107] "Mississippi River Cruises," online website, www.mississippirivercruises.com/mississippi_river_map.cfm (Accessed November 25, 2012).

The Mississippi River and its floodplain are home to a diverse population of living beings, including twenty-five percent of all fish species in North America, more than fifty mammal species, at least 145 species of amphibians and reptiles, up to sixty documented species of mussel, and sixty percent of all North American birds use the Mississippi River Basin as their migratory flyway.[108] Communities alongside the river use the Mississippi to retrieve freshwater. The Environmental Protection Agency says more than 50 cities rely on the Mississippi for daily water supply.[109]

Unfortunately, the Mississippi is not without environmental issues. The United States Geological Survey released a report in the 1990s that revealed the high amount of toxins, heavy metals in particular, in the Mississippi River.[110] Problems such as chemical leaks, oil spills, and other types of pollution have been prevalent throughout the basin and have been creating environmental problems for humans, wildlife, and, especially, aquatic life. The effects of Hurricane Katrina were catastrophic and widespread. The storm surge devastated the coasts of Mississippi and Alabama, making Katrina the most destructive natural disaster in the history of the United States. Moreover, Katrina had a profound effect on the environment. The storm caused substantial beach erosion, devastating coastal areas, which provide breeding grounds for marine mammals. It also affected habitats of other animals, such as sea turtles, Mississippi sandhill cranes, and Red-cockaded woodpeckers. The damages from Katrina forced several

---

[108] Ibid.

[109] Ibid

[110] "Contaminants in the Mississippi River," http://pubs.usgs.gov/circ/circ1133/index.html (Accessed August 1, 2012).

National Wildlife Refuges to close, including Breton National Wildlife Refuge, which lost half its area in the storm. The storm was responsible for oil spills from several facilities throughout southeastern Louisiana, such as Bass Enterprises, Shell, Chevron, and Murphy Oil, to name a few. Even more recently, the Deepwater Horizon Oil Spill of 2010 is the largest accidental marine oil spill in the history of the petroleum industry, releasing about five million barrels of crude oil in the Gulf of Mexico. The spill caused extensive damage to marine and wildlife, along with their habitats, as well as to the Gulf's fishing and tourism industries.

III. A Sonic Journey Down the Mississippi

On August 1st 2009, Beglarian traveled down the mighty Mississippi River's 2,300 or so miles, from Lake Itasca in Minnesota to the Gulf of Mexico. After Hurricane Katrina, Beglarian became obsessed with this devastating moment in Mississippian history.[111] As mentioned before, this journey was inspired by a number of things: the declining condition of the economy, the urge to "get out of [a] regular routine," and also the desire to experience what her country was all about.[112] With determination and an inquisitive spirit, Beglarian kayaked down the river for four and a half months. Along the way, she met and collaborated with different musicians and artists, including: Mac Walton, a trombonist and musicologist, Richard Steadman-Jones, a linguist and historian, Heather Hitchens, the executive director of the New York State Council on the Arts, Caroline Walker, a Chicago poet, Mary Rowell, a violinist with the Ethel String Quartet, and

---

[111] Amanda MacBlane, "Interview: Eve Beglarian," *Time Out New York,* January 13, 2012.

[112] Paul Freeman, "Eve Beglarian: The Music is the Journey," *The Mercury News,* March 12, 2010.

numerous other musicians, artists, and locals who provided inspiration for her on this journey. Beglarian believes that "all the various people who participated helped color the experience and ultimately the work."[113] Beglarian also gathered snippets of sound, such as sounds of birds, dogs, frogs, sirens, and the river to add to her extensive electronic database.[114] This trip inspired an abundance of new music, not only from the people she met along the way, but also from listening to the sounds of the water while kayaking. The following is a list of her "Mississippi River Project" pieces:[115]

The Flood (2008) for live piano, bass, drums, singers, and electronics [3']

I Am Really a Very Simple Person (2010) for mixed chorus [5']

I'm Worried Now, But I Won't Be Worried Long (2010) for violin and electronics [6']

In & Out of the Game (2010) for trombone quartet or sextet [5']

Testy Pony (2010) for spoken voice, viola, cello, or trombone, and electronics [5']

Waiting for Billy Floyd (2010) for flute, clarinet, violin, cello, piano, and electronics [8']

Early in the Morning (2010) for violin, guitar, trombone quartet, piano, and electronics [8']

The Island of the Sirens (2011) for multiple instruments, voices, and electronics [11']

Well-spent (2011) for violin and electronics [5']

Pump Music (2012) for violin, trombone quartet, and electronics [7']

---

[113] Kathryn Shattuck, "Composer Finds a Muse in the Mississippi," *The New York Times,* September 2, 2009.

[114] Ibid.

[115] This list is ongoing because she continues to write pieces inspired by this trip.

Wet Psalm (2012) for violin, voice, trombone quartet, and electronics [7']

The Mississippi River Project began, before she even touched the water, with *The Flood* (2008), a piece she was working on during the presidential election, which will be discussed in depth later. Beglarian did not compose during this journey, but rather, soaked in the full experience and composed music after the trip was over. Beglarian's intention of this journey is threefold: The first phase, as already described, was a "human-powered" excursion down the river "having adventures, meeting people, camping in parks, reading in libraries, visiting churches, and writing and posting."[116] In the second phase, Beglarian wrote music in response to this trip while she visited a number of artist colonies, including Montalvo Arts Center in California, Hermitage Artist Retreat in Florida, and Ucross Foundation in Wyoming. She then spent the summer writing music on her property in Vermont. The third and final phase began in the fall of 2010, a year after her trip ended. Beglarian traveled back up the Mississippi to revisit the places and people along the river that she met on her first journey.

She and her ensemble, BRIM, conceived in 2010 with violinist Mary Rowell, programmed concerts at community centers, colleges, schools, and even church basements.[117] Beglarian describes BRIM as a music and performance project inspired by her voyage. BRIM is a multi-media ensemble that uses a collection of original compositions, adventurous arrangements of river-related songs, images, videos, and spoken-word readings. Both Beglarian and Rowell play a variety of instruments including violin, viola, guitar, mandolin, and electric

---

[116] "Eve Beglarian," http://evbvd.com/ (Accessed June 1, 2012).

[117] David Stabler, "Eve Beglarian at Third Angle: Classical Free Spirit Follows the Muse of the Mississippi," *The Oregonian,* October 20, 2011.

bass. BRIM is often joined by a wide range of guest musicians from Loadbang and Guidonian Hand to the eight-piece amplified ensemble Newspeak and the vocal quintet Ekmeles.[118] The music performed is flexible enough to include local musicians, and she wrote it so anyone, even without a musical background, could be taught to play it.[119] Echoes of folk, blues, jazz, and funk, which have all grown up in the regions touched by the river, are prevalent in her river works. However, her compositional voice, including liberal use of sampling, loops, and haunting vocals are ever present.

With an understanding that interested parties could not all participate in this sojourn, Beglarian started an online blog at the onset of this journey, which includes: inspirational writings, largely excerpts from religious texts, photographs of the different places she has visited (see below), book recommendations, from Bob Dylan's autobiography to Twain's *Life on the Mississippi,* and music she was listening to, such as Ella Fitzgerald's "Cow Cow Boogie." The blog is just another technological aspect of her work.

A politically engaged artist, Beglarian moves audiences with her text selection and poignant political messages. *The Flood* (2009), for example, is a setting of a Robert Frost poem written in 1928, in response to the 1927 Mississippi River flood that destroyed millions of homes and drove thousands of people north, transforming America.[120] Beglarian owns land in Vermont not far from where Frost lived for many years. She felt "a parallel rage and impotence" in

---

[118] "Eve Beglarian," http://evbvd.com/brim/ (Accessed June 1, 2012).

[119] Ibid.

[120] "Eve Beglarian," www.evbvd.com/flood/index.html (Accessed June 1, 2012).

response to Katrina.[121] *The Flood* is about floods and transformation, a response to the ongoing tragedy of Katrina, the Biblical Flood, and the Mississippi River and its place in American culture.[122] The following text is Frost's poem "The Flood":

> Blood has been harder to dam back than water.
> Just when we think we have it impounded safe
> Behind new barrier walls (and let it chafe!),
> It breaks away in some new kind of slaughter.
> We choose to say it is let loose by the devil;
> But power of blood itself releases blood.
> It goes by might of being such a flood
> Held high at so unnatural a level.
> It will have outlet, brave and not so brave.
> Weapons of war and implements of peace
> Are but the points at which it finds release.
> And now it is once more the tidal wave
> That when it has swept by leaves summits stained.
> Oh, blood will out. It cannot be contained.

With "Blood," Frost is in some sense referring to the ugly human politics that came with and followed this disaster. The great Mississippi River flood of 1927 killed and displaced thousands of people, including many African Americans, and, as in the case of Hurricane Katrina, more should have been done regarding relief efforts.

In October 2011, Beglarian performed *The Flood,* among other works, at the Alberta Rose Theater in Portland, Oregon with the Third Angle New Music Ensemble. She used footage

---

[121] Ibid.

[122] Ibid.

of the devastating 1927 Mississippi floods and the program, overall, created an "atmosphere of reflection," according to a writer for *The Oregonian*.[123]

This short piece, just over three minutes in length, can be performed with live piano, bass, drums, or with electronic playback of some kind, or some or all of these instruments; and with three or four singers on the rising line, or with forty. The opening ostinato piano figure is reminiscent of some of the styles of the great New Orleans pianists, such as Fats Domino. Echoes of blues are also presented in the drums with swung sixteenth notes, starting in measure six and continuing throughout. Beglarian draws more attention to the text by using this repetitive piano figure. The opening line of text, "Blood has been harder to dam back than water," which is spoken, immediately grabs the audience's attention. Beglarian punctuates this poignant text with fragmented G Minor diminished chords in the piano. The word "Blood" is emphatically underscored by a preceding silence. It is curious that the electronic track on the rising line does not enter until the word "Devil" is spoken.[124] Beglarian is perhaps subtly suggesting that humans, represented by the electronic line, have a diabolical desire to control nature.

