

**A JOURNEY THROUGH GOD’S CREATION: ENVIRONMENTAL EDUCATION FOR  
CHRISTIANS**

Amanda Lee Lanier

December 2015

© Amanda Lee Lanier, 2015

Work Submitted in partial completion of Master of Science in Environmental Education,  
Montreat College, Montreat, NC 28757



**School of Adult and Graduate Studies**

This is to certify that the following professors have examined this project by  
**Amanda Lee Lanier**  
in final form for submission as partial requirements for a  
Master of Science in Environmental Education Degree.

Committee Chair, Richard Bradley Daniel, Ph.D.

December 11, 2015

Committee Member, Dorothea K. Shuman, Ph.D.

December 11, 2015

Montreat College Final Approval and Acceptance:

Vice President & Dean, Adult and Graduate Studies, Susan DeWoody

December 11, 2015

## **ABSTRACT**

Christians have the power to make significant changes in the world; if Christians were to embrace the responsibility to care for Creation, then they can have a great impact in improving the state of the natural world. Current resources available to Christian educators, however, are lacking. New resources are needed to engage Christian audiences and to encourage environmental literacy and stewardship. This project developed a guide for Christian educators, which is based a conceptual framework for adapting environmental education curriculum resources for Christians audiences. This guide will help Christian educators to develop activities that increase environmental literacy and likelihood of stewardship in their audiences. The framework is drawn from the spectrum of beliefs Christians hold about Creation and the ways they have participated in environmental efforts historically.

## **ACKNOWLEDGEMENTS**

This has been an incredible journey. There is no way I could have done this without the grace of God and my family. This project was a labor of love that brought frustration and confusion at times, but at the end of the day, strengthened my understanding of a Christian's role in Creation and renewed my gratitude for a remarkable Creator. Thanks be to God for his amazing Creation and for the strength and patience, he gave throughout this process. To my husband Jamie, I am also eternally grateful. Through many nights, he sustained our family and my sanity. He was self-less and kind and I can only love him even more for it. My daughter Sophie, who was my biggest cheerleader, never let me give up for long. I am so grateful for her and for all her sacrifices and words of encouragement. Lastly, I want to thank Brad Daniel, Dottie Shuman, and my colleagues in Cohort 1 of the MSEE program. Without the support of the advisors and other students, I would not be where I am today. They are my family now too. I am so grateful for their unending support and for helping me believe that I could do great things through the God that strengthens me.

## TABLE OF CONTENTS

<b>Abstract .....</b>	<b>iii</b>
<b>Acknowledgements.....</b>	<b>iv</b>
<b>Table of Contents .....</b>	<b>v</b>
<b>List of Tables .....</b>	<b>vii</b>
<b>List of Figures.....</b>	<b>viii</b>
 <b>CHAPTER 1. INTRODUCTION .....</b>	 <b>1</b>
Environmental Education for Christians .....	1
Christian Environmental Education Conceptual Framework.....	3
Definitions .....	4
 <b>CHAPTER 2. LITERATURE REVIEW .....</b>	 <b>8</b>
Are Christians to Blame? .....	8
Anthropocentrism and Christian Concern for Creation .....	11
The Importance of Christians Caring for Creation .....	15
Educating Christians on Caring for Creation.....	17
Exploring the Spectrum of Christian Beliefs on Caring for Creation .....	20
Approaching Christian Care for Creation .....	22
Exploring Approaches to Christian Care for Creation .....	24
Building on Common Ground.....	26
Summary of Literature Review .....	32

<b>CHAPTER 3. PROJECT METHODS .....</b>	<b>34</b>
Designing Christian Environmental Education .....	34
Using the Conceptual Framework .....	38
Recommendations for Activity Design .....	44
 <b>JOURNEY THROUGH GOD’S CREATION GUIDE .....</b>	 <b>49</b>
<b>REFERENCES.....</b>	<b>126</b>
<b>APPENDIX A</b> Tblisi Declaration .....	<b>131</b>
<b>APPENDIX B</b> Environmental Citizenship Behavior Model.....	<b>132</b>
<b>APPENDIX C</b> Religious Variabled added to Hungerford and Volk’s model.....	<b>133</b>
<b>APPENDIX D</b> Conceptual Framework Guidelines and their connections to goals for Environmental Education and Pro-environmental behavior .....	<b>134</b>
<b>APPENDIX E</b> Bible Exploration Worksheet .....	<b>135</b>
<b>APPENDIX F</b> Outline for Activity Design .....	<b>137</b>

**LIST OF TABLES**

Table 1. Approaches to Christian care for Creation.....	23
Table 2. Christian Environmental Education conceptual framework guidelines .....	35

## LIST OF FIGURES

Figure 1. Conceptual framework guidelines and their connection to Environmental Education.....	36
Figure 2. Belief–based conceptual framework guidelines and their connections to the Environmental Citizenship Behavior Model.....	37



## **CHAPTER 1.**

### **INTRODUCTION**

It has been nearly fifty years since Lynn White's article "The Historical Roots of Our Ecological Crisis" ignited a national discussion on the relationship between Christian faith and environmental stewardship (1967). White (1967) claimed that Christianity was partially to blame for the ecological crisis and called Christianity "the most anthropocentric religion the world has seen" (p. 5). White (1967) believed that the anthropocentric worldview held by some Christians supported the idea that it was "God's will that man exploit nature" (p. 5). White's accusations were coupled, however, with a call for Christians to be a part of the solution. He believed that since the reasons behind the ecological crises were pinned on anthropocentric Christian theology, "the remedy must also be essentially religious" (White, 1967, p. 8). White's (1967) article suggests that Christian participation in environmental efforts should be considered because of their potential role in reversing damage to the natural world. White's article encouraged an ongoing dialogue that addressed Christian's responsibility for environmental degradation worldwide (Jenkins, 2009; Weiskel, 1990). Since that time, researchers and educators have been examining these claims and wondering if and why Christians were to blame, and what, if anything, could be done about it (Feldman & Moseley, 2003; Hand & Van Liere, 1984; Hitzhusen, 2006; Kearns, 1996; Light, 2006).

#### **Environmental Education for Christians**

The involvement of Christians in environmental efforts is important in two ways (Hitzhusen, 2007). First, Christians have a call to care for all of Creation (Bratton, 1992; Harper & Kenneally, 2009; Hitzhusen, 2006, 2007; Kearns, 1996). The biblical mandate to care for Creation is understood by many as one of the central tenets of Christian theology, and denial of

this responsibility would be considered by many to be a sin against God (DeWitt, 1994; Hitzhusen, 2007; Kearns, 1996). Second, Christianity's participation in environmental work has the ability to strengthen the impact of environmental efforts throughout the globe (Gardner, 2002; Hand & Van Liere, 1984; Oelschlaeger, 1994). If the impacts were great enough, Christianity would even have the ability to "eliminate the need for an environmental movement altogether" (Smith & Pulver, 2009, p. 169).

Despite many modern day Christians who are making connections to their biblically mandated responsibility to steward the Earth, the education of Christians seems to be lacking when considering environmental literacy and stewardship (DeWitt, 1994; Feldman & Moseley, 2003; Haluza-DeLay, 2008; Hitzhusen, 2006; Kearns, 1996; Light, 2006; Schaffer, 1970). Many Christians see this lack of education about the environment as a need for educational reform (DeWitt, 1994; Hitzhusen, 2006; Light, 2006; Schaffer, 1970). With relatively few Christian Environmental Education materials available to Christian educators, there is little to choose from (Carmichael, 2014). In addition, the materials that do exist sometimes fail to address the full spectrum of Christian beliefs regarding the human-nature relationship (Feldman & Moseley, 2003; Hitzhusen, 2007). The absence of curricula, especially activities that address a Christian spectrum of beliefs on the human-nature relationship, may stem from the difficulties in integrating Environmental Education into Christian Education, which some educators find confusing and difficult (Huguenin, 2012; Light, 2006).

Research has looked beyond White's (1967) assumed anthropocentric worldview associated with Christians and has illuminated a spectrum of beliefs that define how Christians view the human-nature relationship (Ball, 1998; Barrett & Grizzle, 1998; Hand & Van Liere, 1984; Kearns, 1996). Christian views on the human-nature relationship range from

anthropocentric to biocentric (Ball, 1998; Barrett & Grizzle, 1998; Hand & Van Liere, 1984; Kearns, 1996). Research has also identified three biblically supported approaches to Christian Care for Creation — Spirit, Justice, and Stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Kearns, 1996). These approaches and the common tenets of Christian ecotheology mirror the spectrum of beliefs that define how Christians view the human-nature relationship.

In order to reach a broader Christian audience, curriculum resources need to address a spectrum of beliefs on the human-nature relationship and be presented in a way that is easily understood by Christian educators (Hitzhusen, 2007; Kearns, 1996). At least two of the three approaches to Christian Care for Creation could be foundational in designing curricula for Christians because their attributes encompass concepts that define ways Christian educators can create and adapt activities to increase the knowledge of environmental issues and inspire a care for Creation (Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996).

### **Christian Environmental Education Conceptual Framework**

The purpose of this project was to develop a guide for integrating Christian Education and Environmental Education. This guide was informed by a conceptual framework of guidelines designed for Christian educators who wish to inspire environmental literacy, stewardship, and spiritual growth in their congregations or schools. The framework guidelines define how to create and adapt existing Environmental Education activities using two of the three approaches to Christian Care for Creation – Spirit and Stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996). The Justice approach was not included in this project, because it seems to advocate for certain positions or political views and advocacy does not align with the goals of Environmental Education

(NAAEE, 2010). The conceptual framework also addresses a spectrum of beliefs that Christians hold about their role in Creation to reach a broad audience, including audiences that may have been traditionally unreachable. The guidelines of the conceptual framework collectively represent a spectrum of Christian beliefs on the human-nature relationship and are grounded in the common values of Christian theology, environmental knowledge, and environmental stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996).

Goals for Environmental Education are represented in the framework by matching guidelines with goals for environmental literacy and variables of pro-environmental behavior as defined by the Tbilisi Declaration (UNESCO, 1978) and Hungerford and Volk's Environmental Citizenship Model (1990). Social Judgment Theory (Sherif, Sherif, & Nebergall, 1965) and Hungerford and Volk's Model (1990) provide direction for how to use the guidelines of the conceptual framework based on the beliefs Christians have about the human-nature relationship.

All these pieces contribute to a conceptual framework that will assist the Christian educator in adapting and creating Environmental Education activities for a variety of audiences. Furthermore, it will assist Christian educators in inspiring stewards of Creation by approaching those that hold a broader spectrum of Christian beliefs regarding the human-nature relationship.

## **Definitions**

For the purpose of this study, the following terms are defined:

**Anthropocentrism** is a worldview where human beings may regard themselves as the central and most significant entities in the universe, or that they assess reality through an exclusively human perspective (Hand & Van Liere, 1984).

**Biocentrism** is a worldview where “the living Creation is not exclusively man-centered” and man is just a “part of the one great unit of Creation” (Worster, 1994, p. 185).

**Christian** is someone who professes a belief in Jesus as the son of God, or Christ, and or follows the religion based on the life and teachings of Jesus Christ. Christians often believe in the Trinity as in the Father (God), the Son (Jesus) and the Holy Spirit as one entity (King, 2001).

**Christian Environmental Education** is an educational model that teaches awareness, appreciation, and responsibility for environmental stewardship (DeWitt, 1994).

**Conservation Eschatology** is preservation of the part of systematic theology, which deals with the final destiny of both the individual soul and humankind in general. Having this theology focuses the individual on literal translation of the Bible and on “end times” -thinking (Guth, Green, Kellstedt, & Smidt, 1995).

**Cosmic Redemption** is the belief that the whole of Creation is to be redeemed and that all of Creation is a part of “part of God’s saving grace” (Nash, 1989, p. 99).

**Creation Care** should promote “awareness, appreciation,” and the responsibility of “environmental stewardship” (DeWitt, 1994, p. 78).

**Dominion** focuses on the interpretation of “dominion,” written in Genesis, which explains how God gave the responsibility to care for the Earth to humans (New International Version, 1:26-28). One interpretation of dominion is described as "responsible care and keeping that does not injure abuse, neglect, dissipate, degrade, mar, corrupt, or ruin the earth" (DeWitt, 2003, p. 3). Another interpretation is described as “man's limitless rule of creation” (White, 1967, p. 5) or the “call to bring the non-human environment into subjection for the purpose of facilitating human expansion; nonhuman parts are primarily resources that are to be subdued and managed for the benefit of a sovereign humanity” (Barrett & Grizzle, 1998, pp. 237-238).

**Ecotheology** is a form of constructive theology that focuses on the interrelationships of religion and nature, particularly in the light of environmental concerns. Ecotheology generally starts from the premise that a relationship exists between human religious/spiritual worldviews and the degradation of nature. It explores the interaction between ecological values, such as sustainability, and the human domination of nature. The movement has produced numerous religious-environmental projects around the world (King, 2001).

**Environmental Education** is a “process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments and skills to work individually and collectively toward solutions of current problems and the prevention of new ones” (Belgrade Charter, UNESCO-UNEP, 1976, p. 1-2). For the purposes of this paper, I will refer to the definition of Environmental Education as simply the promotion of environmental literacy, stewardship, and action.

**Environmental Citizenship Behavior Model** is a construct of major and minor variables that are involved in educating for environmentally responsible behavior (Hungerford & Volk, 1990). The Hungerford and Volk (1990) model illustrates a set of “synergistic pre-requisite variables” that move a learner towards environmentally responsible citizenship (p. 260).

**Evangelical** refers to one who promotes the preaching and dissemination of the Christian gospel. Evangelicalism is marked by ardent or zealous enthusiasm for a cause (Hand & Van Liere, 1984).

**Judeo-Christian** refers to a set of beliefs and ethics held in common by Judaism and Christianity. It is a common term in American cultural and political rhetoric. The values are called Judeo-Christian because they derive from the complementary ideas of free will, the moral

accountability of the individual rather than the group, the spiritual imperative of imperfect man's struggle to do what is right, and the existence of true moral law in the teachings of Christ and the Jewish prophets (Hand & Van Liere, 1984).

**Mastery-Over-Nature** is an anthropocentric view of nature in which man has dominance over all the earth and its resources, as well as other living beings. Man is in charge of these things and can use Creation in any way he chooses (Hand & Van Liere, 1984).

**Pro-environmental behavior** is the outcome of movement towards environmentally responsible behavior through Hungerford and Volk's (1990) Environmental Behavior Model.

**Social Judgment Theory** is based on the idea that persuasion occurs at the end of the process where a person understands a message then compares the position it advocates to the person's position on that issue. If the message is close to their latitude of acceptance then it is likely that the person will accept this message (Sherif, Sherif, & Nebergall, 1965).

**Tbilisi Declaration** was the declaration adopted by the convening of the first intergovernmental conference for Environmental Education. The United Nations Education, Scientific, and Cultural Organization (UNESCO) organized it in cooperation with the U.N. Environment Programme (UNEP). The declaration highlighted the important role of Environmental Education in the preservation and improvement of the world's environment and in the balanced development of communities throughout the world (UNESCO, 1978) (See Appendix A).

## **CHAPTER 2.**

### **LITERATURE REVIEW**

The literature review examines whether Christians are to blame for the ecological crisis, including a discussion of Lynn White's (1967) pivotal critique. Second, the review reveals how an anthropocentric view of nature and other factors have affected Christian concern for Creation. The third section discusses the importance and power of Christianity's involvement in environmental efforts. The fourth section describes the lack of resources available to Christian educators, the importance of Environmental Education as a way to educate Christians, and the other components that contribute to building a resource that aims to reach a broad Christian audience. This support is followed by a review of what is known about how Christians connect to Creation. The second half of this review begins with the exploration of a spectrum of Christian beliefs regarding the human-nature relationship, followed by a section that highlights the ways Christians participate in environmental efforts by introducing three approaches to Christian Care for Creation – Spirit, Justice, and Stewardship. The next section outlines attributes of two of these approaches, Spirit and Stewardship, and explores ways these approaches resonate with a broad Christian audience and support fundamental goals of Environmental Education. The last section examines common tenets of Christian ecotheology as themes for integrating Christian and Environmental Education. The literature included is extensive to feature both support for involving Christians in environmental efforts and considerations for integrating Christian Education with Environmental Education.