In the score, she states that "the drum line notates the attack rhythm only: it is up to [the performer] to work out the most effective orchestration of the hits. Once you have established the whole pattern, you can of course feel free to intensify and vary it."[125] This indeterminate

---

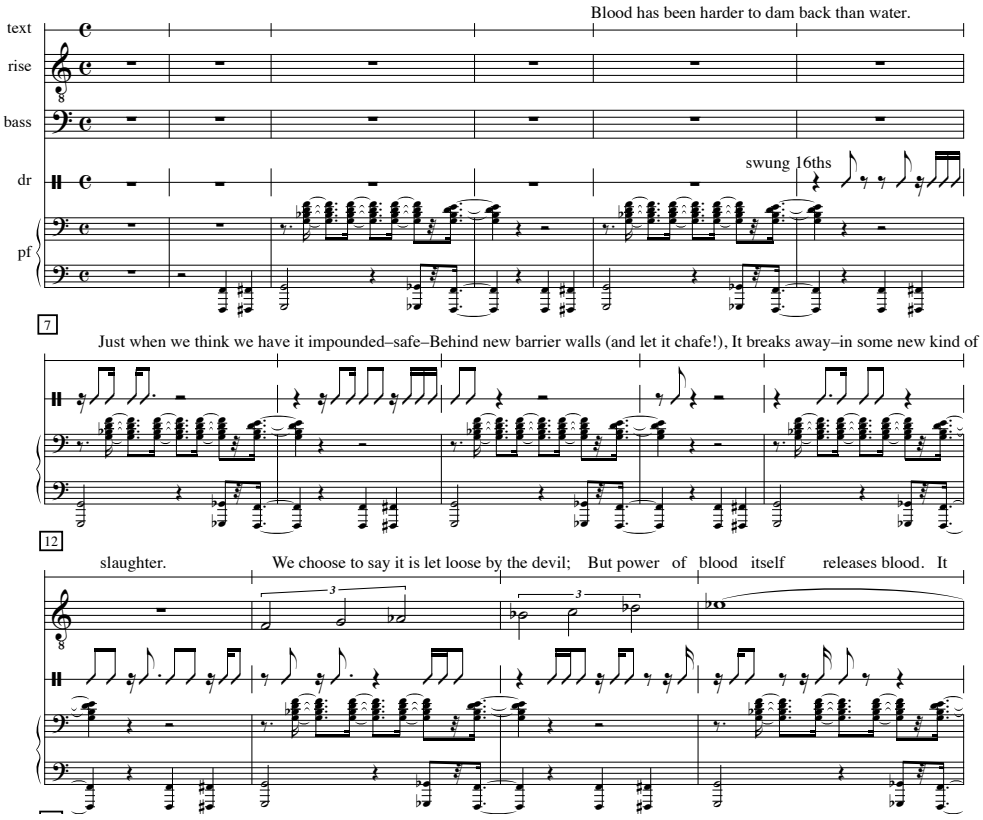
[123] James McQuillen, "Third Angle Review: A Deep, Eclectic Journey Down the Mississippi," *The Orgeonian,* October 22, 2011.

[124] Eve Beglarian, *The Flood* (New York: EVBVD Music, 2009), 1.

[125] Ibid.

performance description is typical of Beglarian's accessible style, which allows freedom in performance (see Figure 16).[126]

Figure 16: Eve Beglarian: *The Flood,* mm. 1-15.



I'm Worried Now, But I Won't Be Worried Long, was premiered in June 2010 at the Tribeca New Music Festival in New York City. It is one of a handful of pieces Beglarian wrote in 2010 after her Mississippi River excursion. *I'm Worried Now* is dedicated to Rowell, a violinist, fellow Mississippi river traveler, and friend. This piece, just under six minutes and in one movement, is scored for violin, pre-recorded electronics, and optional additional instruments.

[126] Eve Beglarian, *The Flood* (New York: EVBVD Music, 2009), 1.

Beglarian also invites artists to arrange this piece for additional live performers, thus encouraging multimedia components. The title comes from a line in *Down the Dirt Road Blues* by Delta Blues musician Charley Patton.

Although this composition was inspired, in part, by this journey, *I'm Worrried Now* started from a recording Beglarian made of some leaky pipes in a bathroom at the Bejing Conservatory. Beglarian also uses melodic material for the violin from a traditional Armenian song called "Tsirani Tsar" [Apricot Tree].[127] The violin part is notated, but the violinist carries out elaborations that are not notated, including slides and glissandi. In this piece, Beglarian uses a complex layering technique. The first eight measures begin with an almost melodic sound of recorded dripping water. She uses two different water textures underneath the pre-recorded electronic sounds. The first is high-pitched, melodic, and fast, and contrasts with the second water sound, which is a slower, drop-like texture, that is lower in timbre. She then decreases the dynamic of these water textures as she introduces the pre-recorded electronic layer. The electronic sound resembles a marimba-like instrument and holds a steady beat close to the pitch and rhythm of the higher-pitched water source. This pulse continues throughout most of the work and provides rhythmic underpinning. Thirty-seven measures in, Beglarian introduces an expressive violin melody, moving from a dotted, almost fragmented, rhythmic figure, to full, legato quarter notes of the same melody (see Figure 17).[128] This arrival is also marked by a more percussive electronic sonority, and as the violin moves lower in register, the electronic sounds are

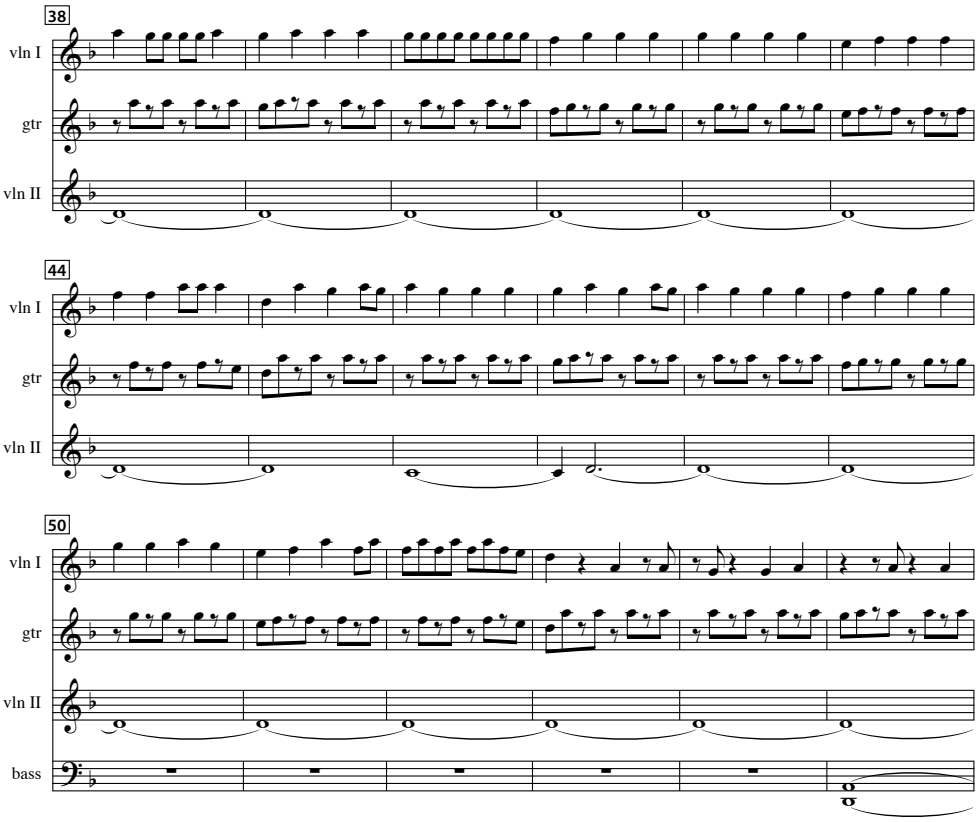
---

[127] "Eve Beglarian," http://evbvd.com/worried/ (Accessed June 1, 2012).

[128] Eve Beglarian, *I'm Worried Now, But I Won't Be Worried Long* (New York: EVBVD Music, 2010), 2.

even more prevalent. Two-thirds of the way into this work, the marimba-style percussive texture is covered by distorted, non-pitched, noise-like sonorities. At the composition's high point, the violin and electronics are almost in counterpoint, each apparently battling to become the more important voice. The last section of this piece embraces a hip-hop influenced beat, and finally, the electronics fade away as the violin melody lingers. However, the last sounds we hear are electronic.

Figure 17. Eve Beglarian: *I'm Worried Now, But I Won't Be Worried Long,* mm. 38-55.



As Beglarian states herself, "this piece has a very strange network of associations."[129] First, she collected the "symphony of water drop sounds" from leaky pipes at the Beijing Conservatory. Second, she was particularly attracted to "Tsirani Tsar" a traditional Armenian song. Finally, she chose the Patton song title, which she felt "would have been a different piece with a different title." With the song title "I'm Worried Now, But Won't Be Worried Long," Patton means he will not be worried, because he will be dead. Death is a thematic element, much like in *The Flood.*

A recent performance with choreography, illustrates this fact. In June 2011, violinist Ana Milosavljevic performed Beglarian's "I'm Worried Now" choreographed by Take Ueyama. In the dance performance, the leading dancer commits suicide, however, Ueyama did not know about the title's original meaning before he choreographed it. It is strange that this idea of death is ingrained in the sound of this piece. In the opening, Ueyama dramatically directs the lead dancer to bend over an empty box, while another dancer pours water over his head. Coupled with the opening water sounds, action conveys a maddening sense of invasive repetition.[130] Although all of these elements seem to have been put together in an arbitrary fashion, the result is nonetheless poignant.

Well-spent (2012) was premiered by Rob Blessinger in October 2011 and commissioned by Blessinger and Third Angle New Music Ensemble. Just over five minutes in length and in one movement, this piece is scored for live and pre-recorded violin. The pre-recorded track of *Well-*

---

[129] Frank J. Oteri, "Eve Beglarian: In Love with Both Sound and Language," *NewMusicBox* 40 (2011): not paginated.

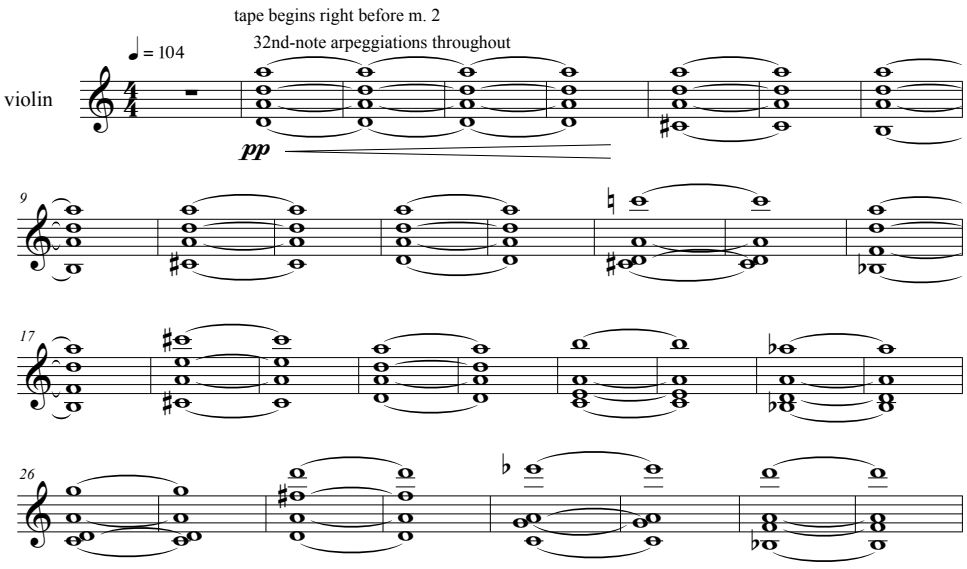
[130] The choreographer may have wanted to allude to forms of water torture, specifically Chinese water torture, which is characterized by incessant water dripping.

spent features Mary Rowell's playing of a version of Muddy Waters's 1942 American blues melody "You Gotta Take Sick and Die Some of These Days."

This piece is marked by thirty-second-note arpeggiations executed by the violinist over an electronic track -- a violinist playing a version of the tune "You Got to Take Sick and Die Some of These Days" -- with chords changing every four bars (see Figure 18).[131] This piece calls for a scordatura violin (Gb-Db-Ab-Eb). The style is minimalist, due to the chord repetition, which changes only incrementally and produces an almost hypnotic effect. Halfway through, the electronic track with "You Got to Take Sick" becomes more prominent, and stays that way until the end. This short piece closes with a decrescendo in the electronic track, as the violinist subtly decrescendos until the violin is barely audible.

[131] Eve Beglarian, *Well-spent* (New York: EVBVD Music, 2012), 1.

Figure 18. Eve Beglarian: *Well-spent,* mm. 1-33.



Well-spent was written in response to a line in Leonardo da Vinci's notebook on serene thoughts on life and flowing water: L'acqua che tochi de fiumi, è l'ultima di quella che andò, e la prima di quelle che viene; così il tempo presente. La vita bene spesa lunga è. Translation:

> The water you touch in a river
> is the last that has passed
> and the first that is coming:
> So with the present moment.
> The well-spent life is long.[132]

Although there is no actual text delivered in this piece, Beglarian's source of inspiration suggests an optimistic view of the Mississippi River endeavor. Da Vinci's poem relays the ever so important truth: The present moment is all we have, thus, if one lives life to its fullest potential,

[132] Irma A. Richter, ed. *The Notebooks of Leonardo Da Vinci* (London: Oxford University Press, 1966), note 1174.

everyday, a fulfilling life is inevitable. Coupling this poem with Muddy Waters's American blues tune, "You Got to Take Sick and Die Some of These Days," further illustrates this idea. It suggests that it is important to accept what is, and stay in the present moment. Beglarian's entire journey began with her embracing the present -- being inspired by Obama's 2008 election and wanting to understand and perhaps change what was happening in the country. She believes that "the Mississippi River Project can be a model for how art that emerges from ground level can help us connect with each other," especially in times of hardship.[133] Reaching out to communities by performing in community centers, colleges, church basements, schools, and the like, has been a way for her to encourage other community members to get involved, promoting interconnectivity.

These three works each illustrate a particular aspect of Beglarian's compositional style. Her attraction to an extramusical source of inspiration, either political or otherwise, is apparent in her text setting of *The Flood* as well as in *Well-spent,* and an underlying narrative also exists in *I'm Worried*. All three pieces are collaborative, accessible to a wide variety of concert goers, and draw on multi-media components. Each piece also has flexible instrumentation and Beglarian encourages audiences to put together different ensembles and combinations of instruments.

Although Beglarian's music does not convey as strong of a sense of place, as Lockwood's, echoes of folk, blues, jazz, and funk, prevalent in the areas around the river, are present in much of her river music and, thus, suggest place. Just as Lockwood brought environmental sounds into the concert hall to encourage people to reconsider the significance of

---

[133] Brett Campbell, "Weekend MusicWatch: Beyond the Bubble," *Oregon ArtsWatch,* October 22, 2011.

such important natural phenomena, Beglarian's journey, which began as a quest to understand her own country, encourages communities to come together and at the very least, share a positive musical experience, encouraging a much needed interconnected attitude towards people as well as environments. Further, her poignant political messages nudge listeners to look beyond themselves and perhaps take action in their respective communities. As mentioned at the beginning of this chapter, Beglarian shared this Mississippi River experience with musicians, artists, poets, linguists, historians, musicologists, an art director, and more community members, who all helped color the music and experience. She and her fellow river companions continue to enrich communities by performing works inspired by this expedition. Beglarian thinks of her work as a way of "inviting people to have an experience that they may not be able to have on their own. The music can serve that function of taking you some place sonically, emotionally, spiritually."[134] Just like a river always flows from its headwaters to the sea and a myriad of channels exist along the way, Beglarian began this journey with a goal, to understand her country, but with no specific agenda. Not everybody is going to decide one day to kayak down the Mississippi river and write music inspired by the journey years after it is over. Like Lockwood, Beglarian uses technology in her compositions, although in different ways, and her online blog which brings awareness about the Mississippi river to an otherwise unknowing audience underscores this aspect. Although the technology might be regarded as incompatible with nature, its contribution to the betterment of our environment, through awareness or otherwise, outweighs any negative repercussions. Although Beglarian might be the most

---

[134] Paul Freeman, "Eve Beglarian: The Music is the Journey," *The Mercury News,* March 12, 2010.

anthropocentric of the three composers in this study, she is clearly "interested in how our relationship to nature, geography, and ecology of the river is manifested in music, literature, and all the arts."[135] Lastly, as a woman, Beglarian's voyage down the Mississippi river is set apart from other frontiersmen's previous expeditions. She shows a more eco-feminist attitude in that she is not trying to conquer or control nature, but rather, appreciating and responding to the beautiful sights and sounds of the Mississippi environment.

[135] "Eve Beglarian," http://evbvd.com/riverblog/about (Accessed October 10, 2012).

CHAPTER 6: LEAH BARCLAY: MUSICAL EXPLORATIONS OF WORLD RIVERS

Leah Barclay (b. 1985), an Australian composer and percussionist, is a passionate advocate for environmental conservation and sustainability. Similar to Lockwood, Barclay is interested in the timbral and textural properties of sound and tape technology, and, like Beglarian, Barclay engages with communities. Interested in the environment from a young age, Barclay was motivated to create environmentally-inspired music in order to promote awareness of our current ecological crisis. She believes music has a profound ability to create a connection between listeners and the environment.[136] She also thinks that sound can "act as a catalyst and creative medium to address the state of our environment," and through her work she aims to "generate a shift in consciousness."[137]

Living near rivers in Australia, as well as in countries such as India, inspired her to musically explore rivers. She recalls:

> My childhood memories of growing up on rivers across Australia and living in such countries as India fueled a desire to explore rivers as the lifeblood of communities. I wanted to find a voice for the rivers at a time when it is becoming increasingly more important to listen to the environment.[138]

Barclay takes her musical endeavors further than Lockwood and Beglarian by exploring rivers on a global scale. She believes twenty-first-century world leaders, presumably environmental

---

[136] Leah Barclay, "The Agency of Soundscapes in Ecological Crisis," unpublished lecture at the Queensland Conservatorium of Music (2010): 1. I would like to thank Leah Barclay for making this text available to me.

[137] Leah Barclay, "The Agency of Soundscapes," 1.

[138] Leah Barclay, "Liner Notes," *Transient Landscapes: Selected Works from the Installation Sound Mirrors,* CD (Brisbane: Leah Barclay, 2010), not paginated.

leaders, are looking for artists who use creative methods as tools for change. Ideally, artists should lead the way. This challenges composers and performers alike to gain a critical understanding of our environmental situation and devise new processes for a more environmentally-conscious future.[139] In the following, I will provide background information on Barclay's career that will illuminate her compositional style and philosophy as well as her performance experience. I will touch on some of her earlier, environmentally-inspired works and on some of her current projects. I will then focus on her most important environmental work to date, *Sound Mirrors* (2010), a sound installation, which draws attention to several large rivers across the world.

I. Environmentally-Inspired Projects

Barclay has always spent a great deal of time outdoors. During her childhood she pursued outdoor activities such as hiking, kayaking, and diving and lived near the Great Barrier Reef, where she went snorkeling on weekends.[140] Her outdoor activities now involve field recording, as she explores environments all over the world and travels with her hydrophones and field recorders to gather outdoor sound.[141]

---

[139] Leah Barclay, "The Agency of Soundscape in Ecological Crisis," 2.

[140] Leah Barclay to the author, email of October 19, 2012.

[141] Ibid.

Barclay plays piano, guitar, and percussion and she started composing in her early teens, which led to short piano pieces as well as a love for improvisation.[142] As an accomplished percussionist, Barclay mastered non-Western forms of drumming and studied percussion extensively in South India and Korea. These experiences enabled her to draw on the complex rhythmic practices of South Indian and Korean traditions, which is evident in the works discussed later in this chapter. Further, she released two CDs with the Nada Laya ensemble in South India and collaborated with acclaimed Korean percussionist Choi Yoonsang. She is still actively performing today. Barclay attended the Queensland Conservatorium for her undergraduate and graduate studies in composition. She discovered electroacoustic music half way through her undergraduate degree, thanks to the New Zealand-based composer John Coulter, who introduced her to this genre. She fully embraced this new sound world and has been composing electroacoustic music ever since. Barclay draws on electronic media, environmental field recordings, multi-channel sound diffusion, and live performers. Her work has been commissioned by such organizations as Australian Voices, and has been publicly performed, recorded, and exhibited internationally. Although she works primarily in an electroacoustic medium, Barclay has composed music for live chamber ensembles and symphonies and for theater and dance. She has undertaken projects in New Zealand, Brazil, and India.

In 2002, Barclay composed her first environmentally-oriented work, *Quixotic* (2002) for brass ensemble, which was based on a location near her home. Shortly thereafter she created *River* (2003) for wind quintet, which was inspired by Australia's Noosa River. In 2004 Barclay conceived her first environmentally activist composition, *River of Mirrors* for chamber orchestra,

---

[142] Leah Barclay to the author, email of October 19, 2012.

but it has never been publicly performed.[143] In this work, she used extended performance techniques to imitate natural environmental sounds she heard in the Noosa Everglades.[144] Her first major commissioned composition expressing environmental concerns is *Confluence,* a mixed media work. It was written for the opening of the Queensland Great Walks and Earth Songs exhibition in 2005.[145] The performing forces include cello, live electronics, and dancers. The work also features photography and environmental field recordings from the Sunshine Coast and pre-recorded voices from news reports and interviews on climate change.[146]

Some of Barclay's more recent environmentally-oriented artistic projects include the *Mamori Sound Project* (2011), *Keralan Artlab* (2011), and *DAM(N) India* (2012), to name a few. In the Fall of 2011, she participated in the sixth annual Mamori Sound Project. This annual workshop and residency, held at Mamori Lake in the Brazilian Amazon, focused on creative approaches to field recordings through considerable exploration of natural sound environments.[147] In November 2011, Barclay led the Australian Council for the Arts to Kerala, South India to "understand and engage with ideas of remnant self, culture, and environments," and ultimately, to promote a more environmentally and culturally sustainable future.[148] She also

---

[143] Leah Barclay to Sabine Feisst, e-mail of August 10, 2012.

[144] Ibid.

[145] Ibid.

[146] Ibid.

[147] "Leah Barclay," http://leahbarclay.com/featured-projects/ (Accessed August 1, 2012).

[148] Ibid.

served as the composer and sound artist for *DAM(N) India* (2012), an interdisciplinary project that explores some of the stories of displaced people of the Narmada River in North India. The construction of dams in India, and this massive one in particular, is a controversial and significant social issue. While many people believe that the dam will bring water security to millions of people as well as provide 1.45 GW power, the dam will concurrently displace up to half a million people.[149] The central idea of Barclay's project is "the nature and mythology of water, its creative as well as destructive powers, and our relationship to this vital source of life in the context of India and Australia."[150]

II. *Sound Mirrors*: A Sonic Response to Rivers Across the World

In *Sound Mirrors,* her most important work centering around water and rivers in particular, Barclay draws attention to some of the current issues and concerns regarding the environmental condition, historical significance, and cultural importance of major rivers across the world. Throughout 2009 and 2010, Barclay traveled through Australia, India, Korea, and China to capture the sounds of the Noosa, Pamba, Han, Huangpu, and Yangtze Rivers, respectively, and their surrounding communities. These field recordings form the basic sonic ingredients of this work. The sounds Barclay captured alongside the river include water, Buddhist temple bells, civil defense sirens, a Tibetan singing bowl, the voices and activities of community members, along with a variety of other sounds heard near each river. This project also features several collaborative performances, as well as her own percussion performance.

---

[149] Ibid.

[150] Ibid.