#### **Are Christians to Blame?**

White (1967), in *The Historical Roots of our Ecological Crisis*, argued that humans must begin to look at their relationships and attitudes towards nature before important environmental



issues can be resolved. White's (1967) work provided a platform for examining the way Christians in particular were treating the Creation. White took issues with the meaning of "dominion" as interpreted by some Christians. This idea of "dominion" comes from the book of Genesis in which God commands Adam to "rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground" (New International Version, Genesis 1:26). White (1967) blames some Christians' interpretation of this mandate as a reason for the belief that they had "limitless rule over Creation" (p. 5). White's (1967) charge against Christians was grounded further by the foundational belief that the relationships and attitudes humans hold are the results of their social rooting in religious theology. How people treat the environment "depends on what they think about themselves in relation to things around them" (White, 1967, p. 4). White believed that Christians who trust that Creation only exists to serve man would not contribute to solving our ecological crisis.

In the time of White's (1967) manifesto, many considered environmental concerns a matter best managed by secular groups (Kearns, 1996). However, others believed in the importance of a Christian role in environmental issues; following White's essay, this understanding began to shape a new direction in the exploration of the relationship between Christians and their environment (Jenkins, 2009; Schaffer, 1970; White, 1967). Jenkins (2009) summarized White's impact on faith-based environmental thought and gave encouragement to its significance:

White's thesis has provided similar orientation for the proliferating energies in the broader field of religion and ecology. For if religions shape the worldviews we live by, and our ways of living are in crisis, then academics of every specialty and adherents of

every religion can recognize a common area of inquiry with shared terms of reference (p. 286).

Many scholars explored the Christian concept of the human-nature relationship with White's challenge in mind (Jenkins, 2009). In fact, "nearly every book on the relation of Christianity to its environment refers to White's thesis, and most introduce their argument as a definite response to it" (Jenkins, 2009, p. 285).

A number of research studies were conducted in response to White's critique. Weigel (1977) reviewed "religiosity," or the measure of involvement with religious teachings and prayer, as well as the views on the infallibility of the Bible in connection to the behavioral commitment to protecting and enhancing environmental quality. The results showed that the more "religious" a person was, the more likely they were to exhibit behavior disassociated with caring for the natural world (Weigel, 1977). These types of findings create a social norm that allowed a particular subset of Christians to disconnect from the care of the natural world (Hand & Van Liere, 1984).

In 1984, Hand and Van Liere's outcomes also coincided with White's claim that one's view of ecology is dictated by religious beliefs. Hand and Van Liere (1984) stated, "One important element of cultural adaptation is the system of beliefs and values which represent a culture's dominant value orientation regarding the relationship between a society and its natural habitat" (p. 555). Hand and Van Liere (1984) examined the link between religious identification and commitment, the orientation to mastery over nature, and the concern for environmental problems. Their research explored the environmental perspectives of multiple religions including the Judeo-Christian worldview (Hand & Van Liere, 1984). Hand and Van Liere's (1984) study found that traditional Judeo-Christians were more committed to the "mastery-over-

nature” belief, which supported White's (1967) thesis. The “mastery-over-nature” belief comes from Kluckhohn and Strodtbeck’s (1961) research which described the relationship man has to the natural world as a place on a continuum that falls somewhere between the three positions of “mastery-over-nature, harmony-with-nature, and subjection to nature” (as cited in Hand & Van Liere, 1984, p. 555). Based on the findings of Kluckhohn and Strodtbeck’s (1961) research, Hand and Van Liere (1984) utilized the spectrum of a culture’s “relationship between society and the natural habitat” as a way to describe a culture’s system of beliefs (p. 555).

Hand and Van Liere (1984) believed it was the “individuals outside the Judeo-Christian tradition” that were more likely to take care of the environment (p. 567). Since the beliefs of Christians seemed to be “similar among all Judeo-Christian denominations,” it was assumed that all Christians were lacking in commitment to caring for Creation (Hand & Van Liere, 1984, p. 555). There is an absence of research on Christian denominational beliefs regarding Creation Care. This is possibly due to the assumption that all Christians view Creation in the same way (Hand & Van Liere, 1984).

White’s (1967) critique was beneficial because it illuminated the anthropocentric Christian beliefs regarding the human-nature relationship. The next section reveals how this anthropocentric worldview and other factors affect a Christians’ relationship with Creation.

### **Anthropocentrism and Christian Concern for Creation**

There are many reasons Christians do not care for creation as part of their religious practice. Discrepancies in scientific findings (such as evolutionary theory) and varying interpretations of man’s role in Creation are among the factors that influence the divide between sacred and secular views of Creation (Gardner, 2002; Nash, 1989; Weigel, 1977). Much of the

disconnect may stem from the association with an anthropocentric worldview (Hand & Van Liere, 1984; White, 1967).

Environmental historian Donald Worster (1994) explains that over time, Christianity reinforced the idea that God gave the earth to humans for their needs exclusively. Worster (1994) showed evidence that allowed many Christians to believe that they were “God’s specifically appointed vice-regent on Earth” and this responsibility meant, “mankind has explicit permission to manage the natural economy for its own profit” (p. 51). Worster (1994) documented a shift in how people understood the relationship between God and Creation.

It seemed that Christians, for the most part, began to cling to an anthropocentric view of nature; meanwhile, secularists advocated for preservation of the natural world for its own sake (Worster, 1994). One example of this secular support was in the writer Henry David Thoreau, who according to Worster (1994), fought for man to “strive for a full measure of human dignity without severing their natural roots or forgetting their place on the earth” (p. 111). Thoreau’s moral objections to organized religion’s treatment of the environment represent the development of secular views of Creation and the subsequent momentum of secular environmental efforts (Worster, 1994).

Thomas Malthus’ theories caused even more controversy with science and religion (Worster, 1994). As many would consider the industrial revolution a wakeup call from the environment, Worster (1994) noted that Malthus referred to the problems created by industry as an inevitable “burden of man’s fertility” (p. 151). Malthus believed God’s call to be fruitful and multiply meant that all of God’s Creation would one day be critical for human needs (Worster, 1994). By these standards, environmental degradation was inescapable if humans were obeying

God's plan. This belief that environmental degradation is inevitable may determine how some Christians view the need for environmental efforts at all.

The work of Charles Darwin was also pivotal in creating distrust and shifting support away from the scientific community by the Christian church (Worster, 1994). Darwin's conclusion on evolution, outlined in "On the Origin of Species" (1859), illuminated the idea that "man had not been created with special care in the image of God" (Worster, 1994, p. 180). His respect for nonhuman creation appeared closer to pagan beliefs than Christianity (Worster, 1994). Darwin's work established preliminary understanding of the role of ecology and of the educational potential of nature. This biocentric ideology was part of the establishment of Christians' disconnect for caring for Creation. In fact, this point in history symbolizes a "fraying of the culture over fundamental truths" which "broke the edifice of consensus in nineteenth-century American culture and cracked the expectation of uniformities in thought" (Worster, 1994, p. 184).

The impact of changing relationships in science and religion led to diversity in intellect and culture (Worster, 1994). In the late 1800s, nature was there for man's uses exclusively. Yet, because science at that time subscribed to a biocentric view of the Earth, discoveries were dismissed and untrusted by many Christians (Worster, 1994). A scientific community that believed Creation was not centered on man did not support the common anthropocentric Christian worldview (Worster, 1994). Modern society continued with the progression of industry, agriculture, and the civilization of the earth for several decades before any environmental degradation was understood (Worster, 1994). The increasing polarization between anthropocentrism and biocentrism in this time widened the spectrum of Christian beliefs on caring for Creation.

As the spectrum from anthropocentrism to biocentrism grew wider, research started to explore the reasons behind the polar positions. Some looked at factors such as biblical literalism and other forms of conservative eschatology, held by many Judeo-Christian traditions, and found that these beliefs also contributed to some Christians' anthropocentric orientation and have served as the basis for the decisions they make about environmental issues (Guth, Green, Kellstedt, & Smidt, 1995). Sociological surveys pointed to the argument that "the more 'Christian' or biblically-oriented one is, the less one is concerned about the environment" (Guth, et al., 1995, p. 55).

Challenges to incorporating environmental stewardship with a Christian worldview also seem to come from a "preoccupation with social issues such as abortion and gay rights and environmentalism's association with forbidden New Age religious ideas" (Guth, et. al, 1995, p. 366). Political differences are also seen as a significant source of disconnect between Christianity and environmental stewardship (DeWitt, 1994). In addition, research points out that those who have an anthropocentric worldview are even more suspicious of environmental efforts; many fundamentalist and Pentecostal churches, for example, do not participate in environmental efforts and do not participate in environmental efforts due to perceptions that participation is a form of idolatry (Coffman & Alexander, 1992; Guth, et. al, 1995, p. 366).

Additional findings from Feldman and Moseley (2003) indicate that almost all of the organizations they studied "reported some resistance, and suspicion" of efforts to connect faith and the environment. This resistance seemed to stem from perceptions from congregational members who felt that "environmental issues force their faiths to stray from central, religious concerns" (Feldman & Moseley, 2003, p. 237). They also claimed to fear the association with "new age' religion and disagreement over church priorities" (Feldman & Moseley, 2003, p. 237).

This finding alone may highlight some of the hesitation Christians have with involving themselves in environmental work – environmental concerns are often associated with those who are non-believers (Kearns, 1996).

### **The Importance of Christians Caring for Creation**

Christian environmental stewards have been called the “last, best chance” to save Creation (Oelschlaeger, 1994, p. 236). The fact that most people the United States consider themselves religious and more Americans participate in religious institutions than any other type of organization, is significant (Guth, Green, Kellstedt, & Smidt, 1995; Wald, 1992). Wilson (2006) agreed saying that “religion and science are the two most powerful forces in the world today” (p. 5). Christianity, which is practiced by a third of the world population, has a significant influence on culture and therefore is a very important audience for education on environmental issues (Hitzhusen & Tucker, 2013; Worldometers, 2014).

The inclusion of Christians as environmental stewards is also extremely timely. When the world is losing species and biodiversity at alarming rates, environmental efforts need to include those who have not traditionally participated (Wilson, 2006). To do this we may need to examine the ways that humans are treating the Creation (Wilson, 2006). If we could strengthen the relationship between environmental efforts and Christian theology, “a new ethic” towards Creation could be formed (Gardner, 2002, p. 7). In fact, if we are to encourage environmental stewardship by all Christians then we are in a “powerful position to shape the worldviews and lifestyles of billions of people” (Gardner, 2002, p. 5).

Secular entities and even our most world-renowned scientists have reached out to people of faith as a means of building relationships to steward Creation. The “Open Letter to the Religious Community,” written in 1990 and signed by thirty-four scientists, including Carl

Sagan, Freeman Dyson, and Stephen Jay Gould, claimed that the status of the environment was so serious that it “must be recognized...as having a religious as well as scientific dimension” (Smith & Pulver, 2009, p. 148). E. O. Wilson called for participation from faith groups in creating solutions for environmental crises worldwide (2006). Wilson’s *The Creation* (2006) is an account of the state of the natural environment and is written as a series of letters to a Southern Baptist minister. Wilson (2006) saw the importance of Christianity’s role in taking care of Creation and used this medium to present his knowledge of the crises of the natural world and to plead for partnerships with people of faith.

The secular community has not always been so inviting; Christian communities are seldom asked to engage in secular environmental efforts (Gardner, 2002). Gardner (2002) highlights a statement from Carol Pope, executive director of the Sierra Club, who saw the lack of participation and pointed to the “environmentalists (who) have widely ignored the fact that, whatever the merits of White’s critique ...religion would need to be a part of the solution to the growing environmental crisis” (p. 24). In 2002, Gardner argued that those involved in environmental work should consider the participation of faith audiences in their mission and even questions their methods of attempting to “save future generations, and ...unnamed...species, without the full engagement of the institutions through which we save ourselves” (p. 24).

The key may be in focusing on the idea that “collaboration between religious people and sustainability advocates does not require complete agreement on all issues,” and instead, to strive for these groups to “work successfully together on a single issue, despite deep disagreements on a range of other topics” (Gardner, 2002, p. 27). The potential of this work will only be achieved if lasting connections between Christians and environmental stewardship are established (Hitzhusen, 2007; Light, 2006).



Aldo Leopold, the father of land conservation, also saw the importance of integrating religious theology and environmental stewardship. Leopold knew that the reason Creation was not in a better state was due to the lack of partnerships (Hitzhusen & Tucker, 2013). Leopold's most famous narrative, *A Sand County Almanac* (1949), which contained many biblical references, explicitly stated, "the proof that conservation had not reached the foundation of human conduct is because philosophy and religion have not heard of it yet" (as cited in Hitzhusen & Tucker, 2013, p. 374).

People of faith, including many Christians, have expressed similar concerns. Francis Schaeffer's *Pollution and the Death of Man* (1970), which was published in the same year of the first Earth Day, highlighted concerns with nature as a responsibility naturally belonging to Christians. Schaeffer (1970) believed that Christians had "missed the opportunity to help man save his earth" (p. 85), and described Christians as the key to solving the ecological crisis. When Christians begin to practice "the Christian view of nature," nature will be finally be in balance (p. 95). This view of nature, not held by all Christians, is rooted in "truly biblical Christianity" and has potential to change the environmental outlook of Creation (Schaeffer, 1970, p. 79).

Max Oelschlaeger (1994) American philosopher of environmental ethics also argued that Christianity could play a major role in solving environmental problems. Oelschlaeger (1994) called for churchgoers to examine environmental issues "outside the realm of special-interest politics" and enact Creation Care as "a theme for worship in their services" (p. 22). He believed Christians were the "last, best chance" to save Creation (Oelschlaeger, 1994, p. 236).

### **Educating Christians on Caring for Creation**

Several approaches for educating people of faith have been incorporated into the missions of environmental organizations worldwide (Gardner, 2002; Smith & Pulver, 2009). All these

successful programs and years of research still seem to be missing an opportunity that could broaden the reach of environmental stewardship to Christians. One of the more probable obstacles in educating Christians on environmental stewardship lies in being able to find a “common language that would help the two communities work as partners” (Gardner, 2002, p. 25). In examining how to educate Christians to care for Creation, it will be essential to understand the perspectives of the audience and establish common ground.

Establishing common ground between pro-environmental ethics and Christian practices has not always been the focus of materials made for educating Christians. Although many (Haluuza-DeLay, 2008; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996) have presented an argument for religious-based Environmental Education and have connected scientific and religious claims, little time has been given to the structure of the materials used to inspire environmental literacy, stewardship, and behavior change in Christian communities (Feldman & Moseley, 2003). “Opportunities for and impediments to the achievement of the goals of Christian environmental reform efforts have rarely been investigated” (Feldman & Moseley, 2003, p. 277). Denominationally and individually, Christians can hold very different views of Creation, and connections previously made through Environmental Education or caring for Creation curriculum may not speak to every Christian audience (Carmichael, 2014). Educational efforts designed for Christian audiences will also need to respect the churches’ “traditions and culture” (Haluuza-DeLay, 2008, p. 80). Christians encompass a broad spectrum of beliefs when it comes to caring for Creation (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Kearns, 1996). This understanding alone could be the reason that present day curricula fail to reach a greater Christian audience.

The focus on Environmental Education for educating Christians on their care for Creation is vital (Carmichael, 2014; Hitzhusen, 2006; Huguenin, 2012; Light, 2006). There are many reasons why Environmental Education is the best way to educate anyone about environmental issues (Hitzhusen, 2006). Light (2006) describes the similarities, and notes, “although the content” of Christian education “is different, the process is similar to that of Environmental Education”; both forms of education strive for a change in one’s actions and behavior (p. 176). Hitzhusen (2006) speaks to the importance of Environmental Education’s involvement and even “invite[s] environmental educators to take advantage of the possibilities that religious resources provide” (p. 10).