Barclay gathered nearly forty hours of material and used about three hours in the compositional process; however, only one and a half hours of edited and processed material was included in the premier and subsequent versions.[151] All the material was recorded, composed, and performed in response to the environment. Barclay composed and provided sketches for the musicians and, according to her specific instructions, she and the other musicians improvised. There are unpublished graphic scores for all the compositions presented on the "Transient Landscapes" CD as well as unpublished traditional scores. She explains, "the process varied from sculpting and layering sounds recorded on location to directly responding to the environment and collaborating with local musicians," all of which allowed Barclay to create an environmental, social, and cultural dialogue.[152] She worked with musicians whose music she recorded. As a percussionist, she performed much of the music on the "Transient Landscapes" version of *Sound Mirrors*.

Sound Mirrors is a large-scale sound installation that premiered in October 2010 at the Noosa Regional Gallery in Noosa, Queensland. The installation also toured in Sydney, Melbourne, Korea, and India. The opening exhibition included live performances and also fashioned "Transient Landscapes," a version on CD, featuring excerpts from the *Sound Mirrors* installation. The installation was "conceived as a linear experience in an intimate acoustic space," and the "Transient Landscapes" version "divides the work into shorter experiences with

---

[151] Ibid.

[152] "Leah Barclay," http://leahbarclay.com/portfolio/sound-mirrors-interactive-installation/ (Accessed September 1, 2012).

their own story."[153] The following list of each selection in the "Transient Landscapes" version of *Sound Mirrors,* will give a general picture of the work overall.

*"*River of Mirrors" [3'11"']

"Everglades" [2'33"']

*"*Nakshatra: Division of the Sky" [11'33"']

*"*Ritual Bells" [2'58"']

*"*Triloka: Monsoon" [11'11"']

"Backwaters" [4'35"']

*"*Han River" [15'06"']

"Red Cliffs" [1'40"']

"Shimmer*"* [3'46"']

"Liquid Borders" [4'05"']

*"*Confluence" [7'05"']

The installation versions do not have a specific length; rather, they play continually, at random, until the installation is turned off. In the case of the Noosa Gallery version, the visitors were positioned in the center of the space, which was always dark, and the ground was covered with mulch and leaves so the audience felt as though they were walking along the river.[154] The installation focused on sound, rather than visuals, and it was designed for an intimate listening

---

[153] Leah Barclay, "Liner Notes," *Transient Landscapes: Selected Works from the Installation Sound Mirrors*, CD (Brisbane: Leah Barclay, 2010), not paginated.

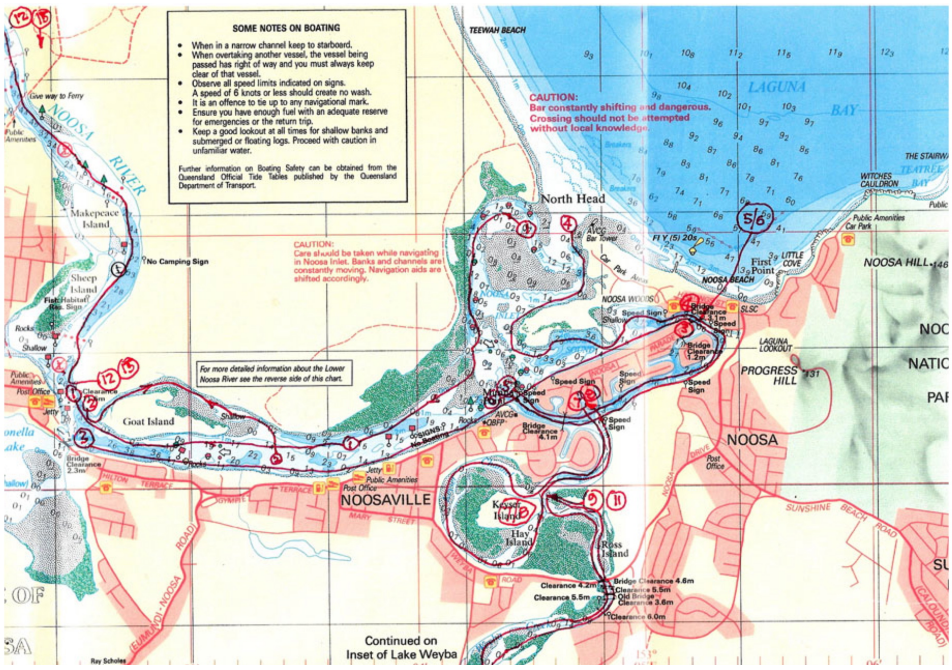
[154] Leah Barclay to Sabine Feisst, e-mail of August 10, 2012.

space with dim lighting. Similar to Lockwood, Barclay wanted to encourage the audience to engage with sounds in a world that is primarily perceived visually. In the following section, I will uncover the environmental, historical, and cultural underpinnings in three of the movements from *Sound Mirrors*, "River of Mirrors," "Nakshatra," and "Han River," and discuss musical details.

III. World Rivers in "River of Mirrors, "Nakshatra," and "Han River"

The Noosa River, approximately 752 miles in length, is situated in South East Queensland, Australia. The Noosa flows predominately north to south, beginning in the Wahpoonga Range area near Mount Elliot and winds through a lakes district, ending at the Pacific Ocean. Lakes located on the river include Lake Cooloola, Como, Cootharaba, Cooroibah, and Weyba. Noosa National Park is considered Noosa region's most valuable natural asset. Noosa tourism developed in the late 1920s and tourism remains Noosa's major industry. A population limit of 50,000 people, restrictions on high rise development, and limited land available for development helps protect Queensland for future generations.

Figure 19: Map of Noosa River.[155]



In October 2007, Noosa was declared an UNESCO Biosphere Reserve. This biosphere is 150,000 hectares of land and sea; and a total of 1,365 different species of plants exist within these limits. The Noosa biosphere also provides protection for hundreds of native fauna.[156] Further, Noosa forms part of the "MacLeay-McPherson Overlap Zone," an area of high biodiversity.[157] Thus, the region is rich in Australian fauna, such as birds, amphibians, and

---

[155] "Noosa River Catchment Association Inc," online website, www.noosariver.com.au/ (Accessed November 25, 2012).

[156] "Noosa Biosphere," www.noosabiosphere.org.au (Accessed September 1, 2012); and *Noosa River and Environs Interim Policy Plan* (Toowong, Qld: Environmental Science and Services, 1983).

[157] Ibid.

snakes.[158] Earlier however, urban expansion had contributed to the loss of eucalyptus, melaleuca, and rain forests.[159] In the mid-1990s, Noosa's rapid growth rate was recognized by the Noosa council, and thus measures were taken out of fear that Noosa would become another city dominated by high-rises, traffic lights, and congestion.[160] This program was implemented so the Noosa Biosphere would be "a learning community that cultivates harmony between people and nature, for both conservation and sustainable development."[161] Many people have contributed to the aims of the Noosa Biosphere Reserve, including Barclay, who serves in an advisory capacity for this environmental organization. Like every river, Noosa has pollution, though Noosa has several "waterwatch" programs to help control the levels of harmful chemicals and other pollutants, or in the case of Noosa's upper waters, tannin stains.[162]

"River of Mirrors," which is just over three minutes in length and the first movement in the "Transient Landscape" version of *Sound Mirrors*, Barclay collaborated with the indigenous didgeridoo artist, Lyndon Davis. Davis is a direct descendant of Australia's Gubbi Gubbi tribe, whose people reside in the South East Queensland region. In this work, Barclay considers the memories of the Noosa River and the remarkable "mirror reflections" in the tannin-stained

---

[158] Ibid.

[159] Ibid.

[160] "Sustainability in Noosa," aries.mq.edu.au/projects/noosa/files/Noosa.pdf (Accessed October 1, 2012).

[161] Ibid.

[162] "Waterwatch Australia," www.waterwatch.org.au/ (Accessed November 1, 2012).

waters.[163] In this movement Barclay uses four distinct sound sources, as well as electronics. These sound sources include the keynote sounds of birds and water, as well as didgeridoo and voice, both performed by Davis. Figure 20 illustrates the ways layers are situated, from as few as two sound sources to as many as five at a time, including electronics.

Figure 20. Leah Barclay: *Sound Mirrors,* "River of Mirrors" (3 minutes and 14 seconds).

Time	0 min	30 sec	1 min	1'30''	2 min	2'30''	3 min
Birds							
Water							
Didjeridoo	0m 20s						
Voice			1m 0s			2m 46s	
Electronics				1m 50s (loudest)			

This fairly brief movement is not in distinct sections; however, the shape resembles a large crescendo-decrescendo with the climax between two minutes and two minutes and thirty seconds, as shown in Figure 20. The movement opens with environmental sounds, including the delicate sounds of the Noosa river as well as several different and sporadic bird calls in the background and foreground. Barclay brings in the low sounds of the didgeridoo shortly thereafter, and the three sound sources are heard in counterpoint, almost as if the didgeridoo is responding to the environmental ambient sounds. After about a minute, Davis's voice emerges, albeit slightly muffled at first. His words momentarily conjure up a sense of balance as he uses such vocabulary as "respect," "harmony," and "belongingness." In this way, Barclay seems to be setting the tone for the entire *Sound Mirrors* collection. However, the audience is plunged into a

[163] Leah Barclay, "Liner Notes," *Transient Landscapes: Select Works from the Installation Sound Mirrors,* CD (Brisbane: Leah Barclay, 2012), not paginated.

different mode when, shortly after Davis starts speaking, his voice is electronically manipulated and electronic sounds seem close to overpowering the environmental sounds. Around two minutes, all sound sources are battling each other, suggesting humans often have discord with nature. This continues for about a minute and then Barclay instills a hopeful message: Davis speaks of the importance of ecology. He says:

> We all live here, we're all human beings, we all have the same sort of purpose, you know, looking out for the earth.

We are ultimately left with the gentle sounds of nature, environmentalists hope this will be true in life as well. In this movement, Barclay points to the ecological consciousness that we all need to adopt. This kind of deep ecological thinking suggesting that organisms are all dependent on each other is instrumental. Violent or destructive human interference with or destruction to nature threatens all organisms.