For controversial issues, Environmental Education has served as an apolitical resource effective in teaching about environmental issues. The North American Association for Environmental Education (NAAEE), which sets research-based standards for Environmental Education, subscribes that good Environmental Education does not promote advocacy or understanding of a particular political view (NAAEE, 2010). Successful Environmental Education aims to help learners see all sides of an issue and make informed decisions independently. This is very important for reaching the spectrum of beliefs among Christian audiences and for the differences, educators find in their audiences’ varied interpretations of biblical texts (Hitzhusen, 2006). Environmental Education supports environmental literacy as an attribute that helps citizens make informed decisions about the environment for the good of all living things (NAAEE, 2010). Curriculum resources that incorporate Environmental Education can strengthen understanding of the natural world and have the potential to increase Christianity’s impact on the care of Creation (Hitzhusen, 2007; Light, 2006). High quality Environmental Education is readily available, which makes it almost effortless to find

Environmental Education activities (NAAEE, 2010). If Christian educators could adapt traditional Environmental Education activities for their audiences and connect to the goals of Environmental Education, it would ensure Christians receive instruction that promotes environmental literacy and how to steward God's Creation (Carmichael, 2014; Hitzhusen, 2007; Light, 2006).

For those Christian educators wishing to guide their audiences toward environmental stewardship, however, the integration of Christian Education with Environmental Education may seem confusing and difficult (Huguenin, 2012). In 2006, Light compiled the *Field Guide to Christian Environmental Education*, which contained the results of a study on problems with the integration of Environmental Education and Christian education. Light (2006) noted that successful integration of Christian Education with Environmental Education would be powerful because, "in Christian Education there is a hope for a life change, a change of action and behavior, and a change in the whole of society" (p. 70). Light's (2006) guide inventoried many of the possible considerations for integrating Christianity and environmental concern. This resource is a tremendous springboard for creating a successful resource for Christians, because it identifies Environmental Education as a solution to the integration (Light, 2006). Light's work (2006), however, does not provide a specific recipe for addressing the spectrum of beliefs in Christian audiences, which is an essential piece in successful integration of Christian Education with Environmental Education (Haluza-Delay, 2008; Hitzhusen, 2006).

### **Exploring the Spectrum of Christian Beliefs on Caring for Creation**

Despite the anthropocentric worldview that is often applied to Christians, Christianity worldwide encompasses a large spectrum of beliefs about man's role in Creation (Ball, 1998; Barrett & Grizzle, 1998; Haluza-DeLay, 2008; Hand & Van Liere, 1984; Kearns, 1996). This

spectrum of belief ranges from anthropocentrism, (the world was created for human needs and desires) on one end to biocentrism (the world was created to fulfill the needs of all living things) on the other. At the end of this range, one form of the anthropocentric worldview believes that God's plan is to create a "new earth" and that the one we are on now is not necessary to preserve (Ball, 1998; Hand & Van Liere, 1984). "Dominion" in this worldview is interpreted as man has rule over Creation and can use it according to his own purposes and desires. Conversely, the other end of this spectrum is represented by a reverence for all of Creation (Ball, 1998; Hand & Van Liere, 1984).

The biocentric end may hold the opposing belief that God's plan is to redeem the current earth instead of creating a new one. "Dominion" here is perceived as the caretaking of Creation; it should be cared for because of its own purposes, not just human ones. Lynn White (1967) named an example that embodied this biocentric belief. White (1967) contests in "The Historical Roots of Our Ecological Crisis" that Christianity's disconnect with nature stems from its anthropocentric worldview. However, when naming the "Patron Saint of Ecology," White (1967) describes an alternate view of Christianity, represented by Saint Francis of Assisi (p. 8). Saint Francis spent a lifetime trying to "substitute the idea of equality of all creatures, including man, for the idea of man's limitless rule of creation" (White, 1967, p. 5).

Kearns (1996) highlights the importance of recognizing the viability of a Christian worldview that embraces care of Creation. She concluded that Christians who act as environmental stewards interpret the passage in the book of Genesis where God gives man "dominion" over the Earth (Genesis 1:26-28, New International Version, 1992), as a "divine charge to be good stewards and to take care of and protect the Creator's creation" (Kearns, 1996, p. 58). However, this is a point of controversy because as Kearns (1996) points out, those

Christian believers who have a stronger environmental ethic “have their beginnings in the very scripture that those who do not support environmentalism hold as their crucible” (p. 58).

### **Approaching Christian Care for Creation**

It is likely that the spectrum of beliefs on the human-nature relationship has been a limiting factor in reaching Christian audiences with an anthropocentric worldview (Hand & Van Liere, 1984). Some Christians have historically involved themselves in environmental efforts, however, and their participation may help inform educational resources for Christians (Hitzhusen & Tucker, 2013). In fact, many (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Kearns, 1996) have categorized how Christians come to care for Creation and collectively define three broad approaches – Spirit, Justice, and Stewardship (see Table 1). An understanding of the approaches could ultimately inform methods used to educate Christians on caring for Creation. Kearns (1996) classified Christians by illustrating the ways in which they historically approached environmental efforts. Kearns (1996) identified three approaches that categorized Christians and represented a segregation of values among them, and ultimately defined approaches to Christian care for Creation: “Christian Stewardship,” “Eco-Justice” and “Creation Spirituality” (p. 56).

Barrett and Grizzle’s work (1998) also supported a categorization of Christians and their approach to environmental efforts. Barrett and Grizzle (1998) saw that there is “no single ‘Christian Environmentalism’” but “a rich diversity of Christian beliefs about Creation and our place in it” (p. 234). Barrett and Grizzle’s classifications included six groups, with four of them used for this project. The two classifications that are not included—Eco-feminism and Subjectionism—do not connect in ways that support the integration of Christian Education with Environmental Education. Barrett and Grizzle (1998) defined Christian traditions as they relate to “major components of environmental issues” (p. 234). The four groups represent a spectrum

of Christian beliefs on the human-nature relationship and are as follows: “Pluralistic Stewardship,” “Eco-Justice,” “Environmental Justice,” and “Creation Care” (Barrett & Grizzle, 1998).

Additionally, two other authors had similar categories regarding how Christians approached caring for Creation. Ball (1998) described his categories as “Evangelical Protestant Stewardship Types” which included “Wise Use,” Anthropocentric Stewardship,” “Caring Management,” and “Servanthood Stewardship” (p. 33). Ball’s (1998) classification spans the spectrum of Christian beliefs on the human-nature relationship from anthropocentric to biocentric. Harper and Kenneally (2009) described “three core values” held by Christians-- “Spirit,” “Environmental Justice,” and “Stewardship”; these values provide a “foundation for religious environmental efforts” (p. 621). Descriptions of each of these values include definite attributes held by the spectrum of Christian beliefs on the human-nature relationship (Harper & Kenneally, 2009). Table 1 shows the collaborative configuration of the three approaches to Christian Care for Creation.

Table 1  
*Approaches to Christian Care for Creation*

	<u>Spirit</u>	<u>Justice</u>	<u>Stewardship</u>
Ball (1998)	“Wise Use” “Anthropocentric Stewardship”	“Caring Management” “Environmental Justice”	“Servanthood Stewardship”
Barrett & Grizzle (1998)	“Pluralistic Stewardship”	“Eco-justice”	“Creation Care”
Harper & Kenneally (2009)	“Spirit”	“Environmental Stewardship”	“Stewardship”
Kearns (1996)	“Creation Spirituality”	“Eco-justice”	“Stewardship”

The ways Christians approach caring for Creation can inform environmental efforts because they highlight a path towards stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Kearns, 1996). These three approaches are important specifically because they encompass the spectrum of Christian beliefs on the human-nature relationship. Support for the three approaches to Christian Care for Creation is significant (Ball, 1998; Barrett & Grizzle, 1998; Bratton, 1992; DeWitt, 1994; Feldman & Moseley, 2003; Haluza-Delay, 2008; Harper & Kenneally, 2009; Hitzhusen, 2006; Kanagy & Nelsen, 1995; Kearns, 1996; Shaiko, 1987).

The next section will describe two of the broadly defined approaches to Christian Care for Creation – Spirit and Stewardship. The Justice approach (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Kearns, 1996) demonstrates how Christians have worked to resolve environmental issues but in doing so advocate for a particular position. The standards of Environmental Education specifically discourage advocating for a particular view, which may be important when approaching Christian audiences with varying beliefs and opinions (NAAEE, 2010). The Justice approach, because of its association with advocacy, would not be helpful in informing Environmental Education efforts exclusively. The other two approaches, Spirit (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Kearns, 1996) and Stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Kearns, 1996), have attributes that are similar to the values found in Environmental Education and encompass a spectrum of Christian beliefs about the human-nature relationship.

### **Exploring Approaches to Christian Care for Creation**

Christians have connected to Creation, both spiritually and through their stewardship, and these paths are important in designing tools for educating Christians in how to care for Creation



(Bratton, 1992; DeWitt, 1994; Haluza-DeLay, 2008; Hitzhusen, 2006; Kanagy & Nelsen, 1995; Shaiko, 1987).

**Connecting spiritually.** One way Christians have embraced an environmental ethic is through their spiritual connections to Creation. Christians have connected spiritually through love – love of God, the Creator, and love of Creation (Bratton, 1992). Bratton (1992) argued that “Christian ethics are usually based on the theology of love” and that “God’s love for nature has the same form and characteristics as God’s love for human beings” (p. 3). Love of the natural world can also encourage environmental literacy and addresses the issue of nature-deficit disorder (Louv, 2005). Louv describes Albert Mohler Jr., President of the Southern Baptist Theological Seminary, as someone who believes “Christians should take the lead in reconnecting with nature” (Mohler, 2009 as cited in Louv, 2014). In addition, Mohler (2009), commented that Louv’s work reminds us that “it would do us all a world of good to take a walk in the woods, to play outdoors, and to remember that the world is filled with a variety of flora and fauna that defies the imagination and thrills the senses” (as cited in Louv, 2014, para. 19). Love of Creation is also what ultimately encourages care and willingness to act and can reinforce the efforts of Environmental Education (Hitzhusen, 2006).

Most Christians can connect spiritually regardless of what environmental beliefs they hold (Ball, 1998; Harper & Kenneally, 2009). Connecting spiritually includes having time for active reflection and physically connecting to Creation (Harper & Kenneally, 2009; Kearns, 1996). This is important to note when considering the design of activities that attempt to connect Christian audiences to Creation, because those experiences in Creation can reinforce the ideas being presented. The attributes that connect Christians spiritually to Creation can awaken a greater love of God and of the Creation (Bratton, 1992; Hitzhusen, 2007).

**Stewardship.** Christians participating in environmental stewardship can demonstrate a greater environmental ethic in caring for Creation, which is grounded in scripture and more particularly in the Genesis concept of “dominion” (Kearns, 1996). Christian stewardship efforts focus on the belief that the “Earth is the Lord’s, but it is entrusted to humans” (Hitzhusen, 2006, p. 17). This interpretation of “dominion” is viewed as a “divine charge to be good stewards and to take care of and protect the Creator’s creation” (Kearns, 1996, p. 58). Nash (1989) comments that Christian theologian Joseph Sittler interpreted dominion as a “tender caring for nature” (p. 99). Christians who have taken on the role of responsible steward recognize the biblical mandate of stewardship (Genesis 2:15, New International Version, 1992), how their separation from this role is a sin, and how they are called to do God’s work to redeem and heal all of Creation (Hitzhusen, 2006).

Some Christians practicing stewardship of Creation may even believe “to be a Christian is to be an ecologist” and that “to be saved means saving the Creation” (Kearns, 1996, p. 59). Connections through stewardship efforts could be very impactful. The widespread practice of responsible stewardship of Creation by Christians could perpetuate positive and permanent changes greatly improving the state of Creation (Smith & Pulver, 2009). However, the interpretation of the dominion imperative may keep some Christians from stewardship efforts beyond the care for humans. The ways Christians have connected through stewardship range from the anthropocentric to the biocentric end of the spectrum (Baer, 1989; Barrett & Grizzle, 1998; DeWitt, 1994; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996).

### **Building on Common Ground**

As a way to “help educators extrapolate appropriate religious material,” Hitzhusen (2006) compiled a list of specific concepts, teachings and activities that have proven effective in

Christian environmental education programs (p. 15). Hitzhusen (2006) then compared “these themes of practice” to the variables of pro-environmental behavior, as defined by Hungerford and Volk (1990). Hitzhusen (2006) adapted Hungerford and Volk’s Environmental Citizenship Behavior model (1990) by adding several themes of Christian ecotheology to demonstrate ways to connect environmental education and religion. When incorporated into Hungerford and Volk’s Environmental Citizenship Behavior model (1990), these tenets provide support for pro-environmental behavior (Hitzhusen, 2006). Hitzhusen’s religious variables (2006), based on themes of Christian ecotheology, are presented in an adapted version of Hungerford and Volk’s model (1990) (see Appendices B & C).

Hitzhusen (2006) compiled these common tenets of Christian ecotheology to better understand the integration of Environmental Education with Christian Education. The ways Christians relate to the natural world are examples of connections that can show care for Creation, both spiritually and through stewardship (Hitzhusen, 2006). Hitzhusen and Tucker (2013) believed that the illustrations of Christians making connections to care for Creation, could serve as the path to concern and response in Christians. Insights in how Christians approached Creation Care could be harnessed to promote or increase Christian participation in environmental efforts (Hitzhusen & Tucker, 2013).

Six common tenets of Christian ecotheology are well-supported (Baer, 1989; Ball, 1998; Bratton, 1992; Haluza-Delay, 2008; Hitzhusen, 2006; Kanagy & Nelsen, 1995; Shaiko, 1987) and reveal attributes of both the Spirit and Stewardship approaches. These tenets of Christian ecotheology are listed in the order in which they connect to the spectrum of beliefs regarding the human-nature relationship from anthropocentrism to biocentrism.

**Cultivating Awe and Wonder.** Many authors (Harper & Kenneally, 2009; Hitzhusen, 2007; Louv, 2014) believe that a spiritual life begins with a sense of wonder, and that one of the first windows to wonder is the natural world. Most Christians can identify a time in their lives when they experienced the awe and wonder of God’s Creation (Harper & Kenneally, 2009). Worster (1994) comments on several examples including the “father of taxonomy,” Carl Linnaeus. Worster (1994) highlights Linnaeus’ whose successes in ordering and categorizing the natural world led him to worldwide fame. Worster (1994) recalls Linnaeus “never lost the capacity for reverential awe before nature” and would even “become quite giddy at the Creator’s magnificent arrangement’ (p. 31).

Worster (1994) described Gilbert White as another example of a Christian who stood in the awe and wonder of God. White, who lived in Selbourne England, expressed his awe and wonder of God’s Creation through his “Natural History of Selbourne” (1789), which laid the foundations for the modern study of ecology and is even referred to as the “journal of Adam in paradise” (Worster, 1994, p. 14). Having a great affinity for both God and Creation, White’s (1789) collection of letters on wildlife and natural history displayed his findings of a Creation “contrived by a most powerful, ingenious maker” (Worster, 1994, p. 5). Romans 1:20 reminds Christians that, “For since the creation of the world God’s invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made” (New International Version).

Exploring the awe and wonder of Creation develops a greater love of the Creator, which should be a goal for all Christians (Bratton, 1992; Hitzhusen, 2006). In addition, cultivating awe and wonder can heighten environmental sensitivity, which is a great starting point for educating Christians about environmental concerns (Hitzhusen, 2006). Christians who experience awe and

wonder can build a greater awareness of the natural world by exploring the complexity and majesty that Creation holds (Bratton, 1992; Hitzhusen, 2006).

**Exploring the intrinsic value of Creation.** Understanding the intrinsic value of Creation is another essential part of a Christian's mission to understand and spiritually connect with God (Baer, 1989, Ball, 1998; Haluuzza-Delay, 2008; Hitzhusen, 2007). God is concerned about non-human parts of Creation, so efforts should address the debate that exists over God's concern for the whole of Creation (Haluuzza-Delay, 2008). Genesis 1:31 reminds Christians that God thought all of his Creation was "very good" (New International Version). In fact, five days of the Creation account describe non-human parts of Creation, which God deems "good" (Genesis 1, New International Version). Understanding how God feels about Creation is important for Christians as they discover their role in Creation (Haluuzza-Delay, 2008; Hitzhusen, 2007). Promoting a love of Creation supports the fact that Creation is God's handiwork and Christians should rejoice in God's grace (Haluuzza-Delay, 2008, p. 75).

Many historical references describe Christians who valued Creation's processes and its habitants purely because it was God's work (Nash, 1989; Worster, 1994). Worster (1994) highlights Linnaeus' work as an illustration of the intrinsic value of nature and a demonstration of "the reconciliation between love of nature and pursuit of human ambitions, between religious beliefs and scientific rationalism" (p. 33). Nash (1989) visited the ideas of understanding the intrinsic value of nature when describing the work of theologian Richard Baer. Baer (1989) specifically argued for three assumptions taken from the Christian tradition, which support an environmental ethic. Baer's (1989) three assumptions—"the world belonged to God," "God likes the world he created," and "God values the 'web of life'"—focus on the importance of nature as a matter for Christians to consider (pp. 100-101).

The love of Creation appeals to many Christians despite their position on the human-nature relationship because many Christians who love Creation do so simply because God loves Creation (Baer, 1989; Bratton, 1992; Hitzhusen, 2006). Ball (1998) commented that some Christians who practice “Anthropocentric Stewardship” are still able to value Creation for itself. They believe that God’s Creation is “good” and even has “some modicum of intrinsic value” (Ball, 1998, p. 33).

**Exploring the Christian Mission to Steward Creation.** Evidence shows that Christians who engage in environmental stewardship understand that “the problem is not with Christianity, but with not being true to Christianity” (Kearns, 1996, p. 58). Connecting through stewardship is highlighted by DeWitt (1994) who was pivotal in providing a Christian response to environmental concerns, specifically, how to move Christians to practice stewardship of the earth. DeWitt’s (1994) “Earth-Wise” publication urged Christians to recognize their biblical responsibility to care for the environment by discussing the scriptural evidence for doing so. DeWitt (1994) believed that Creation Care should promote “awareness, appreciation,” and the responsibility of “environmental stewardship” which are direct connections to the goals of Environmental Education (p. 78).

Christians who steward Creation because of biblical and ecological responsibilities use “science as a tool” for the “prescribed response (to) environmental crisis” (Kearns, 1996, p. 56). God calls human beings to use Creation responsibly and to be “mindful of the needs of Creation” (Harper & Kenneally, 2009, p. 621). In fact, some Christians believe that God designated humans as stewards and the responsibility to care for Creation is necessary for every Christian (Barrett & Grizzle, 1998).

Stewardship efforts begin by exploring one's attitudes and skills through the biblical study of a Christian's role in Creation (Baer, 1989; Ball, 1998; Barrett & Grizzle, 1998; DeWitt, 1994; Hitzhusen, 2006; Kearns, 1996) and by building knowledge of environmental issues, which is an important goal for Environmental Education.

**Exploring Christian care for Creation.** Christians acting as stewards may also recognize the repercussions for not caring for Creation (Baer, 1989; Hitzhusen, 2006; Kearns, 1996). Christians who recognize their own sin in not caring for Creation view the roots of the environmental crisis as a “product of human sinfulness and thus believe it requires individual changes and action” (Kearns, 1996, p. 58). Nash (1989) notes that Sittler presented the idea of caring for Creation as a “matter of obeying Christ” (Nash, 1989, p. 99). Furthermore, Nash (1989) thought that Sittler believed the abuse of the environment was insulting to God. Baer (1989) also believed that for a Christian to disregard their responsibility to Creation would be a sin. Christians try to glorify God in all things they do yet may not participate in environmental efforts because they do not understand their responsibility to care for Creation (Baer, 1989). Christians who believe they have a responsibility to care for Creation, believe that if “God so loved the world” (John 3:16), they should be doing all they can do to save it (Baer, 1989). The responsibility to care for all of Creation connects with a more biocentric position and therefore is not an idea that is for all Christian audiences (Hitzhusen, 2006; Kearns, 1996)

**Uncovering God's Vision for Cosmic Harmony.** Christians have connected spiritually as well through their belief in cosmic harmony (DeWitt, 1994; Hitzhusen, 2006; Kearns, 1996). Isaiah 11 describes cosmic harmony as “when the wolf will live with the lamb” and depicts a life Christians should be working toward while on earth (New International Version). Although some Christians may dispute this interpretation, the idea that Creation was a part of God's saving

grace is supported by a many Christians who care for Creation (DeWitt, 1994; Hitzhusen, 2006; Kearns, 1996). Christians, who have embraced this idea, oppose an anthropocentric worldview and connect spiritually to the belief that all things are subject to cosmic redemption (Nash, 1989).

Nash (1989) highlighted theologian Joseph Sittler as one who recognized that Christians hold different views on redeeming Creation but that they should reconsider their anthropocentric role and value nature outside of its benefit to humans. Nash (1989) comments that Sittler was known as one of the first theologians to rise above the simple, anthropocentric stewardship associated with Christianity. According to Nash (1989), Sittler believed “all the thoughtful modern Christian needed as a reason to include nature in his or her moral circle was the belief that God too, wanted it in the redeemed heavenly kingdom” (p. 99).

**Understanding God’s plan for a new Earth.** Lastly, stewardship efforts connect to caring for Creation in the actions Christians take in preparing for God’s redemption of the planet (Ball, 1998; DeWitt, 1994; Hitzhusen, 2006). DeWitt (1994) described caring for Creation as a responsibility “that works to preserve and restore the integrity of the created order” (p. 2). He believed that stewardship meant “living on Earth (so) that heaven will not be a shock to us” (DeWitt, 1994, p. 2). Cosmic redemption is not a belief of all Christians, but audiences with more biocentric beliefs trust that a redeeming of Creation will occur in the end times (DeWitt, 1994). Ball (1998) noted that a belief in cosmic redemption suggests that God loves and desires “shalom for all of Creation” (Ball, 1998, p. 36). Believing that Earth will be restored to its Eden-like state supports caring for God’s creation as a way of preparing for what awaits Christians in heaven (DeWitt, 1994).

## **Summary of Literature Review**



White's (1967) critique led to a broad discussion of Christian Care for Creation (Jenkins, 2009). Research has shown that Christian audiences approach caring for Creation in different ways and those approaches include a spectrum of beliefs on the human-nature relationship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996). Connections made in how Christians approach care for Creation could provide a way to examine how to integrate Christian Education with Environmental Education (Hitzhusen, 2006; Light, 2006). In light of these findings, many Christians have not embraced an environmental ethic, and the resources available to Christian educators that inspire environmental literacy and stewardship are few (Carmichael, 2014; Hitzhusen, 2006; Light, 2006). Curriculum resources designed for Christian audiences need to focus on the common ground found in the understanding of Christian beliefs and the power of Environmental Education (Carmichael, 2014; Haluza-Delay, 2008; Hitzhusen, 2007; Huguenin, 2012).

## **CHAPTER THREE.**

### **PROJECT METHODS**

The purpose of this project was to create a guide for integrating Christian education with Environmental Education. This guide was informed by a conceptual framework of guidelines, which accounts for what is known about Christians and their relationship to Creation. Two approaches Christians take when participating in environmental efforts—Spirit and Stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2007; Kearns, 1996)—help identify Christian beliefs and inform guidelines for integrating Christian Education with Environmental Education (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996). The two approaches and their relationship with the common ground found in attributes of Christian ecotheology (Hitzhusen, 2006) and variables of pro-environmental behavior (Hungerford & Volk, 1990) make up a framework of guidelines designed to assist Christian educators in inspiring environmental literacy, stewardship, and spiritual growth. By focusing on curriculum resources used to educate Christians, there is opportunity to strengthen understanding of the natural world and the potential to increase Christianity’s impact on the care of Creation (Hitzhusen, 2007; Light, 2006).

#### **Designing a Christian Environmental Education Framework**

Two approaches to Christian care for Creation—Spirit and Stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)—can provide the understanding needed to develop curriculum resources that aim to connect Christians to Creation. The “Spirit” and “Stewardship” approaches and their attributes were used in this project to define guidelines that made up a conceptual framework for integrating Christian Education with Environmental Education. Each approach and accompanying guidelines support

a lens for creating educational goals and activities and consider a broad spectrum of worldviews held by Christians. This specific recipe integrates Christian Education with Environmental Education, which could assist an educator in adapting existing Environmental Education activities and promoting care for Creation in their Christian audiences (See Table 2).

Table 2

*Christian Environmental Education Conceptual Framework – Guidelines for Integrating Christian Education with Environmental Education*

- **Connecting Spiritually**  
(Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)
  - **S1. Cultivating Awe and Wonder**  
(Bratton, 1992; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996; Louv, 2014)
  - **S2. Exploring The Intrinsic Value Of Creation**  
(Baer, 1989; Ball, 1998; Bratton, 1992; Haluza-Delay, 2008; Harper & Kenneally, 2009; Hitzhusen, 2007; Kearns, 1996)
  - **S3. Uncovering God's Vision for Cosmic Harmony**  
(DeWitt, 1994; Hitzhusen, 2006; Kearns, 1996)
- **Connecting Through Stewardship**  
(Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)
  - **E1. Exploring the Christian Mission to Steward Creation**  
(Baer, 1989; Barrett & Grizzle, 1998; DeWitt, 1994; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)
  - **E2. Exploring Christian Care for Creation**  
(Baer, 1989; Hitzhusen, 2006; Kearns, 1996)
  - **E3. Understanding God's Plan for a New Earth**  
(Ball, 1998; DeWitt, 1994; Hitzhusen, 2006)

The conceptual framework was based on the collaboration of several factors and focused on a Christian's interpretation of the human-nature relationship. The framework considered 1) how Christians approach caring for Creation, 2) a spectrum of beliefs held by Christians regarding the human-nature relationship, 3) common tenets of Christian ecotheology, and 4) variables of pro-environmental behavior. The guidelines for this framework were based on six

of the common tenets of Christian ecotheology, that connect to either the Spirit or Stewardship approach, which are supported by many (Baer, 1989; Ball, 1998; Bratton, 1992; Haluuzza-Delay, 2008; Hitzhusen, 2006; Kanagy & Nelsen, 1995; Shaiko, 1987). These guidelines were incorporated into the Hungerford and Volk (1990)/Hitzhusen (2006) adapted model of Environmental Citizenship behavior to illustrate how they supported both Hitzhusen's religious variables and Hungerford and Volk's (1990) variables of pro-environmental behavior (See Figure 1).

Figure 1. Conceptual Framework Guidelines and their Connections to EE

Entry-level Variables	Ownership Variables	Empowerment Variables
Sensitivity Awe and Wonder <b>S1. Cultivating Awe and Wonder</b>	In-depth knowledge about issues Knowledge of environmental issues <b>E1. Exploring the Christian Mission to Steward Creation</b>	Locus of Control Vision of Cosmic Harmony <b>S3. Uncovering God's Vision for Cosmic Harmony</b>
Knowledge of Ecology Intrinsic Value of Nature <b>S2. Exploring the Intrinsic Value of Creation</b>	Personal investment Responsibility for Environmental Issues <b>E2. Exploring Christian Care for Creation</b>	Intention to Act Preparing for restoration of Creation <b>E3. Understanding God's Plan for a New Earth</b>

Figure 1. Guidelines for Integrating Christian Education with Environmental Education as they connect to the attributes of Hungerford and Volk's (1990) Environmental Citizenship Behavior Model and Hitzhusen's (2006) inclusion of religious variables based on attributes of Christian ecotheology.

The sequencing of the framework guidelines was based on the assumption that audiences may begin at the anthropocentric end of the spectrum of Christian beliefs on the human-nature relationship. The purpose for considering these audiences specifically is the intention to broaden

the reach of Environmental Education. The guidelines were ordered to align with a spectrum of beliefs on the human-nature relationship beginning with an anthropocentric worldview and spanning to a biocentric worldview. The guidelines were then compared to the adapted Hungerford and Volk (1990)/Hitzhusen model (2006) which supported the movement from one guideline to the next. This relationship is described further in the figure below. Note the direction of the use of the conceptual framework guidelines as it follows the spectrum of Christian beliefs on the human-nature relationship from anthropocentrism to biocentrism.

Figure 2. Belief-based Conceptual Framework Guidelines and Their Connections to the Environmental Citizenship Behavior Model

<p>Connecting Spiritually (<i>Entry-level Variables</i>)</p> <p>S1. Cultivating Awe and Wonder S2. Exploring Creation's Intrinsic Value</p> <p><b>Anthropocentric to Biocentric Audiences</b> →</p>	<p>Connecting Through Stewardship (<i>Ownership Variables</i>)</p> <p>E1. Knowledge of Mission to Steward E2. Responsibility for Creation Care</p> <p><b>Bridging from Anthropocentric to Biocentric</b> →</p>	<p>Connecting Spiritually and Through Stewardship (<i>Empowerment Variables</i>)</p> <p>E3. &amp; S3. Restored Creation/Cosmic Harmony</p> <p><b>Biocentric</b></p>
---	--	---

Figure 2. Approaches to Christian Care for Creation and Guidelines for Integrating Christian Education with Environmental Education as they connect to the attributes of Hungerford and Volk's (1990) Environmental Citizenship Behavior Model and their connection to a spectrum of beliefs on the human-nature relationship.

Social Judgment Theory (Sherif, Sherif, & Nebergall, 1965) further supported movement within the framework of guidelines. Social Judgment Theory (Sherif, Sherif, & Nebergall, 1965) informs the way to order the guidelines based on the beliefs of the audiences educators are serving. Social Judgment Theory (Sherif, Sherif, & Nebergall, 1965) centers on the concept that

as a person is presented with new information, that information is evaluated based on his or her latitude of acceptance - the range of ideas that a person thinks is valuable or reasonable to consider (Sherif, Sherif, & Nebergall, 1965). If an idea falls within their latitude of acceptance then they are more likely to accept that information as worthy (Sherif, Sherif, & Nebergall, 1965). By incrementally introducing ideas that follow a broad spectrum of beliefs, educators can introduce ideas in a sequence that is closest to their audience's latitude of acceptance, or close to their beliefs on the human-nature relationship, and those ideas are therefore more likely to be acknowledged.

### **Using the Conceptual Framework**

Appealing to the spectrum of Christian beliefs means appealing to both anthropocentric and biocentric audiences, and all that lies between. Addressing the spectrum of beliefs can help reach a variety of Christian audiences and make it possible to engage those Christians not previously associated with caring for Creation and move them towards environmental stewardship (Bratton, 1992; Harper & Kenneally, 2009; Hitzhusen, 2007; Kanagy & Nelsen, 1995; Kearns, 1996; Shaiko, 1987). This conceptual framework focused on the foundation of Christian Education, explored how to approach Christian audiences with a broad spectrum of beliefs on the human-nature relationship and incorporated the goals of Environmental Education. This design increases the potential to promote environmental literacy and stewardship in Christian audiences if used as suggested.

As defined above, the framework guidelines incrementally move audiences from their place on a spectrum of beliefs towards more positive environmental behavior. Connections to a spectrum of beliefs, Hungerford and Volk's path to environmentally responsible behavior (1990) and Social Judgment Theory (Sherif, Sherif, & Nebergall, 1965), support how to move audiences

from one guideline to the next. This support informs how to use the guidelines of the conceptual framework in sequence. Each guideline is attached to a place on a spectrum of beliefs on the human-nature relationship. Guidelines should be used with audiences with similar understandings to the beliefs that the guideline support.

**Guidelines for more anthropocentric audiences.** The sequence of guidelines begins by focusing on the anthropocentric end of the spectrum. This first set of guidelines is as follows—S1, S2, and E1. All audiences can begin with activities that focus on the first guideline in Connecting Spiritually, Cultivating Awe and Wonder (S1). Cultivating Awe and Wonder addresses the awareness and knowledge pieces of the Tbilisi Declaration (1978) and builds sensitivity towards Creation that is defined as an entry-level variable by Hungerford and Volk (1990). Audiences who are comfortable with these ideas may be challenged by moving to the next guideline in Connecting Spiritually, Exploring the Intrinsic Value of Creation (S2). Exploring the intrinsic value of Creation connects to important environmental education goals including awareness and knowledge, because it focuses on physically experiencing Creation and learning about its functions. Knowledge of Creation and its ecology is also an important variable for inspiring pro-environmental behavior. In considering these ideas as a guideline for educating Christians, exploring the intrinsic value of Creation as a goal should “encourage environmental sensitivity and promote interest in pursuing ecological knowledge” (Hitzhusen, 2007, p. 34). Christians who explore the intrinsic value of nature allow for the exploration of the “good” in the whole of Creation. These experiences should focus on physically experiencing the part of Creation that is examined. Exploring the intrinsic value of Creation as a guideline for educating Christians could allow for a greater appreciation and sensitivity to God’s Creation for its own sake and a greater love of God, the Creator.