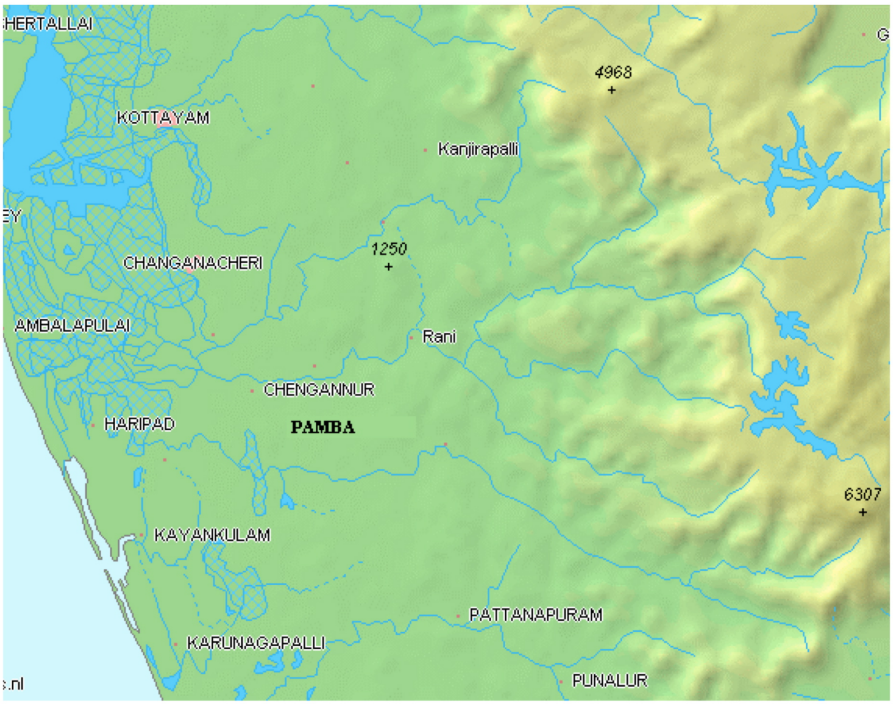
Another river featured in *Sound Mirrors* is the Pamba, which is approximately 110 miles long and the third longest river in the South Indian state of Kerala. The Pamba originates at Pulachimalai Hill in the Peerumedu plateau and courses through Ranni, Kozfhenchery, Tiruvalla, Chengannur, Kuttanad, Karhikapally, and Ambalappuzha Taluks, and empties into the Vembanad Lake. The river shares its northern boundary with the Manimala River basin and its southern boundary with the Achankovil River basin. Kuttanad is popularly known as the "rice bowl of Kerala," famous for cultivation of the grain, and the water for irrigation purposes is available from this river.[164] A report in *The Hindu* newspaper in 2011 regarding the scientific management

---

[164] "Kerala," www.kerala.me/riv_pamba.php (Accessed September 1, 2012); and "ENVIS Center: Kerala's State of Environment and Related Issues," www.kerenvis.nic.in/Database/Waterpollution_834.aspx (Accessed November 25, 2012).

of wastewater in rivers recently addressed the heavy amount of waste materials and sewage produced by towns, markets, hospitals, factories, and slaughter houses, which have contaminated the Pamba river, among others, to alarming levels.[165] All the water samples collected for the survey were acidic and contaminated with bacteria. The survey also showed that sand mining, industrial pollution, and pesticide contamination were major threats, as well as the presence of E. coli bacteria and heavy metal contamination.

Figure 21. Map of Pamba River.[166]



[165] Special correspondent, "Survey Finds Four River Basins Polluted," *The Hindu,* September 23, 2011.

[166] "Pamba River," online website, en.wikipedia.org/wiki/Pamba_River (Accessed November 25, 2012).

The Hindu temple, Sabarimala, is located on the banks of the Pamba River and it is believed that bathing in this river can wash away one's sins.[167] Thus, organizations such as the Pamba Parirakshana Samithy organization (PPS) have, since 1993, endeavored to protect the Holy River Pamba from degradation and destruction.[168] This group collaborates with institutions such as the Center for Earth Science Studies (CESS), Center for Water Resources Development and Management (CWRDM), and the Kerala State Pollution Control Board to find solutions to environmental concerns.

Inspired by the Pamba River in Kerala, South India, "Nakshatra," or Divisions of the Sky, is eleven minutes and thirty-three seconds long and is the third movement of the "Transient Landscapes" version of *Sound Mirrors.* Barclay uses several different sound sources including three traditional Indian percussion instruments: the mridangam (a two-headed drum), ghatam (a ceramic pot), and moorsing (a jaw harp). The other instruments and sounds Barclay employs include: a bansuri flute, a Tibetan singing bowl, a speaking and singing voice, a train, and the sound of the Pamba river itself, among other processed water/hydrophone recordings in the sound bed.[169] The mridangam is performed by Subhash, the ghatan, Sreenath T.S., and the moorsing is performed by Barclay herself. This movement reflects an ABA form because it opens and closes with similar performing forces, namely the Tibetan singing bowl and moorsing, and with few layers and quiet dynamic. Textural layering in "Nakshatra" varies greatly. The sound sources are first arranged in one to three layers, gradually increasing to as many as six or

---

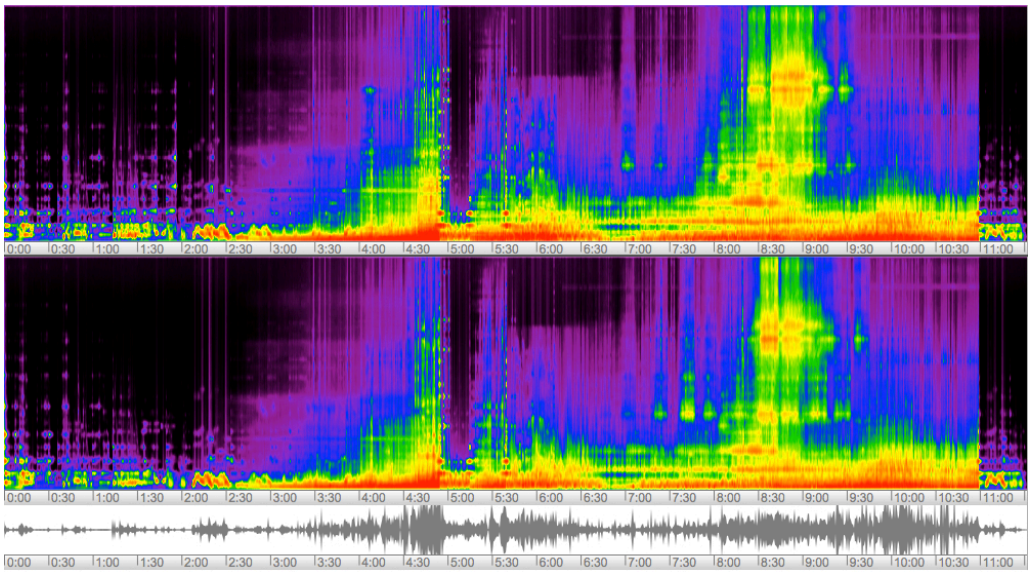
[167] Ibid.

[168] "Pamba Parirakshana Samithy," www.savepamba.org (Accessed September 1, 2012).

[169] Leah Barclay to the author, email of October 19, 2012.

seven layers, and then toward the end, again, with very few layers. The following spectrogram, Figure 22, illustrates the general shape and varied layers of sound sources in this movement.

Figure 22. Leah Barclay: Spectrogram Analysis for “Nakshatra” (11 minutes and 36 seconds long).



In the first third of this piece, Barclay uses up to three or four sound sources at a time, including the Tibetan singing bowl, a bansuri flute, a moorsing, and other minimally processed sounds. “Nakshatra” opens with the strike of a Tibetan singing bowl. About forty seconds into the piece, she introduces a bansuri flute melody, performed by a local musician. These two instruments are heard in counterpoint. Shortly thereafter, Barclay presents a new melody, performed by herself, on the moorsing, or jaw harp. As the piece picks up in tempo, she introduces the sound of a train, which was recorded alongside the river.[170] It is interesting that she uses this specific audible icon. By bringing in the sounds of the train Barclay leads listeners,

[170] Ibid.

consciously or subconsciously, to ponder the damaging effects of modern industry. It is jarring to hear the sounds of the train among the sounds of nature, pointing to what Leo Marx would describe as a "shocking intrusion of technology" on a quasi-pastoral scene.[171] Further, she uses the moorsing and train to build tension by gradually increasing the tempo and dynamic. Finally, the Tibetan singing bowl sound comes back, dramatically, rounding off the first five minutes of "Nakshatra."

In the movement's middle section, a low electronic drone is first heard. Barclay then brings back the sound of a train, albeit speeding, just before she introduces a man's voice. She seems to be pointing to the unbalanced relationship between humans and the environment. The man says:

> Ganesh is a god who destroys all the trouble from our lives, that is our concept. So the first song is in the raga Malahari set to rupaka talam. Up and downwards direction of Malahari raga.[172]

Ganesh, or Ganesha, is a superior god of wisdom, prosperity, and good fortune in the Hindu religion. Traditionally, Ganesh is invoked at the beginning of a new venture. After the man speaks, Barclay brings in the sounds of the Pamba River coupled with a man singing a Malahari raga. By introducing the sounds of the Pamba River for the first time just after Ravi talks about Ganesh, Barclay is conceivably imparting prosperity and hope to this holy river. The Malahari raga is a traditional Carnatic raga with an asymmestric scale, meaning, five notes in the

---

[171] Leo Marx, *Machine in the Garden: Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 2000), 73-226.

[172] Leah Barclay to the author, email of October 19, 2012.

ascending scale and six notes in the descending scale.[173] The man, Ravi, is a Carnatic singer who taught at the school in Kerala where Barclay studied percussion.[174] After Ravi's first rendition of the raga, the mridangamist begins playing, subtly and steadily. At this point, the sounds of the river slowly disappear, and soon only the mridangam and electronically processed sounds are heard. This continues until the electronic track completely envelopes the mridangam. The intrusion of electronically generated sounds upon the musical environment clearly points to the disruptive effect that urbanization has had on both the ecology of this natural environment, and more broadly, environmental degradation caused by certain types of modernization. As stated earlier, technology is not always negative. It is a problem when humans overwhelm nature with tools.

In the last part of "Nakshatra," Barclay brings back the moorsing to play with the mridangam. The two instruments are suddenly cut off by the Tibetan singing bowl presented at the beginning. Coming full circle, "Nakshatra" closes as gently as it began, and we are left with the faint echo of the singing bowl and the delicate whisper of the moorsing. Considering the idea suggested by Katherine Norman that, "music made from [real-world sounds] cannot be anything but political," Barclay presents the "real-world" sounds surrounding the Pamba River including those of a train in such a way to address the potentially destructive effects of urban life.[175]

---

[173] Walter Kaufman, *The Ragas of South Indian: A Catalog of Scalar Material* (Bloomington: Indiana University Press, 1976), 128.

[174] Leah Barclay to the author, email of October 19, 2012.

[175] Katharine Norman, "Real-World Music as Composed Listening," *Contemporary Music Review* 15, no. 1 (1996): 1.

Another river featured in *Sound Mirrors* is the Han in South Korea, which rises in the Western slopes of the T'aebaek-sanmaek mountains and flows westward across the peninsula through the provinces of Kangwŏn, Kyŏnggi, North Ch'ungch'ŏng, and through the city of Seoul to the Yellow Sea. The Han River is approximately 319 miles long, and is the fourth longest river on the Korean peninsula. It has been a valuable river transportation route since the Yi dynasty.[176] The northern part of the river, in the mountains, is used to generate hydroelectricity. Ecological Studies of the Han River Basin released by the National Institute of Environmental Research stated that 95 families, 387 genera, and 868 species of plants live in the Han River Basin, as well as eight orders, 45 families, 95 genera, and 186 species of aquatic insects .[177] However, more recent studies conducted by the Seoul government showed that this population of flora and fauna is decreasing.[178]

---

[176] *Encyclopedia Britannica Online,* s.v. "Han River," accessed October 10, 2012, http://www.britannica.com/.

[177] "Han River Basin Environmental Office Republic of Korea," eng.me.go.kr/doc_hg/han_river/information3.jsp (Accessed October 20, 2012); and "The Four Major Rivers Restoration Project: Impacts on River Flows," *KSCE Journal of Civil Engineering* 15, no. 2 (2011): 217-224.

[178] Ibid.

Figure 23: Map of Han River.[179]

The Han River has played an important role in Korean history. During the Korean War, the South Korean President, Syngman Rhee, hastily left Seoul to the south of the river due to the impending occupation of Seoul by North Korean forces. The Han now belongs to South Korea. During the first few decades of South Korea's existence the Han was known for its pollution, caused by industry and cities using it as a spillway for industrial and urban waste.