For audiences comfortable in S1 and S2, E1 will be the next step based on its connection to the spectrum of beliefs on the human-nature relationship. (The next guideline in Connecting Spiritually, Uncovering God's Vision for Cosmic Harmony (S3), has attributes that support a more biocentric view of the human-nature relationship. Continuing with the other guideline in Connecting Spiritually, Understanding God's Vision for Cosmic Harmony (S3) would not be advised for a more anthropocentric audience. The next guideline that is closest to S2 on the spectrum of beliefs is the first guideline of connecting through stewardship, (E1). This guideline connects with Tbilisi goals (1978) as it promotes awareness and knowledge, but also an attitude towards care for the environment. The E1 guideline also addresses Hungerford and Volk's Ownership Variable (1990) that focuses on in-depth knowledge regarding issues associated with Creation.

There is a shift in using this guideline because of the focus on the attitude of the student. Focusing on one's attitude about Creation connects to their understanding of the mission to care for Creation. A discussion on how the audience interprets dominion might prove useful at this point because it will help the educator discern whether to move ahead with the other stewardship guidelines or continue cultivating what a steward of Creation looks like. Even some anthropocentric Christian audiences may have this understanding, so it is possible to use this guideline as a way to explore one's attitude on caring for Creation. With this being such a pivotal step, the E1 guideline may however, be the last to explore with some audiences. When considering the Christian mission to steward Creation as a guideline for educating Christians, the focus should be on exploring issues in Creation and how Christians should respond to them. This guideline may reveal some audiences' resistance to the concept of environmental



stewardship, especially beyond human needs. This guideline should be used to cultivate a greater understanding of a Christian's role in Creation.

The attitudes projected by exploring the Christian mission to care for Creation will allow the instructor to decide whether it is wise to move along in the guidelines or not. Educators will have to assess whether their group is ready for the next step. Exploring the guidelines beyond E1--E2, E3, and S3--will challenge audiences to examine environmental degradation because of human sin and therefore may be controversial for some Christians. Again, a discussion of the dominion imperative may be important here as the audience explores their interpretation of the biblical mandate. If audiences tend to be comfortable with anthropocentric views of Creation the first sequence of guidelines can be used without moving to the second set.

Audiences comfortable with the responsibility to care for the whole of Creation may feel comfortable moving to the second set of guidelines. A poll of whether the audience believes in the responsibility to care for Creation beyond the needs of humans would provide the answers an instructor would need to feel comfortable moving on with the second set of guidelines.

Discussions on endangered plant and animal species or destruction of habitat for human needs are examples of topics that would provide good insight in this case.

**Guidelines for more biocentric audiences.** The second sequence of guidelines— E2, S3, and E3—resonate with people holding more biocentric beliefs on the human-nature relationship. The first guideline in the second sequence is Exploring Christian Care for Creation (E2), a guideline that reaffirms the Tbilisi goals (1978) of awareness, knowledge, attitude, and skills. Skill building is a new goal to be represented by the framework guidelines. It is incorporated here to highlight the idea that as Christians explore how they have cared for Creation, they will begin labeling the actions that are sinful and those that are not. E2 also

addresses Hungerford and Volk's Ownership variable of personal investment (1990), because as sin is identified, Christians may see the need to change their behavior. Sin should be a strong motivator for Christians, as it is perceived to separate people from God. Recognizing wrongdoing can compel Christians to repent and change harmful behaviors. Exploring how one feels about Creation could potentially clarify attitudes about one's sin and what choices are good. Use of this guideline should focus on evaluating one's actions and how those actions affect Creation. In Genesis 2:15 humans were put into the Garden to till and keep it (New International Version). Educating Christians using this guideline would explore the actions and decisions one makes that affect Creation and whether those actions and decisions are keeping Creation as God would desire.

Following E2, students can explore the last Spirit guideline, Uncovering God's Vision for Cosmic Harmony. Exploring God's vision for how Creation should operate could help believers connect to God's power in designing a perfect Creation, but also in the feeling that their pro-environmental actions will be successful, because it is a part of God's plan. Uncovering God's vision for Cosmic Harmony also has connections to goals for Environmental Education, specifically the Tbilisi (1978) goals of awareness, knowledge, and attitude. Christians, who are discovering Creation as God intended it, can become more aware of Creation, more knowledgeable of how it works, and cultivate an attitude of care for Creation. Christians can also be empowered to care for Creation through this idea because the support for the balance of nature is embraced. This is an important part of inspiring pro-environmental behavior, contributing to one's locus of control, because Christians can believe that caring for Creation is what God intended them to do and therefore have an expectancy of reinforcement for their

actions by God. Christians uncovering God's Vision for Cosmic Harmony value God's plan for Creation and are supported in feeling that it should be cared for.

In considering the idea of cosmic harmony as a guideline for educating Christians, uncovering God's Vision for Cosmic Harmony would best fit with audiences that believe the current Earth will be restored. A simple poll of one's audience would reveal their beliefs and determine if this guideline would be a good fit. To find out if this idea would fit, educators could engage their audiences in a discussion of whether they believe the Earth is to be restored, or a new one will be created, in the end-times, and why they believe this.

Lastly, the Stewardship guideline, Understanding God's Plan for a New Earth (E3), can address all the Tbilisi goals (1978) and highlights the Intention to Act variable of Hungerford and Volk's Model (1990). Christians can be encouraged to act on what they believe is best aligned to God's ultimate plan for Creation. The intention to act, which supports positive environmental behavior, is highlighted in a Christian's desire to do what God wants. The Environmental Education goal of participation could also be connected to these ideas for the same reason; by actively involving themselves in solutions to environmental problems, Christians begin to fully participate in improving the environmental condition and act as environmentally responsible citizens. Educators should be advised not to focus on these ideas as guidelines for activities with audiences that are more anthropocentric. This guideline has a biocentric focus and supports the belief that the Earth will be restored. This guideline features all the attributes of inspiring environmental literacy and the skills a Christian needs for making pro-environmental decisions and actions. Christians, who focus on restoring Creation to the way God intended, support the actions that improve the condition of the natural environment.

It is important to note that some audiences may never be comfortable in the second sequence of guidelines, which focuses more on biocentric beliefs. The cultivation of environmental literacy is an important goal that is addressed by the first set of guidelines, so educators should be encouraged with any use of these guidelines.

The ultimate goal for this conceptual framework of guidelines was for educators to use these ideas as tools for creating goals in the education sessions. Success with the entire framework of guidelines would mean that educators move their audiences through each guideline, in sequence, and students gain comfort with each new step in understanding the human-nature relationship. Over time, audiences could reach the point where educators could create activities by using any of the guidelines and then the guidelines could be used out of sequence. The time taken with each guideline step will depend on the audience and the instructor. Instructors will have to work to understand the beliefs of their audiences as the guidelines are explored. Starting with the first sequence of guidelines will help the instructor learn which fit their particular audience and which will challenge their audiences' beliefs.

The time between guideline use will also depend on the acceptance of the ideas among participants. If an audience is known to interpret dominion as caretaking for nature, then this audience may be ready to challenge their acceptance of more biocentric views (although in many case this will not apply, or will be unknown to the instructor). Most participants will need to progress gradually across the spectrum to ensure mastery of concepts.

### **Recommendations for Activity Design**

This project explored how to design activities that integrate Christian Education and Environmental Education. The conceptual framework for guiding Christian audiences is the foundation for designing activities that could be created to educate Christians, but there were

many other components to consider. The following design elements integrate Christian Education with Environmental Education and were implemented in the design of the sample activities

**Structure of the activity in the common language of the target audience.** “For environmental work in church-based contexts to be effective as an agent of change, it must respect the churches' traditions and culture” (Haluza-DeLay, 2008, p. 80). It is important that curriculum created describes lessons in the language that Christian educators can easily understand. To address this, the suggested foundation of the activity structure should mimic that of traditional Christian Education materials (Ferguson, 2008). Materials used to build the sample activities’ structure was supported by the “Christian Educators Guide to Evaluating and Developing Curriculum” (Ferguson, 2008), which is a resource that provides assistance in preparing and arranging activities created for Christian audiences.

**Use of Conceptual Framework as guidelines for goal setting.** One guideline from the conceptual framework directed goal writing and the selection of the Environmental Education activity for each of the provided sample activities. The guideline to use will be the educators’ preference but should consider the beliefs of the audience. Beginning with (S1) — Cultivating Awe and Wonder guideline, under Connecting Spiritually, is the place to start with any Christian audience and is recommended for the first activity that is designed.

**Select an Environmental Education (EE) activity to adapt.** Selecting the EE activity to adapt should consider the target audience and goals of the educator. Selecting activities is a very personal process that should be based on learning goals specific to the target audience. Topics can be found in exploring a local issue, an upcoming event, a recent news story or any environmental topic the students or instructor would like to learn more about. The personal

goals of the educator will dictate what activity best fits their needs. Activities should also fit with the conceptual framework guideline educators are hoping to focus on. For example, if starting with Cultivating Awe and Wonder (S1), educators will want to look for activities that naturally show the awe and wonder of God's Creation and its value to God. They will also want to focus on the EE goals associated with that guideline. See Appendix D for how the conceptual framework guidelines correspond to EE goals. Some activities will seem to fit better than others do. One helpful quality about adapting existing Environmental Education (EE) activities is that the activities themselves are usually well-defined and searchable. In most cases, educators will be able to find an activity that fits their needs. Many of the EE activities also provide recommended reading; these are additional study materials and other options that can help educators meet their goals. Focusing on information pertaining to local news and issues can also support a Christian educator's goals. Focusing on local issues is a more personal way of connecting to the ideas educators are covering with their audiences. Lastly, the creation of good questions that guide a class discussion can get audiences where you want them to go. The sample activities consulted Ferguson (2008) for writing discussion questions.

Note: Many of the Environmental Education Activity Guides provide indexes that sort the provided activities. These benefit educators by having structured ways to define ideas and parameters into straightforward categories. Defining the audience needs is an important first step in finding the EE activity that will fit best. The sample activities list sources for the EE activities that were adapted in their creation. All of these sources are readily available to most educators. Provide biblical support for each adapted activity. The focus on foundations originating in biblical theology grounds the integration of Christian Education with Environmental Education. Haluza-DeLay (2008) claimed that no matter which values Christians hold, educators should

use “sound biblical and theological scholarship” (p. 75). In fact, an exploration of what the Bible says about a Christian’s environmental responsibility will be necessary for successful integration. Many biblical texts are interchangeable in their support of the beliefs of both environmental advocates and those opposed to the concept of environmental stewardship. For that reason, educators are to explore biblical support for each topic. Support for the Christian life is found in what the Bible tells Christians; therefore, we are not truly integrating the values of both Christian and Environmental Education if we are not exploring God’s word. Ferguson’s (2008) Bible Exploration Worksheet was used as a tool for exploring biblical connections that guided the sample activities. Its adapted form for activities that integrate Christian and Environmental Education is found in Appendix E.

**Connect to goals of Environmental Education.** The development of the sample activities also considered the integration with Environmental Education in making connections to attributes for inspiring environmentally responsible citizens, as defined by the Tbilisi Declaration for Environmental Education (UNESCO, 1978) and attributes for inspiring pro-environmental behavior through the variables of the Environmental Citizenship Model (Hungerford & Volk, 1990). See Appendices A and B. The relationships to the conceptual framework guidelines are described in the Using the Framework section and laid out in Appendix D.

**Putting it all together.** Once the activity has been selected, it has biblical support, and the goals have been defined, it is time to make connections under the lens of the guideline from the conceptual framework. If the audience is unknown, or their belief on how they feel about the environment is unknown, it is recommended that educators start with the first set of guidelines. Make connections in order to frame discussions on how to address each goal. Brainstorming questions designed to make connections is a good way to address how learners explore topics

Provide an opportunity to get outside. Environmental Education and appreciation of God's Creation is always enhanced outdoors. This may not always be possible for some particular audiences, but trying to incorporate getting out in Creation and/or experiencing nature is recommended as much as is possible.

**Design the learning session.** Appendix F shows an example of the template used for the sample activities and can guide educators through creating educational sessions that integrates Environmental Education with Christian Education. This template is based on the foundation of Christian curriculum design as defined by Ferguson (2008).

A collection of sample activities, provided in the guide, give an in-depth view of each of the guidelines from the conceptual framework. The samples of each guideline clarify how each can be used to establish specific goals for educating Christians. Each of the above elements is displayed in these sample activities as well to show their importance to the integration of Christian and Environmental Education.



**Journey Through God's Creation: A Guide to Integrating Christian Education with  
Environmental Education**

## **Introduction**

Most Christians can recall a moment in their life where they felt God's presence. Many of these experiences occurred when a person was experiencing Creation and connecting to the majesty and mystery of God. Education through experiences in the natural world, combined with the intentional study of God's Creation, has the ability to instill a greater love of God and an appreciation of the world that He created. This guide is for Christian educators who seek to increase their audiences' knowledge, awareness, and appreciation of God's Creation. It also provides the means for those educators who wish to encourage students to be stewards of Creation.

Two approaches to Christian Care for Creation—Spirit and Stewardship— are considered along with common themes in Christian theology, to provide the support needed to understand how Christians participate in caring for Creation. These approaches and their attributes provide the foundation for guidelines that direct activities for Christian audiences. The Spirit and Stewardship approaches are used to achieve goals in Christian care for Creation and are supported by the content found in Environmental Education.

This guide was created to assist Christian educators in integrating Environmental Education (EE) into their Christian curriculum. Christian Education efforts traditionally have not focused on the use of EE in teaching Creation care; yet, EE is valuable in enriching a Christian's understanding of the natural world. This guide will define how to adapt existing EE activities by using a conceptual framework that accounts for what is known about Christians and their relationships to Creation. Using the guidelines of the conceptual framework, Christian educators will learn how to adapt existing EE activities for their own Christian audiences. Sample activities are included at the end of this guide to provide examples of adapted activities.

Educators using the guidelines will find that they can define activities that build regarding how Creation works but they can also cultivate a responsibility to care for Creation. By using the conceptual framework and support materials, this guide simplifies efforts, by describing approaches to a wide range of Christian audiences. It assists in building a collection of activities that can move Christians towards greater environmental literacy and stewardship.

### **Use of Environmental Education (EE)**

There are many reasons why EE is a good way to educate someone about caring for Creation. EE is a good model for Christian Education because its primary focus is environmental literacy, which should be the first goal of educators wishing to engage parishioners in the care of Creation (Hitzhusen, 2006; NAAEE 2010). The North American Association for Environmental Education (NAAEE) defines environmental literacy as an attribute that helps citizens make informed decisions about the environment for the good of all living things (NAAEE, 2010). EE also aims to help learners understand and evaluate the many sides of an issue and make informed decisions independently. This is very important for reaching the spectrum of beliefs among Christian audiences and for the differences, educators find in their audiences' varied interpretations of biblical texts.

### **Conceptual Framework for Integrating Christian Education with EE**

Two approaches to Christian care for Creation—Spirit and Stewardship (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)—can provide the understandings needed to develop curriculum resources that aim to connect Christians to Creation. The “Spirit” and “Stewardship” approaches and their attributes were used to define guidelines that make up a conceptual framework for integrating Christian Education with Environmental Education. Each approach and its accompanying guidelines help create

educational goals and activities. Each approach considers the broad spectrum of environmental perspectives held by Christians. This conceptual framework integrates Christian Education with Environmental Education, which will assist an educator in adapting existing Environmental Education activities and promoting care for Creation in their Christian audiences (See Table on next page).

*Christian Environmental Education Conceptual Framework –  
Guidelines for Integrating Christian Education with Environmental Education*

**Connecting Spiritually** (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)

- **S1. Cultivating Awe and Wonder** (Bratton, 1992; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996; Louv, 2014)
- **S2. Exploring The Intrinsic Value Of Creation** (Baer, 1989; Ball, 1998; Bratton, 1992; Haluza-Delay, 2008; Harper & Kenneally, 2009; Hitzhusen, 2007; Kearns, 1996)
- **S3. Uncovering God’s Vision for Cosmic Harmony** (DeWitt, 1998; Hitzhusen, 2006; Kearns, 1996)

**Connecting Through Stewardship** (Ball, 1998; Barrett & Grizzle, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)

- **E1. Exploring the Christian Mission to Steward Creation** (Baer, 1989; Barrett & Grizzle, 1998; DeWitt, 1998; Harper & Kenneally, 2009; Hitzhusen, 2006; Kearns, 1996)
- **E2. Exploring Christian Care for Creation** (Baer, 1989; Hitzhusen, 2006; Kearns, 1996)
- **E3. Understanding God’s Plan for a New Earth** (Ball, 1998; DeWitt, 1998; Hitzhusen, 2006)

### **In the beginning...How to use the guidelines**

The ultimate goal for this conceptual framework of guidelines was for educators to use these ideas as tools for creating goals in the education sessions. Success with the entire framework of guidelines would mean that educators move their audiences through each guideline, in sequence, and students gain comfort with each new step in understanding the human-nature relationship. Over time, audiences could reach the point where educators could create activities by using any of the guidelines and then the guidelines could be used out of sequence. The time taken with each guideline step will depend on the audience and the instructor. Instructors will have to work to understand the beliefs of their audiences as the guidelines are explored. Starting with the first sequence of guidelines will help the instructor learn which fit their particular audience and which will challenge their audiences' beliefs.

The time between guideline use will also depend on the acceptance of the ideas among participants. If an audience is known to interpret dominion as caretaking for nature, then this audience may be ready to challenge their acceptance of more biocentric views (although in many case this will not apply, or will be unknown to the instructor). Most participants will need to progress gradually across the spectrum to ensure mastery of concepts.

The sequence of how to use these guidelines begins by focusing on connections that can be made with most Christian audiences. This first phase of guidelines educators should attempt to use in adapting EE activities follows the sequence—S1, S2, and E1. The second set of guidelines follows the sequence—E2, S3, and E3; this set promotes stewardship and therefore may not be a good fit for all Christian audiences because of their understanding of the human-nature relationship. Support for the conceptual framework and use of guidelines can be found in *Journey Through God's Creation: Environmental Education for Christians* (Lanier, 2015).

## **Adapting Environmental Education Activities for Christian Audiences**

Step-by-step instruction on how to adapt existing Environmental Education (EE) activities is provided below. “Getting Ready” will prepare you to adapt existing EE activities. “Getting Set” will provide instruction in creating goals and connecting to attributes of both Christian and Environmental Education. Lastly, “Go,” will guide you through writing a lesson plan that is based on your adapted EE activity.

### **Getting Ready to Integrate**

1. **Determine Your Audience.** This will narrow down the EE activities to consider adapting and which guideline to focus on. EE activities are often categorized by the age of the target audience. Conceptual framework guidelines are based on the beliefs of the audience. Since beliefs are more difficult to pinpoint, it is recommended that audiences follow the suggested sequence of guideline use as described in the “In the beginning” section unless the beliefs of the audience are known by the instructor.
2. **Determine Content/Theme:** What about Creation do you want to study? Topics can be found in exploring a local issue, an upcoming event, a recent news story or even a topic the students or instructor would like to learn more about. Your theme will come from your needs as an educator.
3. **Choose a guideline from the conceptual framework.** Use the guideline you choose for adapting an EE activity. The guideline you focus on should consider the beliefs of your audience. (S1) — the “Cultivating Awe and Wonder” guideline (under Connecting Spiritually) is the most comfortable place to start with any Christian audience and is recommended for the first activity that is adapted.

4. **Find an EE activity to adapt.** You should consider the target audience and goals of the educator when selecting an EE activity to adapt. The personal goals of the educator will dictate what activity best fits their needs. Activities should also fit with the conceptual framework guideline educators are hoping to focus on. For example, if starting with “Cultivating Awe and Wonder (S1),” educators will want to look for activities that naturally show the awe and wonder of God’s Creation and its value to God. Some activities will seem to fit better than others. One helpful quality about adapting existing Environmental Education (EE) activities is that the activities themselves are usually well defined and searchable. In most cases, educators will be able to find an activity that fits their needs. Many of the EE activities also provide recommended reading. These are additional study materials and other options that can help educators meet their goals

- Note: Many of the EE Activity Guides provide indexes that sort the provided activities. An index can be helpful because the activities have been categorized. Defining the audience needs is an important first step in finding the EE activity that will fit best. The sample activities list sources for the EE activities that were adapted in their creation. Project Learning Tree and Project WET activities were used in the sample activities and are readily available to most educators. See “Resources” for assistance in finding sources for EE activities.

### **Getting Set to Integrate**

EE activities should be explored using the chosen conceptual framework guideline. Any biblical support that connects to the chosen theme should also be reviewed. The following questions should be considered when deciding how to adapt the existing EE activity.



- Using the conceptual framework and guideline you chose, how does this activity connect to Christians? Example: How does an activity about the water cycle connect spiritually through the cultivation of awe and wonder? The sample activity, “The Wonder of Water” cultivate awe and wonder in Christians by exploring God’s created cycle of water and its importance for sustaining life in Creation.
- How does this activity and topic in general connect to scripture? Example: What are ways the Bible talks about water? Are there examples of the water cycle in scripture? What grounds the integration of Christian Education with Environmental Education is the focus on the foundations originating in biblical theology. Many biblical texts are interchangeable in their support of the beliefs of both environmental advocates and those opposed to the concept of environmental stewardship. For that reason, educators are to explore biblical support for each topic and activity. Ferguson’s (2008) guide to designing Christian Education curriculum, which is a valuable tool for Christian educators and readily available, includes a Bible Exploration Worksheet for exploring biblical connections in designing educational sessions. An adapted form of this worksheet, which considers activities that integrate Christian with Environmental Education, can be found in the resources at the end of this guide. It was used to design the sample activities below.

### **Go! Integrating Christian Education with Environmental Education**

- **Putting it all together.** Once the activity has been selected, it has biblical support, and the goals have been defined, it is time to make connections under the lens of the guideline from the conceptual framework. If the audience is unknown, or their belief on how they feel about the environment is unknown, it is recommended that educators start with the

first set of guidelines. Make connections in order to frame discussions on how to address each goal. Brainstorming questions designed to make connections is a good way to address how learners explore topics.

- **Connect to goals of Environmental Education (EE).** The development of the sample activities also considered the integration with Environmental Education in making connections to attributes for inspiring environmentally responsible citizens, as defined by the Tbilisi Declaration for Environmental Education (UNESCO, 1978) and attributes for inspiring pro-environmental behavior through the variables of the Environmental Citizenship Model (Hungerford & Volk, 1990). The relationship of EE goals to the conceptual framework guidelines can be found in “Resources.”
- **Provide an opportunity to get outside.** Environmental Education and appreciation of God’s Creation is always enhanced outdoors. This may not always be possible for some particular audiences, but trying to incorporate getting out in Creation and/or experiencing nature is recommended as much as is possible.
- **Design the learning session.** A sample template is found in “Resources.” It guides educators through creating educational sessions that integrate Christian Education with Environmental Education. This template is based on the foundation of Christian curriculum design as defined by Ferguson (2008).

A collection of sample activities, provided in the last pages of this guide, give an in-depth view of how to design learning sessions using each of the guidelines from the conceptual framework. The sample activities show how guidelines are used to establish and meet specific goals for educating Christians. Each of the above steps was incorporated into these sample

activities as well to show their importance to the integration of Christian Education with Environmental Education.

## Sample Activities

The following activities used the conceptual framework for integrating Christian Education with Environmental Education. These activities illustrate how to use the conceptual framework guidelines with Christian audiences that hold a broad spectrum of beliefs.

This set of sample activities form a curriculum for middle school-aged students, which can be used for a single session or a unit of study. The time needed for most of these activities, not including time for set-up, is one hour. The activities focus on the theme of water.

The sample activities along with their associated guideline focus are as follows: **The Wonder of Water (S1), The Value of Water (S2), The Living Water (S3), Concerning Water (E1), Caring for Water (E2), and Redeeming Water (E3).**

## **The Wonder of Water**

**Theme:** Connecting Spiritually with Water: The Water Cycle

**Bible Passages:** Exodus 17: 5-6, Job 36: 27-28, Ecclesiastes 1:7, and Romans 1:20

**Main Idea:** God created the water cycle, a miraculous system, which consists of various steps, and complex processes that allow water to be dispersed all over Creation.

**Audience:** Grades 6-8

### **Approach to Christian Care for Creation Conceptual Framework Guideline (AC3):**

S1. Cultivating Awe and Wonder –

**AC3 Goal:** To cultivate awe and wonder by exploring God’s created cycle of water and the importance of water for sustaining life in Creation.

### **Environmental Education Goals:**

**Awareness:** To be aware of the processes of the water cycle, which moves the same water all over the Earth.

**Knowledge:** To provide an explanation of the processes that make up the movements within the water cycle.

**Sensitivity:** To build sensitivity for the importance of this process because it is vital to all living things.

### **Outcomes:**

Students will be able to:

- Describe the steps and processes that make up the water cycle.
- Discuss the awe and wonder of water and its cyclic movement throughout Creation by specifying the value of water to all of Creation.
- Describe how and why water moves and God’s hand in its functioning.

**Supplies:** Bible, United States Geological Survey (USGS) water cycle diagram or other water cycle graphic, “Water in Creation” information sheet, 6 dice, several beads of six different colors, pipe cleaners (1 per student), paper and writing utensils for each student (if recording water journeys or portions of the assessment)

### **Background**

- See “The Wonder of Water: Additional Resources” for details on the steps and processes of the water cycle and Bible passages, to prepare for this lesson.
- Prepare stations for activity, as described in the “Exploring the Main Idea” section below, with all materials and cycle descriptions.
- Pre-lesson activities could include a visit to an amazing water feature such as a waterfall, underground tunnel, or even the ocean. Connection to the water is important so just a local source is also a good idea to begin making connections to water as a part of God’s Creation.

### **Session Opening**

Ask: “Why do we need water? How do you feel when you have not had enough water? Can you think of any living things that can survive without water?” Allow students to answer each question.

### **Presenting the Main Idea**

Read the Bible passage Exodus 17:5-6 to the students. This passage will illustrate how God provided water to the Israelites when they were thirsty.

- Ask: “What did this passage describe?” Fill in with your understanding of the story after students have answered and as needed.

- Ask: “What in Creation needs water? Can you imagine how the Israelites must have felt, because they had probably had gone without water for a long time? What happened in the story that showed how God is amazing and always provides for his people?”
- Say: “There is a constant movement of water in Creation that provides water to living things. This movement may begin by going up from the ocean, carried as clouds over the land, and brought down again as rain, which through plants, animals, and groundwater, eventually finds its way back to the sea.”
- Say: “God made the processes that provide water to living things. Today we are going to learn more about God’s Creation by studying the water cycle, which moves water all over Creation.”

### **Exploring the Main Idea**

- Use a copy of one of the “USGS” water Cycle” diagram or other diagram of the water cycle to illustrate the places where water travels: cloud, glacier, ocean, river, groundwater, animal, and plant. Have students go through the cycle, from one place to the next. At each place, ask students to explain what happens at each place as the water moves. Introduce words such as evaporation, condensation and which state of water (state of matter) is in each place. You can fill in with details, as many may not yet know the processes of the cycle (See the *Water Users* section of “Additional Resources” as a reference).
- Explore the meanings of words such as groundwater, evaporation, and other terms related to the cycle. (See “Additional Resources” under the *God’s Miracle, the Water Cycle* section for assistance) Ask questions to promote participation such as, “Where does the water go when it rains?” or “How is water moved in and out of plants?” Questions like

these will demonstrate the complex processes of water cycle and the knowledge of the students. When you feel the students have a good grasp of the cycle, you can move to the next step.

- Say: “Water travels through many states (not United States, but states of matter) and through many processes to cycle all over Creation. Let’s see if we can create examples of how just one drop of water moves through Creation.”
- **WATER CYCLE ACTIVITY:** Give each student a pipe cleaner and divide students into six equal groups. Have one group of students start at each of the six stations. Name each station as a place where water travels. Each station should be setup with a dice to roll and colored beads that represent that place in the cycle. The stations should be named and numbered: for example: 1. Animal, 2. Plant, 3. Ocean, 4. Stream, 5. Groundwater, 6. Cloud. Each station will include a description of what happens at each place. (See “Additional Resources” under the Cycle Descriptions section for short descriptions you can use) Each station will also need a container of beads, with each station representing a different color. A poster or key on the board can remind everyone of the color assignments, which will indicate the stations that have been visited.
- Give instructions on how the game works. At each station, the students will read the description of the place. Once the description is read, students pick up a bead and add it to their pipe cleaner. (You can knot one end of the pipe cleaner so the beads do not slip off.) The pipe cleaner and the beads will show the water’s journey through Creation. It can be worn as a bracelet when the game is over. After adding the bead to their pipe cleaner, students will then roll the die and move to the next station as indicated by the number on the die. (e.g. Roll a four, go to the Stream station)



- The process of reading the station description, adding a new bead and rolling the die will continue for several rounds. For each move, from one station to the next, students will need to think about the journey their drop of water is taking and how it is getting there (the process it goes through).
- The die roll will indicate the next place on the journey. So as students travel have them consider the process of getting from one place to the next. For example, if you started in the Ocean and the next station chosen by the die was the Cloud station, consider how the water droplet got from the Ocean to the Cloud? Did it evaporate?
- Let students begin the game. Keep time so that students are moving quickly through each station but enough time to record at least five steps. You can go for more rounds if time allows.
- Once the rounds are completed, have the students convene and share their experiences. Examine their individual droplets journey. Students could write all the ways that they arrived and left a station and share with the group or offer up individual experience as a whole, if they stayed in one place or visited many and the processes they went through.
- Students need to verbalize or show evidence of their understanding of how water moves through the cycle, and an understanding of the complexity, as shown through the details of the processes including the appropriate vocabulary, that occurs with each step of the cycle. They should also be aware that their droplet's journey might be very different from another student's experience, as it is naturally.

### **Responding to the Main Idea**

Read the Bible Passages Job 36: 27-28 together to show how the Bible describes the water cycle.

- Ask: “What is Job describing? Are God’s words similar to those we used earlier when describing the water cycle? How does God describe evaporation, precipitation?”
- Ask: “How does the water cycle show we have an amazing God? How is the water cycle important to plants and animals? How could your awareness of processes, such as the water cycle, strengthen your faith in God?”
- Ask: “Can you think of a part of the cycle that we discussed today that seems mysterious and/or powerful?” Describe examples of your own, including the change of states between steps and some of the facts from “Additional Resources.”
- Say: “Ecclesiastes 1:7 talks about the supply of water and how amazing it is that Creation was designed to replenish itself with water. It says, ‘All the rivers run into the sea; yet the sea is not full.’ The passage continues and gives the answer, ‘Unto the place from whence the river comes, thither they return again.’ The connection to having the same water, that constantly cycles, is interesting when considering biblical water that has been cycled, i.e. the water that Jesus was baptized in may be the same water we have in our bathtubs! There are many examples of this...Red Sea parting, water to wine, washing Jesus’ feet, Jonah and the whale, etc....all the same water, because of the water cycle.”

### **Closing**

Wrap up discussion.

- Say: “God created the water cycle and all its processes. It is amazing that this part of Creation can move water all over the Earth to sustain life. Creation is full of evidence of God’s handiwork. This evidence can help us in understanding and in loving God.

Romans 1:20 says that by just looking around you, at what God has created, it is clear that God is mysterious and powerful.”

- Ask: “Does anyone have any questions or comments about today’s lesson?” Allow a few minutes for any additional discussion.
- Say: “Let’s finish with a prayer of thanksgiving for God’s amazing Creation.”

Finish with a prayer of thanks to God for the water cycle and his amazing Creation.

### **Follow-up Assessment/Reflection**

- Have students create a detailed story from their water journeys activity. Stories should include details that describe the processes of the water cycle and explain the details of the processes as water moves from one place to another.
- Have students experience a process of the cycle, i.e. rain event, making condensation, freezing water. Have them independently reflect on what they observed; have them describe the process that God created and how it made them feel about God.
- Visit a source of water such as a stream or pond, allow students time to walk around and observe before ending the visit with time alone to contemplate all their observations and record them. Have students reflect independently by writing (a poem, short narrative, song, etc.) about the value of water to Creation and the awe and wonder they have experienced in learning about this part of God’s Creation.