In 2008, the Han River Urban Environment Improvement Project was implemented as a result of urbanization and development taking place along the river.[180] The Han is the largest tributary of China's Yangtze River and the quality of the water in this province had been

---

[179] "Academic Dictionaries and Encyclopedias," online website, de.academic.ru/dic.nsf/dewiki/1274741 (Accessed November 25, 2012).

[180] "Han River Urban Environment Improvement Project," www.worldbank.org/projects/P087224/han-river-urban-environment-improvement-project?lang=en (Accessed September 1, 2012).

deteriorating, causing long-term environmental and socio-economic problems. Solid waste was a significant contributor to the river's deterioration.[181] The project development objective was to reduce the pollution caused by wastewater and solid waste in selected cities located in the Han River areas.[182]

In "Han River," just over fifteen minutes in length and the seventh movement in the "Transient Landscapes" version of *Sound Mirrors,* Barclay points to the Han River that flows through the city of Seoul. It is impossible not to acknowledge the historical underpinning of this movement. In "Han River," Barclay alludes to the controversial history of Korea by including the sounds of Buddhist temple bells, a civil defense drill siren, and a large amount of source material from field recordings all across the streets of Seoul and the Han River in Seoul.[183] The sounds were recorded all over Seoul, but Barclay tried to keep as close to the river as possible.[184] Barclay also uses two traditional Korean instruments, a Taegum, a large bamboo flute, and a Janggu, an hourglass-shaped drum often classified as an accompanying instrument because of its flexible and versatile nature and agility with complex rhythms. Interestingly, the two sides of the drum have different pitches and timbres, representing the harmony of a man and a woman. Barclay did not have a preconceived form for this piece before she started; rather, it evolved over

---

[181] Ibid.

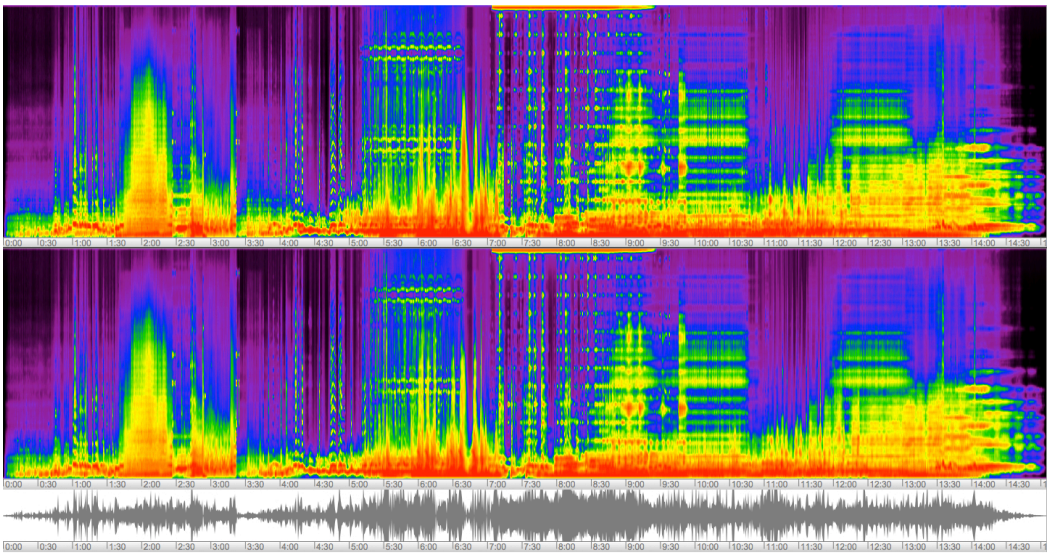
[182] Ibid.

[183] Leah Barclay to the author, email of October 19, 2012.

[184] Ibid.

time.[185] The spectrogram in Figure 24 reveals the variety of sound source layers and overall shape of “Han River.”

Figure 24. Leah Barclay: Spectrogram Analysis for “Han River” (15 minutes and 9 seconds long).



“Han River” begins quietly and Barclay immediately introduces the sounds of the river coupled with a slightly processed Janguu. Shortly therafter, Barclay introduces the Taegum, performed by Hyelim Kim, which remains prominent for most of the movement. Kim plays a mixture of improvisation, based on traditional melodies, and melodies that were collaboratively composed.[186] Abruptly interrupted by the discordant sound of thunder and a beating drum, Barclay alludes to Seoul's historically disconcerting past, regarding destruction caused by war, or perhaps she is pointing to the troubling present, considering the Han River’s environmental

[185] Ibid.

[186] Ibid.

degradation. The drum's driving rhythm creates tension as it propels the movement forward in tempo and dynamic. The movement then turns into a chaotic conglomeration of sounds all heard simultaneously. The sounds include, the Han River, a Taegum, an announcement, a group singing, crowd noises, and clapping. The commotion of the people derives from a street party in a neighborhood near the river. The people are singing a traditional song, clapping as they dance and sing. This assortment of rural life sounds captures the vibrant energy of the urban community, and is suddenly cut off by the sound of a coin being tossed. Barclay spent a few hours at a street stall playing bells one afternoon and the store owner gave her a traditional coin as a gift.[187]

The next distinct section in "Han River" begins as gently as did the first. Although this section opens in a similar way to the first, Barclay employs more electronic manipulation and thus creates a bleaker atmosphere. She also adds fragmented radio voices underscored by low electronic drones, which give this section an ominous quality. At this point, Barclay introduces the sounds of planes overhead, again, alluding to danger, war, and, consequently, destruction. From a Deep Ecology perspective, today, society's collective attitude towards natural environments is just as destructive as war. As the electronically generated sounds and unsettling voices escalate, we are no longer aware of the river's presence, which is perhaps a parallel for a lack of environmental concern. In "Han River," Barclay, extensively, processed all the electronic source material to create an "abstract soundscape that intertwines with the surging energy of the city and whispers of the past."[188] Historically, the Han River is like a loaded gun that could be

---

[187] Ibid.

[188] Leah Barclay to the author, email of October 19, 2012.

used against North or South Korea. By breaking the wall in specific places of the river, one side could completely flood the other. So, as the river can be a source of life and abounding in culture, it also projects fear, as it implies the destruction of life. This section does not end abruptly; instead, the sounds disseminate into the final section of the piece. The last few minutes of "Han River" begin like an afterthought, or quiet reflection. High-pitched, twangy, and shimmering sounds are dispersed sporadically and, gradually, they become more dense. Other electronic sounds fill the space as the Janggu, again, grows more prominent. After a few minutes of this, broken voices come back into the mix and it turns into a whirlwind of eclectic electronic sounds until the end where the Janggu and Taegum are most distinct. This piece ends quietly as the electronic glistening sound fades out gradually, giving the audience a chance to contemplate the vibrant, yet destructive, synergy of Seoul.

With her "intercultural electroacoustic music," as Barlay calls it, she hopes to create a new body of electroacoustic work to explore new methods of creating a sustainable and creative practice.[189] Barclay explains, "I was aware that this wasn't just about a creative response to an issue, but attempting to create a paradigm shift and generate new ways to harness the power of creative methodologies in environmental crisis."[190] Electroacoustic music is a powerful tool in generating a connection to the natural environment. Although these sounds are taken out of context, because they are separated from the original source, Barclay uses them to create awareness and hopefully change the attitude and actions of audiences on a global scale. She has even initiated what she calls a "Sonic Ecologies Framework," which she hopes will give artists

---

[189] Leah Barclay, "The Agency of Soundscapes in Ecological Crisis," 2.

[190] Leah Barclay to Sabine Feisst, email of August 10, 2012.

the opportunity to be "agents of change in Environmental emergency."[191] This project allows for a wide variety of site-specific electroacoustic music projects to respond to specific communities, as well as points to a wide variety of dissemination of her music and ideas, including sound walks and artist lectures.[192] This kind of interactivity further promotes interconnectedness.

Although Barclay relies on technology in her work, she uses it as an instrument much like a violinist would as a form of expression. More importantly though, she uses it for a greater purpose. In the music of *Sound Mirrors,* particularly the movements just discussed, Barclay seems to present engineered technologies in a negative light by juxtaposing machine-like sounds against nature in an abrupt manner. This kind of careful placement suggests technology, or rather, the abuse of technology, is intrusive and harmful. This points to eco-feminist tendencies, as Barclay clearly exhibits a natural inclination for the environment. However, as expressed earlier in this study, Barclay also feels that it is more important to "inspire a sustainable future by working together and creating balance."[193] Perhaps more appropriate then, is to ascribe a Deep Ecological reading on *Sound Mirrors* as a whole. By nudging the audience to question deeper issues, such as the discordant relationship between humans and the environment, Barclay exhibits an affinity with Deep Ecological thought. *Sound Mirrors* highlights the relationship of living creatures to one another and the environment and hopefully leads audiences to question the need for a more interconnected way of life.

---

[191] Leah Barchaly, "The Agency of Soundscapes in Ecological Crisis," 2.

[192] Ibid. In both major exhibitions, Barclay facilitated sound walks and presented artist talks. She also took people through the installation and explained the process.

[193] Leah Barclay to the author, email of November 25, 2012.

CHAPTER 7: CONCLUSION

In new ways, Lockwood, Beglarian, and Barclay have each drawn inspiration from nature, via river soundscapes, and used their creativity to call attention to fragile environments. In *A Sound Map for the Danube River,* Lockwood provides a voice for the Danube river, which encourages listeners to think about the relationship between the human and non-human world and to, ideally, embrace a more ecological attitude. Beglarian's voyage down the Mississippi river not only led to an abundance of new works, but also motivated others to become more involved in their communities. Beglarian's poignant political messages prompt others to look beyond themselves, embracing a more ecologically conscious viewpoint. In her *Sound Mirrors* installation, Barclay sought to find a voice for rivers on a global scale. Barclay's endeavors, such as her "Sonic Ecologies Framework" project, promote awareness regarding our current ecological crisis. With this venture, she hopes artists will initiate cultural change through sound and communicate that there is a crucial need to listen to our environment. Barclay continues to be a passionate advocate for environmental conservation and sustainability.

In a world where the disastrous effects of climate change have become a distressing reality, artists, alongside scientists and environmentalists, have begun to work together to bring about a shift in consciousness. Composers and sound artists, like ecologists, can wield their expertise to protect the environment as well as help people understand and experience the connectedness of all things. This kind of understanding and experience is desperately needed in this day and age.

Artists can play an important role for preparing audiences for a more sustainable future. The immediacy and emotional power of music is undeniable, which makes it a useful tool of

bringing environmental issues to the foreground.The advancement of technology, however controversial that might be, has provided a means to communicate at many different levels and to a broader audience. Although some might argue about the controversial nature of using technology to capture natural environments, as previously mentioned, technology can also bring us closer to nature. When technology is used as a tool in this endeavor, the positive impact far outweighs the negative. Electroacoustic music has a profound ability to create environmental awareness. Composers working with environmental sounds are arguably more conscious of and concerned with ecological forms of listening, they are in a better position to inspire others to open their ears to their sonic surroundings.

All three composers represented in this study serve as models for younger generations in this field. These artists exhibit ecofeminist sensibilities, albeit in varying degrees due to their thoughtful engagement with nature. More importantly, though, each composer illustrates a desire to promote interconnectivity. Lockwood and Barclay embrace a Deep Ecological attitude as each encourages audiences to notice or question the imbalanced relationship between humankind and the environment. Beglarian, likewise, brings awareness to large local and online communities by inviting others to join in her Mississippi river endeavor. These composers have embraced the idea that music does not need to be so limited to conventional musical sounds. They will hopefully inspire future generations of musicians and audiences to shift their attitude towards precious natural environments and lead listeners toward a greater ecological awareness.

BIBLIOGRAPHY

Adams, John Luther. *The Place Where You Go to Listen: In Search of an Ecology of Music.* Middletown, CT: Wesleyan University Press, 2009.

_____. *Dark Waves.* Fairbanks, AK: Taiga Press, 2007.

_____. *Winter Music.* Middletown, CT: Wesleyan University Press, 2004.

Adams, Stephen J. "Schafer, R. Murray" in *Grove Music Online. Oxford Music Online,* http://www.oxfordmusiconline.com/subscriber/article/grove/music/24738 (Accessed May 1, 2009).

Anderson, Emily, ed. *The Letters of Beethoven.* London: St. Martin's Press, 1961.

Battier, Marc. "What the GRM Brought to Music: From Musique Concrète to Acousmatic Music." *Organized Sound* 12, no. 3 (2007): 189-202.

Bartoš, František, ed. *Bedřich Smetana: Letters and Reminiscences.* Prague: Artia, 1955.

Beatson, Peter. "From Landscape to Environment: Representations of Nature in New Zealand Classical Music." *Canzona* 14, no. 35 (1992): 20-34.

Bernstein, Jane A., ed. *Women's Voices Across Musical Worlds.* Boston: Northeastern University Press, 2004.

Bosma, Hannah. "Musical Washing Machines, Composer-Performers, and Other Blurring Boundaries: How Women Make A Difference in Electroacoustic Music." *Intersections* 26, no. 2 (2006): 97-113.

Brace, Geoffrey. *Listen! Music and Nature.* Cambridge: Cambridge University Press, 1976.

Bradley, Ian. *Water Music: Making Music in the Spas in Europe and North America.* New York: Oxford University Press, 2010.

Butler, Judith. *Gender Trouble: Feminism and the Subversion of Identity.* New York: Routledge, 1990.

Cage, John. *Silence.* Middletown, CT: Wesleyan University Press, 1961.

Carson, Rachel. *Silent Spring.* Boston: Houghton Mifflin, 1962.

Chadabe, Joel. *Electric Sound: The Past and Promise of Electronic Music.* Upper Saddle River, NJ: Prentice Hall, 1997.

Clapham, John. *Smetana.* New York: Octagon Books, 1972.

Clements, Ron. "Composer's Solo Becomes Group Trek Down Mississippi." *The Telegraph,* October 19, 2009.

Code, Lorraine. *Ecological Thinking: The Politics of Epistemic Location.* New York: Oxford University Press, 2006.

_____. *What Can She Know? Feminist Theory and The Construction of Knowledge.* New York: Cornell University, 1991.

Coleman, James M., Harry H. Roberts, and Gregory W. Stone. "The Mississippi River Delta: An Overview." *Journal of Costal Research* 14, no. 3 (Summer 1998): 698-716.

Cook, Nicholas. *Analysing Musical Multimedia.* Oxford: Clarendon Press, 1998.

_____. *Music, Imagination, and Culture.* Oxford: Clarendon Press, 1990.

Cook, Nicholas, and Mark Everist. *Rethinking Music.* Oxford: Oxford University Press, 1990.

Coulter, Tony. "Annea Lockwood." *Ear Magazine* 13, no. 4 (1988): 26-27.

Cox, Christopher, and Daniel Warner, eds. *Audio Culture: Readings in Modern Music.* New York: Continuum International Publishing Group Inc, 2004.

Creshevsky, Noah. "What is a River? Annea Lockwood's Sonic Journeys." *ISAM Newsletter* 34, no. 1 (Fall 2004): 6-7, 14.

Crombie, Allstair C. *Science, Art, and Nature in the Medieval and Modern Thought.* London: Hambledon Press, 1996.

Dahlhaus, Carl. *Nineteenth-Century Music.* Berkeley: University of California Press, 1988.

Deely, John N. *Four Ages of Understanding: The First Postmodern Survey of Philosophy from Ancient Times to the Twentieth-Century.* Toronto: University of Toronto Press, 2001.

Delalande, François. "The Technological Era of 'Sound': A Challenge for Musicology and a New Range of Social Practices." *Organized Sound* 12, no. 3 (2007): 251-258.

Dellaira, Michael. “Overstepping Interview with Eve Beglarian.” *Twenty-First Century Music* 9, no. 8 (August 2002): 1-7.

Devall, Bill. *Deep Ecology.* Layton, UT: Gibbs M. Smith, 1895.

Diamond, Beverly. “Local Logics and the Gendering of Music Technology: A Newfoundland Case Study.” *Intersections* 26, no. 2 (2006): 49-65.

Dunn, David. “Environment, Consciousness and Magic: An Interview With David Dunn.” *Perspectives of New Music* 27, no. 1 (1989): 94-105.

_____. “Music, Language and Environment.” *Leonardo Music Journal* 9, no. 1 (December 1999): 63-67.

_____. “Wilderness as Reentrant Form: Thoughts on the Future of Electronic Art and Nature.” *Leonardo Music Journal* 21, no. 4 (1998): 377-381.

Eaton, Heather. *Introducing Ecofeminist Theologies.* New York: T & T Clark International, 2005.

Edwards, J. Michele. “Lockwood, Annea” in *Grove Music Online. Oxford Music Online,* http://www.oxfordmusiconline.com/subscriber/article/grove/music/40892 (Accessed May 1, 2009).

Emmerson, Simon, ed. *Music, Electronic Media, and Culture.* Burlington, VT: Ashgate, 2000.

Feisst, Sabine. “Annea Lockwood: In Our Name.” Liner notes. CD. New World Records, 2012.

_____. “Music as Place, Place as Music: The Sonic Geography of John Luther Adams.” In *The Farthest Place: The Music of John Luther Adams,* ed. Bernd Herzogenrath, 23-47. Lebanon, NH: University of New England Press, 2011.

_____. “Oliveros, Pauline” *in The New Grove Dictionary of American Music,* 2nd ed, edited by Charles Hiroshi Garrett. Forthcoming.

Feld, Steven. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression.* Philadelphia: University of Pennsylvania Press, 1982.

Finson, Jon W. *Nineteenth-Century Music: The Western Classical Tradition.* Upper Saddle River, NJ: Prentice Hall, 2002.

Fox, Mary Frank, Deborah G. Johnston, and Sue V. Rosser, eds. *Women, Gender, and Technology*. Chicago: University of Illinois Press, 2006.

Freeman, Paul. "Eve Beglarian: The Music is the Journey," *The Mercury News*, March 12, 2010.

Gaard, Greta. *Ecofeminism: Women, Animals, Nature.* Philadelphia: Temple University Press, 1993.

Gann, Kyle. *American Music in the Twentieth Century.* New York: Schirmer Books, 1997.

_____. "Beglarian, Eve" in *Grove Music Online. Oxford Music Online*, http://www.oxfordmusiconline.com/subscriber/article/grove/music/51522 (Accessed September 1, 2010).

_____. *No Such Thing As Silence: John Cage 4'33".* New Haven: Yale University Press, 2010.

Gastescu, Peter. "The Danube Delta: Geographical Characteristics and Ecological Recovery," *GeoJournal* 29, no. 1 (January 1993): 57-67.

Gore, Al. *Our Choice: A Plan to Solve the Climate Crisis.* London: Bloomsbury, 2009.

Grint, Keith, and Rosalind Gill, eds. *The Gender-Technology Relation: Contemporary Theory and Research.* London: Taylor and Francis, 1995.

Guy, Nancy. "Flowing Down Taiwan's Tamsui River: Towards an Ecomusicology of the Environmental Imagination." *Ethnomusicology* 53, no. 2 (2009): 219-248.

Hymer, Jennifer. "Von brennenden Klavieren zu Donauklängen. Die Klangwelt der Annea Lockwood." *MusikTexte* 126 (August 2010): 41-52.

Hymer, Jennifer, and Nicole Tavenner. "From Burning Pianos to Sound-Mapping the Danube: The Sound World of Annea Lockwood." *Musicworks* 84 (2002): 30-35.

Hinkle-Turner, Elizabeth. *Women Composers and Music Technology in the United States.* Burlington: Ashgate, 2006.

Holmes, Thom. *Electronic and Experimental Music. 2nd ed.* New York: Routledge, 2002.

Homqvist, Christian. "Music Goes Green." *Finnish Music Quarterly* 1 (2008): 18-21.

Ingram, David. "A Balance That You Can Hear: Deep Ecology, Serious Listening and the Soundscape Recordings of David Dunn." *European Journal of American Culture* 25, no. 2 (2006): 123-138.

Järviluoma, Helmi. "Soundscape – Art and Science." *Journal of the Finnish Society for Ethnomusicology* (1994): 107-119.

Jones, David Wyn. *Beethoven: Pastoral Symphony.* New York: Cambridge University Press, 1995.

Kahn, Douglas. *Noise, Water, Meat: A History of Sound in the Arts.* Cambridge: Massachusetts Institute of Technology Press, 1999.

Katz, Mark. *Capturing Sound: How Technology Has Changed Music.* Berkeley: University of California Press, 2004.

_____. "Men, Women, and Turntables: Gender and the DJ Battle." *The Musical Quarterly* 89*,* no. 4 (2006): 580-599.

Kaufman, Walter. *The Ragas of South India: A Catalogue of Scalar Material.* Bloomington: Indiana University Press, 1976.

Kelman, Ari Y. "Rethinking the Soundscape: A Critical Genealogy of a Key Term in Sound Studies." *Senses and Society* 5, no. 2 (2010): 212-234.

Kennedy, Michael. "Electronic Music." *Grove Music Online, Oxford Music Online,* http://www.oxfordmusiconline.com/subscriber/article/opr/t237/e3341 (Accessed September 1, 2010).

Krause, Bernie. *The Great Animal Orchestra.* New York: Little, Brown, 2012.

Landon, H. C. Robbins and David Wyn Jones. *Haydn: His Live and Music.* Bloomington: Indiana University Press, 1988.

Lee, Michael. "Annea Lockwood's Burning Piano, Scruffed Stones, and Noble Snare: Feminist Politics and Sound Sources in Music." *Women & Music* 3 (1999): 59-69.

Leopold, Aldo. *A Sand County Almanac: With Essays on Conservation.* New York: Oxford University Press, 1949.

Lewis, Alexandra. "Evocations of Water at the Piano" (Ph.D. diss., City University of New York, 2005), 3, ProQuest Dissertations and Theses, http://proquest.umi.com.ezproxy1.lib.asu.edu (Accessed February 5, 2010).

Licata, Thomas, ed. *Electroacoustic Music*. Westport: Greenwood Press, 2002.

Licht, Alan. *Sound Art: Beyond Music, Between Categories.* New York: Rizzoli International Publications, 2007.

Lockwood, Annea. "Annea Lockwood Interviewed by Stephen Montague." *Contemporary Music Review* 6, no. 1 (1991): 147-149.

Marx, Leo. *The Machine in the Garden: Technology and the Pastoral Ideal in America.* New York: Oxford University Press, 1964.

Mawer, Deborah, ed. *The Cambridge Companion to Ravel.* Cambridge: Cambridge University Press, 2000.

McCartney, Andra. "Soundwalk in the Park." *Musicworks* 33, no. 72 (1998): 6-15.