## **The Wonder of Water: Additional Resources**

### **God's Miracle, the Water Cycle**

How does God move water through Creation all while considering every living things need for water? First, we start with the Ocean. There is plenty of water in the ocean; in fact, 97 percent of our water is in the Ocean. (2 percent is in glaciers, .6 percent in groundwater, and .0001 percent in rivers) How do we get the water from the ocean to all the other places where living things depend on it? There are challenges to just moving ocean water to the living things that need water. First, God had to design a way to transport the water. To take care of all living things the water has to leave the ocean and spread evenly over the dry land. The second challenge is the salt content, which is present in ocean water, which cannot be used to water plants. The third problem is weight of water, which is heavier than 800 times the weight of the atmosphere. These challenges have to be managed to move and deliver water throughout Creation.

God addressed the first challenge, the weight problem. How did he do this? God used heat. When water is heated it turns into steam, and it becomes 1,600 to 1,700 times its original volume. God simply sends down the warming rays of the sun, turning the water into steam or vapor that is significantly lighter than liquid water. This vapor is easily lifted up out of the ocean, where it forms clouds in the atmosphere.

The second problem is solved by leaving the salt behind. As water evaporates into the atmosphere, it leaves all the mineral deposits and impurities behind, such as salt. The vapor that reaches the clouds is without salt and other impurities, which makes it perfectly suitable to water plants and animals on the earth.

Lastly is the challenge of transportation. The water that is lifted up above the Ocean is in the atmosphere and needs to be moved over dry land. Therefore, God sends winds to blow the formed clouds to the areas of dry land. Another wonderful miracle is how the water leaves the clouds.

Water is released from the clouds as the water cools and condenses, which occurs, for instance, as the clouds go over a mountain peak. God arranged a cooling system that allows rain showers to provide the water that Creation needs. Job 26:8 talks about this wonderful design. "He bindeth up the waters in his thick clouds; and the cloud is not rent under them." This is a beautiful text, explaining that the clouds do not always break at once and cause flooding, even though millions of tons of water are drawn up from the oceans into the clouds. Everywhere the rain falls it is beneficial, Even the rain that falls in the ocean. The purified water provides oxygen to the living things living that call the ocean home. How amazing!

### **Water Cycle Diagram**

The United States Geological Survey (USGS) has several Water Cycle diagrams available. You can access those diagrams and additional information on the water cycle here

<http://water.usgs.gov/edu/watercycle.html>

### **Cycle Descriptions**

- Animal: Water cycles through animals as they digest and excrete waste. Animals can take up water by ingesting both plants and animals. The water is returned to the soil as their excrement.
- Plant: Plants take up water through their roots and sometimes in their leaves. The water in a plant is absorbed by the soil either as it passes through the roots or as it is evaporated into the atmosphere through the leaves.

- Ocean: Water moves to the ocean through rain and from rivers that flow to the ocean. Ocean water is moved to the atmosphere as it is warmed and evaporates.
- River: Water moves to the river by rain, from the groundwater, or from plants and animals. Water leaves the soil by being digested or taken up from plants and animals, or travels to the ocean.
- Groundwater: Water moves to the groundwater from rain events and from being released from plants and animals. Groundwater can move through the soil until it reaches the ocean or a river. The roots of plants can also take up groundwater.
- Cloud: Water reaches the clouds by becoming vapor as it is heated from the ocean, a river, from the leaves of plants, or even from the soil. Clouds release water as precipitation.

Activity adapted from Project Learning Tree. (2006). *Water Wonders*. Washington, DC.

American Forestry Association

## **The Wonder of Water: Additional Resources**

### **Bible Passages:**

#### **Exodus 17:5-6 (New International Version, NIV)**

<sup>5</sup> The Lord answered Moses, “Go out in front of the people. Take with you some of the elders of Israel and take in your hand the staff with which you struck the Nile, and go. <sup>6</sup> I will stand there before you by the rock at Horeb. Strike the rock, and water will come out of it for the people to drink.” So Moses did this in the sight of the elders of Israel.

#### **Job 36:27-28 (NIV)**

<sup>27</sup> “He draws up the drops of water,  
which distill as rain to the streams[a];  
<sup>28</sup> the clouds pour down their moisture  
and abundant showers fall on mankind.

#### **Ecclesiastes 1:7 (NIV)**

<sup>7</sup> All streams flow into the sea,  
yet the sea is never full.  
To the place the streams come from,  
there they return again.

#### **Romans 1:20 (NIV)**

<sup>20</sup> For since the creation of the world God’s invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that people are without excuse.

## **The Value of Water**

**Theme:** Connecting Spiritually with Water: The Water Supply

**Bible Passages:** Isaiah 40:12, Genesis 2:4-6 & 10, Ezekiel 47:9, John 4:13-14

**Main Idea:** God made water as a limited, yet life-giving resource in Creation. The way water is used affects how much is available to living things.

**Audience:** Grades 6-8

### **Approach to Christian Care for Creation Guideline(s) (AC3):**

S2. Exploring the Intrinsic Value of Creation—

**AC3 Goal:** To explore the intrinsic value of water by understanding its importance to Creation and to God.

### **Environmental Education Goals:**

Awareness: To be aware of the value of water to all living things.

Knowledge: To discover the ways water is used and why its quantity is limited.

Knowledge of Ecology: To understand basic ecological concepts involving water to inform decisions about its use.

### **Outcomes:**

Students will be able to:

- Explain how water is a limited, life-giving resource that God created for sustaining living things.
- Provide examples of living things, beyond humans, that need the water provided by the Colorado River system.
- Describe the different ways water is used in the Colorado River system and in the student's communities.



- Describe how those uses affect the water supply.

**Supplies:** Bible, Videos from NPS.gov (See “The Living Water: Additional Resources” for links to videos), Map of Colorado River System in “Additional Resources,” large sheets of paper and markers/colored pencils enough for every student or small group.

### **Background**

- See “Additional Resources” for details on the hydrologic activity in the Grand Canyon, video resources, Bible passages, and recommendations for preparing for this lesson.
- Set up videos to be viewed as a class or individually.
- A pre-lesson activity could include a walk outside, preferably around a source of water. Have students make a list, as they walk, of the ways they encounter water being used in Creation.

### **Session Opening**

- Ask: “How do we use water? What activities do we do that require water? What about plants and animals? What are the different ways they use water?”
- Say: “All living things need water but there is a limited supply of water in Creation. How long can humans go without water? What about animals? Or plants?” A discussion of a few examples of how water is needed by living things will show why water is so important. See “Additional Resources” for references.
- Say: “The Grand Canyon is one of our National Parks and is an amazing example of how God provides life through water. The Grand Canyon was formed by the Colorado River, which spans 1,450-miles and provides water to seven U.S. states.
- Say: “By exploring the Colorado River System we can see how God gives life through water and how important water is to living things in Creation.”

### **Presenting the Main Idea**

- Say: “God knows the value of water. Isaiah 40:12 says, ‘Who has measured the waters in the hollow of his hand?’ Although we may know the value of water too, it is not always easy to know how much we need or how much we use. Only God knows the exact amount of water that is in Creation and available to living things. Although water is renewed through the water cycle, the quantity of water never changes. It is limited. When something is limited, it has more value. Water is especially valuable because it is limited and needed by all living things.”
- Ask: “Has anyone ever visited the Grand Canyon?”
- Say: “Today we are going to explore the Grand Canyon by taking a virtual tour. This first video provides a view of the Grand Canyon that will help us explore God’s Creation and his amazing design to spread water throughout the Earth.”

Watch NPS Video “More than a View.” The link is found in “Additional Resources.”

### **Exploring the Main Idea**

Read the Bible Passage Genesis 2:4-6, 10 and Ezekiel 47:9.

- Say: “God’s creation of the river system that moves water over the land is important to so many living things. It brings life to the plants and animals that live in those places.”
- Ask: “How unique is the system of water that sustains a great diversity of life throughout the Grand Canyon?”
- Say: “We know that God created this system for all the amazing life that can be found here.”
- Say: “When you think of the Grand Canyon you probably don’t think of lots of green landscapes. Most people think of the Grand Canyon as a desert-type ecosystem that is

extremely dry. Much of the area that people see is that way. The life beyond the rim of the canyons, close to the water of the Colorado, is where life happens: life that many never see by many humans. Yet God's water reaches those areas and brings life. In the middle of the desert, the river flows and brings life that is mostly unseen. This presence of a diversity of living things, even unseen, is a part of God's plan for Creation."

Read Genesis 1:9-13.

- Say: "God saw that his creation was good. He separated the water so that there were seas and water in the atmosphere, which gives the Earth life."
- Ask: "What does the Creation story, including the parts about water, show us about God's intentions for Creation? How does God relate to what he has created? Consider the Colorado River and the Grand Canyon, what do you think were God's intentions in making this part of Creation?"
- Say: "God is amazing and we know he values Creation because he stated it was 'good.'"
- Say: "The Colorado River system is changing however. The Colorado River system and the life that depends on it is endangered today because of human use of the water and other issues. Thirty million people rely on it for drinking, power production, agriculture, and more. That does not include all the other plants and wildlife that rely on it. The water of the Colorado River is being used up before it flows to the places it once did. In fact, over the last 100 years the river has not reached its original destination - emptying into the Sea of Cortez.

- Explore National Geographic’s Interactive Map (See “Additional Resources”) to see where water is taken from the Colorado River and how it is used.
- Using a blank map, (See “Additional Resources”) have students designate the flow of the Colorado River to the Sea of Cortez. Then have them measure 70 miles north of the Sea of Cortez to illustrate the flow that is missing. This will illustrate the difference in flow that the river has historically seen and the amount of land area that may not receive the life-giving water that living things need because of the increase in water being taken from the river.

### **Responding to the Main Idea**

Read the Bible Passage Ezekiel 47:9.

- Say: “Ezekiel tells us what many of us already know; life will only flourish in the presence of water. If we are not paying attention to our water use and there are shortages of water, some living things may not be getting what they need.”
- At this time, go through the lists students made during the pre-lesson exercise, or make a list together naming as many uses of water as they can think of. The “Water Users” section of “The Value of Water: Additional Resources” can help as well). A walk during this exercise is also a great idea. Have students take notes. For each water use, question students with “How does this user get their water?” What would be the consequences to this user if it did not get the water it needs? How would that affect other things?”
- Make a list of all the living things that use water and how it is used. Discuss scenarios such as “what a year of drought might mean for these users?” Alternatively, “what if a power company moved into their town and needed to use the water too. The amount of water they needed each month was equal to that of the needs of 20 families in the town.

How would that affect the town's water supply? Where do you think the shortage would occur?"

- Say: "Water means so much to so many different living things. When people get together and evaluate how they are affecting the supply of water some changes can occur that restore water to places that have been neglected."

Watch Video "Change the Course Restores Critical Flows." See link in "Additional Resources."

- Say: "Humans have the power to change things for the good or for the bad, so we have to be careful in choices that we make."
- Say: "God created the Earth with all the water it needs because God always provides. Different uses of water require different amounts of water and even from this one example, we can see how people and their use of water is affecting the water supply available to other living things."

### **Closing**

- Ask: "What do you think about those plants along the Colorado River that no human may ever see?" Does God care for that part of Creation?
- Say: "Understanding that God values water, and other parts of Creation, beyond what it does for humans, allows us to appreciate and love Creation because God does. Let us thank God in prayer for his Creation, the water that brings life to living things."
- Pray for the blessing of water and the ability to understand how we should feel about the non-human parts of Creation.

**Follow-up Assessment/Reflection**

- Have students reflect on the Grand Canyon/Colorado River system and provide examples of how many living things count on this water system. You can do this through many avenues, a research based class list, a narrative, a poem, short story, song, etc. You may also have students reflect on how humans have changed this system and what changes could occur to restore it.
- Have students research a particular water user; it could be a company, an animal, or the average person. Find out how much water they use in a day, a year, etc. Assign both major and minor water users. See “Water Users” in “Additional Resources” for help identifying various users.

## **The Value of Water: Additional Resources**

### **Why Living Things Need Water**

This slideshow by the American Natural History Museum has many examples and facts that you can review beforehand or as a class

[http://www.amnh.org/ology/features/bigideas\\_water/index9.php](http://www.amnh.org/ology/features/bigideas_water/index9.php)

This NBC News story talks about human use of water, which can be used as discussion material for many of the ideas in this lesson

[http://www.nbcnews.com/id/6124627/ns/technology\\_and\\_science-science/t/things-you-didnt-know-about-water/#.Vl4alb8hF2A](http://www.nbcnews.com/id/6124627/ns/technology_and_science-science/t/things-you-didnt-know-about-water/#.Vl4alb8hF2A)

## **The Grand Canyon/Colorado River System**

### **Videos and Resources from the National Park Service:**

National Park Service (NPS) videos on the Grand Canyon:

Episode One “More than a View” which is part of the “Grand Canyon In Depth” Series (8 min., 35 sec.) <http://www.nps.gov/grca/learn/photosmultimedia/index.html> or on YouTube

Other videos in the series are good if time allows, especially “Hidden Waters.” (9 min., 6 sec.)

### **Other Resources:**

Nature in the Grand Canyon includes many resources

<http://www.nps.gov/grca/learn/nature/index.htm>

Hydrologic Activity and its effects on the Grand Canyon

<http://www.nps.gov/grca/learn/nature/hydrologicactivity.htm>

Downloadable images of the Park <http://www.nps.gov/grca/learn/photosmultimedia/index.htm>

## **Colorado River Initiative: Change the Course/National Geographic Online**

“Change the Course Restores Critical Flows” Video

[http://video.nationalgeographic.com/video/ctc\\_critical\\_flow\\_colorado\\_basin?source=relatedvideo](http://video.nationalgeographic.com/video/ctc_critical_flow_colorado_basin?source=relatedvideo)  
(3min 54 sec)

“Change the Course” Homepage provides information on the flow of the Colorado River and Conservation efforts related to its flow

<http://environment.nationalgeographic.com/environment/freshwater/change-the-course/> (1 min 30 sec)

Interactive Map of Colorado River System

<http://environment.nationalgeographic.com/environment/freshwater/change-the-course/colorado-river-map/>

Stories on Freshwater Challenges

<http://environment.nationalgeographic.com/environment/freshwater>

Water Wise Project— Information for kids on the Colorado River

<http://bearessentialnews.com/archives/2009/water-wise-October2009.php>

Colorado River Map (for use by students) <http://www.crb.ca.gov/images/content/colorado-river-lrg.jpg>

**Water Users:**

**Plants:**

Take water for use in photosynthesis, water moves nutrients

**Wildlife:**

Need to drink, some animals live in water, some animals find food in water

**Humans:**



Need to drink, bathe, cook, recreate, travel by, wash with and more

**Industry:**

Agriculture: water for plants, animals, and processing operations

Power generation: To produce steam, cooling mechanism in nuclear power, hydroelectricity

Businesses: Processes that develop, manufacture, process and ship goods

Activity adapted from

Project Wet Curriculum and Activity Guide, Generation 2.0. (2011). Discover *the waters of our National Parks*. Bozeman, MT: Project WET Foundation

## **The Value of Water: Additional Resources**

### **Bible Passages:**

#### **Genesis 2:4-6, 10 New International Version (NIV)**

<sup>4</sup>This is the account of the heavens and the earth when they were created, when the Lord God made the earth and the heavens. <sup>5</sup>Now no shrub had yet appeared on the earth[a] and no plant had yet sprung up, for the Lord God had not sent rain on the earth and there was no one to work the ground, <sup>6</sup>but streams[b] came up from the earth and watered the whole surface of the ground.

<sup>10</sup> A river watering the garden flowed from Eden; from there it was separated into four headwaters.

#### **Ezekiel 47:9 (NIV)**

“So where the river flows everything will live.”

#### **John 4:13-14 (NIV)**

<sup>13</sup> Jesus answered, “Everyone who drinks this water will be thirsty again, <sup>14</sup>but whoever drinks the water I give them will never thirst. Indeed, the water I give them will become in them a spring of water welling up to eternal life.”

#### **John 4:13-14 The Message**

<sup>13-14</sup> Jesus said, “Everyone who drinks this water will get thirsty again and again. Anyone who drinks the water I give will never thirst—not ever. The water I give will be an artesian spring within, gushing fountains of endless life.”

## **The Living Water**

**Theme:** Connecting Spiritually with Water: Water Brings Life

**Bible Passages:** Ezekiel 47: 9, John 4:4-14

**Main Idea:** God's vision for water was to sustain life in Creation and serve as a symbol of a Christian's need for the living water, a closer relationship with God.