_____. "Creating Worlds for My Music to Exist: How Women Composers of Electroacoustic Music Make Place for Their Voices" (M.A. diss., York University, 1994), 4, ProQuest Dissertations and Theses, http://proquest.umi.com.ezproxy1.lib.asu.edu (Accessed March 10, 2010).

_____. "Gender, Genre and Electroacoustic Soundmaking Practices." *Intersections* 26, no. 2 (2006): 20-45.

_____. "Sounding Places with Hildegard Westerkamp." Electronic Foundation Institute site, November 2000: http://www.emf.org/guidetotheworld/artists/mccarney00/ (Accessed May 1, 2009).

_____. "Sounding Places: Situated Conversations through the Soundscape Compositions of Hildegard Westerkamp" (Ph.D. diss., York University, 1999), 3, ProQuest Dissertations and Theses, http://proquest.umi.com.ezproxy1.lib.asu.edu (Accessed March 10, 2010).

McClary, Susan. *Feminine Endings.* Minneapolis: University of Minnesota Press, 1991.

McKibben, Bill. *The End of Nature*. New York: Anchor Books, 1999.

Merchant, Carolyn. *Earthcare: Women and the Environment.* New York: Routledge Press, 1995.

_____. *The Death of Nature: Women, Ecology, and the Scientific Revolution.* San Francisco: Harper and Row, 1980.

Meine, Curt. *Aldo Leopold: His Life and Work.* Madison: University of Wisconsin Press, 1988.

Miles, Maria, and Vandana Shiva. *Ecofeminism.* London: Zed Books, 1993.

Mockus, Martha. *Sounding Out: Pauline Oliveros and Lesbian Musicality*. New York: Routledge, 2008.

Moisala, Pirkko, and Beverly Diamond, eds. *Music and Gender.* Chicago: University of Illinois Press, 2000.

Myers, Rollo. *Ravel: Life and Works.* Westport, CT: Greenwood Press, 1960.

Norman, Katharine. "Real-World Music as Composed Listening." *Contemporary Music Review* 15, no. 1 (1997): 1-27.

Nyman, Michael. *Experimental Music: Cage and Beyond.* Cambridge: Cambridge University Press, 1999.

Oliveros, Pauline. *Deep Listening: A Composer's Sound Practice.* New York: iUniverse, Inc., 2005.

_____. *Software for People: Collected Writings. 1963-1980.* Baltimore: Smith Publications, 1984

Oteri, Frank J. "Annea Lockwood Beside the Hudson River." *NewMusicBox* 33 (November 2004): 1-15.

_____. "Eve Beglarian: In Love With Both Sound and Music." *NewMusicBox* 40 (2011): not paginated.

Prestianni, Sam. "Outside/in: Avant-fun? Go Figure." *Jazziz* 23, no. 9 (September 2006): 52.

Pritchett, James. *The Music of John Cage.* Cambridge: Cambridge University Press, 1992.

Rehding, Alexander. "Eco-Musicology." *Journal of the Royal Music Association* 127, no. 2 (2002): 305-320.

Rodgers, Tara, ed. *Pink Noises: Women on Electronic Music and Sound.* Durham: Duke University Press, 2010.

Rosen, Charles. *The Romantic Generation.* Cambridge: Harvard University Press, 1995.

Rosen, Judith. "Composers Speaking for Themselves: An Electronic Music Panel Discussion." *The Musical Woman: An International Perspective* 2, no. 22 (1987): 301-308.

Rothenberg, David, and Ulvaeus, Marta, eds. *The Book of Music and Nature.* Middletown, CT: Wesleyan University Press, 2001.

_____. "Nature in Music" in *NewMusicBox* 13 (November 2011): not paginated.

Ruether, Rosemary Radford. *New Woman, New Earth: Sexist Ideologies and Human Liberation.* New York: Seabury Press, 1975.

Schafer, R. Murray. "The Music of the Environment." *Cultures Italy* 1 (1973): 15-53.

_____. *The Tuning of the World.* New York: Knopf, 1977.

Schryer, Claude. "Searching for the Sharawadji Effect." *Musicworks* 32, (Spring 1998): 22-29.

Searle, Humphrey. *The Music of Liszt.* New York: Dover, 1966.

Shattuck, Kathryn. "Composer Finds a Muse in the Mississippi." *The New York Times,* September 1, 2009.

_____. "An Artistic Trek Across a Surreal Land of Sand and Self-Discovery." *The New York Times*, March 9, 2006.

Shiva, Vandana. *Staying Alive: Women, Ecology, and Development.* London: Zed Books, 1988.

_____. *Water Wars: Privatization, Pollution, and Profit.* Cambridge, MA: South End Press, 2002.

Simoni, Mary, ed. *Analytical Methods of Electroacoustic Music.* New York: Taylor & Francis Group, 2006.

Solie, Ruth, ed. *Musicology and Difference: Gender and Sexuality in Music.* Berkeley: University of California Press, 1993.

Stedman, Preston. *The Symphony.* Englewood Cliffs, NJ: Prentice Hall, 1992.

Strunk, William Oliver, ed. *Source Readings in Music History.* New York: W.W. Norton, 1998.

Thayer, Alexander Wheelock. *The Life of Ludwig van Beethoven.* London: Centaur Press, 1960.

Thoreau, Henry David. *Walden,* ed. Robert B. Ray. Bloomington: Indiana University Press, 2012.

Tick, Judith. "Women in music" in *Grove Music Online. Oxford Music Online,* http://www.oxfordmusiconline.com/subscriber/article/grove/music/52554 (Accessed May 1, 2009).

Toliver, Brooks. "Eco-ing in the Canyon: Ferde Grofé's Grand Canyon Suite and the Transformation of Wilderness." In *Journal of the American Musicological Society* 57, no. 2 (Summer 2004): 325-367.

Toop, David. "Environmental music" in *Grove Music Online. Oxford Music Online, http://www.oxfordmusiconline.com/subscriber/article/grove/music/43820* (Accessed May 1, 2009).

Truax, Barry. "Genres and Techniques of Soundscape Composition as Developed at Simon Fraser University." *Organized Sound* 36, no. 1 (April 2002): 5-13.

_____."Soundscape, Acoustic Communication and Environmental Sound Composition." *Contemporary Music Review* 15, nos. 1-2 (1996): 49-65.

_____. "Soundscape Composition as Global Music: Electroacoustic Music as Soundscape." *Organized Sound* 13, no. 2 (2008): 103-109.

Vittes, Laurence. "Eve Beglarian: Almost Human." *Strings* 22, no. 3 (October 2007): 95.

Voorvelt, Martijn. " The Environmental Element in Barry Truax's Compositions." *Journal of New Music Research* 37, no. 1 (1997): 49-65.

Von Glahn, Denise. *The Sounds of Place: Music and the American Cultural Landscape.* Boston: Northeastern University Press, 2003.

Warren, Karen J, ed. *Ecofeminism: Women, Culture, Nature.* Indianapolis: Indiana University Press, 1997.

_____. *Ecological Feminism.* London: Routledge Press, 1994.

Walker, Alan. "Liszt and the Schubert Song Transcriptions." *The Musical Quarterly* 67, no. 1 (January 1981): 50-63.

Watkins, Holly. "The Pastoral After Environmentalism: Nature and Culture in Stephen Albert's Symphony: RiverRun." *Current Musicology* 2, no. 84 (Fall 2007): 7-24.

Westerkamp, Hildegard. "Linking Soundscape Composition and Acoustic Ecology." *Organized Sound: An International Journal of Music and Technology* 7, no.1 (2002): 1-9.

_____. "The Local and Global 'Language' of Environmental Sound." *Presentation at Sound Escape, An International Conference on Acoustic Ecology* (July 2000): not paginated.

Wilson, Colin. *Music, Nature and the Romantic Outsider.* Nottingham: Paupers, 1990.

Young, Miriama. "Sonic Maps: The Musical Worlds of Annea Lockwood." *Music in New Zealand* 13, no. 36 (Summer 2000): 36-41.

WEBSITES

"Annea Lockwood" by Annea Lockwood. www.annealockwood.com/ (Accessed March 10, 2010).

"EVBVD Music: Eve Beglarian" by Eve Beglarian. www.evbvd.com/ (Accessed June 1, 2010).

"Han River Basin Environmental Office Republic of Korea" by Ministry of Environment eng.me.go.kr/doc_hg/han_river/information3.jsp (Accessed October 20, 2012).

"Leah Barclay" by Leah Barclay www.leahbarclay.com/ (Accessed August 1, 2012).

"Kerala" by Scientific Convergence www.kerala.me/riv_pamba.php (Accessed September 1, 2012).

"Libby Larsen" by Libby Larsen http://libbylarsen.com (Accessed December 10, 2011).

"Noosa Biosphere" by PunkLogic www.noosabiosphere.org.au (Accessed September 1, 2012).

"Pampa Parirakshana Samith" by SavePamba.org. www.savepamba.org (Accessed September 1, 2012).

"Sounding Places With Hildegard Westerkamp" by Andra McCartney. http://emfinstitute.emf.org/materials/mccartney00/ (Accessed March 1, 2010).

"Sustainability in Noosa" by Leanne Denby, Daniella Tilbury, and Fil Cerone. aries.mq.edu.au/projects/noosa/files/Noosa.pdf (Accessed October 1, 2012).

"Thinking Like A Mountain" by Victoria Bond. http://victoriabond.com (Accessed December 10, 2011).

"Twisted Tutu" by Eve Beglarian and Kathy Supové. http://www.twistedtutu.com/abouttutu.html (Accessed August 1, 2010).

"Waterwatch Australia" by Australian Government Department of Sustainability. www.waterwatch.org.au/ (Accessed November 1, 2012).

DISCOGRAPHY

Barclay, Leah. *Transient Landscapes: Selected Works from the Installation Sound Mirrors.* Leah Barclay. CD. 2010.

Beglarian, Eve. *Eve Beglarian: Overstepping.* C & P *OODISCS* Inc. CD. 1998.

_____. *Eve Beglarian: Tell The Birds.* New World Records. CD. 2006.

_____. *Lesbian American Composers.* Composers Recordings, Inc. CD. 1998.

_____. *Maya Beiser: Almost Human.* Koch International Classics. CD. 2006

_____. *Open Space.* Benjamin Boretz. CD. 2007

_____. *The Stroke That Kills.* Anthology of Recorded Music, Inc. CD. 2008.

Lockwood, Annea. *A Sound Map of the Hudson River.* Lovely Music CD. 1989.

_____. *A Sound Map of the Danube*. Lovely Music CD. 2008

VIDEOGRAPHY

Blue Gold: World Water Wars, DVD. Directed by Sam Bozzo. Purple Turtle Films, 2009.

Flow: For Love of Water, DVD. Directed by Irena Selena. Oscilloscope Pictures, 2008.

Jacques-Yves Cousteau: River Explorations, DVD. Directed by Jack Kaufman. Warner Home Video, 2006.

The 11th Hour, DVD. Directed by Nadia Conners. Warner Home Video, 2008.

IRB EXEMPT STATUS

To:	Sabine Feisst MUS
From:	Mark Roosa, Chair Soc Beh IRB
Date:	12/03/2012
Committee Action:	**Exemption Granted**
IRB Action Date:	01/11/2012
IRB Protocol #:	1112007236
Study Title:	River Soundscapes: Ecological Perspectives in the Music of Annea Lockwood,

Eve Beglarian, and Leah Barclay

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.