**Audience:** Grades 6-8

### **Approach to Christian Care for Creation Guideline(s) (AC3):**

S3. Uncovering God's Vision for Cosmic Harmony—

**AC3 Goal:** To uncover God's vision for water as the sustainer of life in Creation.

### **Environmental Education Goals:**

Awareness: To be aware of the value of water to all living things.

Knowledge: To explore how we use water.

Attitude: To understand that water is a precious and limiting resource.

Locus of Control: Humans can have an effect on the supply of water and can choose to conserve water in order to protect the supply for other living things.

### **Outcomes:**

Students will be able to:

- Connect with God's vision of cosmic harmony through water, which is the source of life.
- Explore how water is limited in Creation and how we can control our water usage.
- Compare the water in Creation that provides life and its similarities/differences to the living water that provides everlasting life with God.

**Supplies:** Bible, Large container(s) to hold water (see *Supply Recommendations* in “The Value of Water: Additional Resources” for information on how much water is needed per class size), 12 ounce cups (one per student), writing paper/utensils per student (if needed).

### **Background**

- See “Additional Resources” for details on the water supply, Bible passages, and recommendations for preparing for this lesson.
- Setup water supply/consumption activity.
- Ask students to try to envision God’s plan for the source of water.

### **Session Opening**

- Say: “Scientists believe that only .0003 percent of the water on Earth is freshwater, which is needed by all plants and animals. The rest is either water that is located in glaciers, makes up the ocean as saltwater, or is underground. We can get to some of this water but it takes time and mechanical processes to make it clean.”
- Say: “The ways we use water may limit other living things from having what they need. The activity we will do today will show how water is used and how its limitations can affect the water supply.”

### **Presenting the Main Idea**

Have a student read John 4: 4-14.

- Say: “Life in biblical times was different than many of the ways we live now. We are blessed to have modern water systems. As long as you pay the bill, the water comes on in your house when you turn the faucet. It was not as simple for people of the Bible who did not have these modern systems and got their water for drinking, cooking, and bathing from water source such as a river or if they were lucky, a well. The well was built for a

number of people and their needs, but I am sure there was not always enough. I am sure people were thirsty, especially if a well went dry.

- Ask: “Do you think people in biblical times were very careful about how much water they used?”
- Ask: “Are you careful about the water you use? Do you think about how much water you use, and if so, do you use too much or just what you need?”

### **Exploring the Main Idea**

Watering the Commons Activity: This activity will allow students to see that when something seems unlimited that we often waste or take more than we need. A fun idea would be to set up the water station or where students get water, as a water well, like in the story of the woman and Jesus. This activity is adapted from “Every Drop Counts” from the Project Learning Tree Environmental Education Guide. See Additional resources for more information.

- Begin by breaking the students into three groups. Pass out one 12-16 ounce cup to each student. The three groups will represent different water users as time passes. The activity will consist of one group at a time filling their cups with water from one common source. (There may need to be multiple pitchers, depending on the number of students. See “The Value of Water: Additional Resources” for information initial pitcher water amounts).
- The first group will go, followed up each group in sequence, with time between to ensure the first group is through before the next group begins.
- On each turn, students from their respective groups will bring their cups and take as much water as they want to brush their teeth. Each group will pour water into their cup after determining how much they need and then return to their seats.

- Provide enough water in a pitcher for 4 ounces per student (See “The Value of Water: Additional Resources” for information initial pitcher water amounts).
- Once the third group is reached, some of the pitchers will be empty; this may even happen before you reach the third round of students.
- Ask: “Why did the third group run out of water?” You provided enough water but they were not given limitations. “What would happen if this was the way we got our water to brush our teeth every day? Would that be fair?”

Explain the concept of the commons. See “Additional Resources” for a link to more information. Since water is limited, we can only use so much. Without restrictions, people often take more and are wasteful, even without realizing it.

Try this exercise again by giving the exact amount of water each student should take.

- Say: “Now let’s try the activity again. This time I want everyone, on their turn, to take only 4 ounces of water.” Try the exercise again and discuss the results.
- This should work much better as far as having water for everyone, but there should still be a shortage. A measuring cup could be used in a third round to show that we are getting closer to a sustainable solution. Once the exercise is over, reflect on what happened.

### **Responding to the Main Idea**

- Say: “It looks like when we had direction and the right tools that showed us how much water to take, we didn’t have much of a shortage.”
- Say: “When we know how much water to take for the things we need, we don’t waste as much water. When we don’t waste water, there is more for other uses and other living things.”

- Ask: “Do you think the wells in biblical times had restrictions on how much water you could take? They probably would have had a hard time measuring what was there and what was taken.”
- Ask: Do you think people went without water? I am sure people and animals went without water at times.

Recall the woman in the story (John 4: 4-14) or read the Bible passage again.

- Say: “The woman in this story knows about thirst. Even if she had restrictions, the water was limited and could only last so long. When the woman in the story heard of water that would make her thirst no more, how do you think she felt?” Discuss her amazement.
- Say: “It was amazing. God is amazing!”
- Ask: Why do you think God calls his relationship with us the ‘living water?’ Say: Water is of great importance to God and we can see that in him calling our relationship with him the ‘living water.’ God has provided all that we need. He provides for all our needs for life on Earth and our eternal lives through the living water that is God’s grace.
- Ask: “How is God’s Living water like water in Creation? What is the biggest difference between the water in Creation and God’s living water?”
- Say: “God’s living water is unlimited, but water in Creation is not.”

### **Closing**

- Ask: “How does God value water? What are some examples?”
- Say: “God has provided water for our life and others. Our physical bodies work best when we have enough water and our spiritual bodies work best when we live with God’s living water”
- Say: “Living water is a metaphor but it is what sustains us, what gives living things life!”

- Ask: “How does God’s living water give you life? How does it sustain you?”
- Ask: “What about the water in Creation? It sustains us as well and we know now that water is a limited resource.”
- Say: “Learning about water helps us understand God’s vision for water in Creation and its significance. This can help us understand how to feel about our use of it. Let us thank God in prayer for the blessing of water, especially God’s living water. We should also ask God to help us better understand his vision for Creation and how to best use water.”

Say a prayer of thanksgiving for water and ask that God lead us in better understanding of what a sustainable water system would be like.

### **Follow-up Assessment/Reflection**

- If something is limited, it can be a struggle to keep it balanced. Have students consider a situation where water is a limiting factor and discuss why. Newspapers or a Google news search can provide examples. Have them also consider the effect it would have on the other parts of Creation. Have them tell this story, but write an ending where water is balanced among the users. This can be done in many forms, narrative, poem, song, etc. Inspiration can be found in visiting an area with water or without. Making physical connections is important for many learners, so just being in nature is a good idea to get students started on this creative activity.
- Have students compare the physical need of water to the spiritual need of living water. Questions to ponder: Why would God use water as a parable for a life with him? How do Jesus’ words in John 4 connect to our reliance on God and a promise of always being cared for? If we could write a love letter to God about water, what would it say?



## **The Living Water: Additional Resources**

### **Supply Recommendations:**

Water Amounts:

4 ounces of water per student + additional ounce = total water

e.g. (15 students x 4 ounces of water) + 1 ounce = 61 ounces

Cups/serving container:

Cups should be 12 ounce or 16 ounce, larger to simulate being able to take more than is needed.

Serving container should be larger than amount it holds, gallon size pitcher works well or 15 to 20 students.

### **Tragedy of the Commons Information:**

“The Tragedy of the Commons is an environmental concept that dates back to a 1968 paper written by Garrett Hardin. The Commons dates back even further, the term often used in Colonial times to denote certain lands held “in common” by everyone in a village upon which they could graze their livestock. Since the land belonged to no one and everyone, an individual could benefit in the short-term by putting too many animals on the land, thus resulting in overgrazing and deterioration of the resource. Unfortunately, human nature coupled with the long-held belief that the earth’s resources are virtually inexhaustible has led to a world-wide deterioration of “common” resources, such as oceans, the air, wildlife populations, etc.

Exacerbating this is the fact that humans frequently look to short-term benefits without a view of the long-term consequences.” Earthwatch.org (2015)

[http://earthwatch.org/Portals/0/Downloads/Education/Lesson-Plans/Go\\_Fish.pdf](http://earthwatch.org/Portals/0/Downloads/Education/Lesson-Plans/Go_Fish.pdf)

Khan Academy—<https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus/externalities-topic/v/tragedy-of-the-commons>

Activity adapted from Project Learning Tree (2006). *Common Water and Every Drop Counts*. Washington, DC. American Forest Foundation.

## **The Living Water: Additional Resources**

### **Bible Passages:**

#### **John 4:4-14 The Message**

<sup>4-6</sup> To get there, he had to pass through Samaria. He came into Sychar, a Samaritan village that bordered the field Jacob had given his son Joseph. Jacob's well was still there. Jesus, worn out by the trip, sat down at the well. It was noon.

<sup>7-8</sup> A woman, a Samaritan, came to draw water. Jesus said, "Would you give me a drink of water?" (His disciples had gone to the village to buy food for lunch.)

<sup>9</sup> The Samaritan woman, taken aback, asked, "How come you, a Jew, are asking me, a Samaritan woman, for a drink?" (Jews in those days wouldn't be caught dead talking to Samaritans.)

<sup>10</sup> Jesus answered, "If you knew the generosity of God and who I am, you would be asking *me* for a drink, and I would give you fresh, living water."

<sup>11-12</sup> The woman said, "Sir, you don't even have a bucket to draw with, and this well is deep. So how are you going to get this 'living water'? Are you a better man than our ancestor Jacob, who dug this well and drank from it, he and his sons and livestock, and passed it down to us?"

<sup>13-14</sup> Jesus said, "Everyone who drinks this water will get thirsty again and again. Anyone who drinks the water I give will never thirst—not ever. The water I give will be an artesian spring within, gushing fountains of endless life."

## **Concerning Water**

**Theme:** Connecting Through Stewardship: Water Issues

**Bible Passages:** Deuteronomy 11:16-17, Ezekiel, 32:13-15, Joel 1:20, 1Corinthians 4:

**Main Idea:** The availability of clean water is a concern that could have a great effect on the lives of living things in God’s Creation.

**Audience:** Grades 6-8

### **Approach to Christian Care for Creation Guideline(s) (AC3):**

E1. Exploring the Christian Mission to Steward Creation—

**AC3 Goal:** To explore the Christian mission to steward water resources

### **Environmental Education Goals:**

Awareness: To be aware of the issues that affect water quality

Knowledge: To investigate why water quality is diminished.

In-depth Knowledge – To understand issues with water quality and the effects of those issues.

Attitude: To consider clean water quality a priority for living things in Creation.

### **Outcomes:**

- Students will be able to:
- Describe issues related to water quality.
- Describe the different ways water quality is negatively affected.

**Supplies:** Bible, Stream Table(s) (See “Concerning Water: Additional Resources” for information on stream tables)

### **Background**

- See “Concerning Water: Additional Resources” for details on water quality issues, Bible passages, and recommendations for preparing this lesson.

- Setup Stream Table/s (See “Additional Resources” for information on stream tables).
- A pre-lesson activity could include a walk outside, preferably around a source of water. Have students make a list, as they walk, on where this water moves and what could be affecting the water quality.

### **Session Opening**

- Say: “There are many ways that the water quality in Creation can become polluted. Agriculture, other industries, and even personal choices can contribute to the quality of our water.”
- Say: “As Christians we have the responsibility to steward God’s Creation. Today we will explore some of our water sources in order to examine how water resources should be cared for.”

### **Presenting the Main Idea**

- Ask: “What do you think are concerns with water quality?”
- Say: “Water quality’s most significant concern is pollution. The choices we make in dealing with our waste are closely connected to how we personally affect water quality.”
- Say: “A stream table is one way to examine how the quality of water is changed when humans have an effect on it. We will use the stream tables to examine different pollution scenarios and observe how the water source is affected.”

### **Exploring the Main Idea**

Use the Stream table to play out several different scenarios. “Additional Resources” will provide resources on different ways to construct stream tables, and ways to use the stream tables to explore water quality pollution.

Once the class has used the tables and several scenarios have been played out, discuss what you found from these experiments.

### **Responding to the Main Idea**

Read Deuteronomy 11:16-17, Ezekiel 32:13-15, and Joel 1:20.

- Say: “There are many examples in the old testament of water pollution.”
- Ask: “When do we see water pollution in these passages? Why is pollution and drought such a threat to living things?”
- Ask: “When we are making choices that pollute our water sources, how do you think God feels?”
- Say: “In Corinthians, Paul reminds us that an important part of being a Christian is our responsibility to steward Creation.”

Read: 1 Corinthians 4 and Genesis.

- Ask: “How do you think God wants us to steward water resources? What lessons from the stream table activity help us understand how pollution occurs?”
- Say: “By understanding how we negatively affect water resources we can understand how better to steward or take care of them.”

### **Closing**

- Ask: “Do you think clean water is important to Creation? What are some examples? How do you think God wants us to take care of our water? What makes you believe that?”
- Say: “Learning about how humans affect Creation helps us to understand our mission to care for it. God gave us a very big responsibility but he is always there with us. Let us

thank God in prayer for water, what it means to us and other living things. We can also ask for guidance in understanding how to better take care for these resources.”

Say a prayer of thanksgiving for water, Creation, and God’s love. Ask God to help us understand how to better steward his Creation including the water that gives life to the living things in Creation.

### **Follow-up Assessment/Reflection**

Have students research a particular water user. Variety is the spice of life and so relatively small users to larger users should be assigned. See “The Value of Water: Additional Resources” for “Water Users” for help identifying various users. Have them report how this user could negatively affect water quality/quantity.

## Concerning Water: Additional Resources

**Stream Tables:** Stream Tables can be built in several different ways. You can choose to use the description provided or follow directions from one of the links, or be creative and do it yourself!

### Stream Table Construction:

- You will need to construct two boxes so that you can compare and contrast different activities.
- They should be around 16 inches long, 12 inches wide and 4 inches deep. If you build, use aluminum foil or plastic to make the bottom waterproof. You can also use a plastic pan, aluminum roasting pan or cake pan, or planter boxes.
- At one end cut a wide “V” approximately 1.5 inches deep and add a stiff piece of paper or funnel to drain water. A container should be placed to collect water as it is drained.
- Fill boxes with sod cut from a field or lawn. One box should have all the vegetation removed from the soil.
- Place boxes on a table side by side and have them propped up on one side to create a slope. Both boxes should have the same slope.

### Stream Table Activity Links

- Science Friday: <http://www.sciencefriday.com/blogs/12/20/2010/stream-table.html>
- Essentially Science Wiki:  
<https://lcsessentiallyscience.wikispaces.com/file/view/STREAM+TABLE+LAB.docx>
- National Agriculture Literacy Program  
<http://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=82>



- Fred, the fish could be an alternative activity to the stream tables that is less time and material intensive. A link to this activity can be found here:

<http://www.earthsciweek.org/classroom-activities/freddy-fish>

### **Stream Table Activity Instructions:**

1. Once your table is built, use a watering can to first show how vegetation affects the flow of water, as it comes as rain. Talk about the differences in speed, the amount that collects in the drain container, what the water, once drained, looks like.
2. Add a pollutant to each of the tables to show how the each box manages the pollutant. Food coloring works good but you can use different substances to represent different types of pollution.
3. Water quantity can also be demonstrated. Flood can be shown in each by delivering large amounts of water at once. Runoff should occur in both systems but differences should still be apparent. Drought can be examined by funneling water to another drain or by starting with less water.

Get creative. How has pollution affected your local water source? Sedimentation is one of the worst pollutants, so be sure to show the effects of sedimentation by having water go over soil with vegetation and soil without. The table without vegetation should end with water that contains more sediment. Some of the linked information above provides other examples of illustrations you can make to examine water quality and quantity using the stream tables.

Activity adapted from Project Learning Tree. (2006). *Water Wonders*. Washington, DC: American Forestry Foundation.

## **Concerning Water: Additional Resources**

### **Bible Passages:**

#### **Deuteronomy 11:16-17 (NIV)**

<sup>16</sup> Be careful, or you will be enticed to turn away and worship other gods and bow down to them. <sup>17</sup> Then the LORD's anger will burn against you, and he will shut up the heavens so that it will not rain and the ground will yield no produce, and you will soon perish from the good land the LORD is giving you.

#### **Ezekiel 32:13-15 (NIV)**

<sup>13</sup> I will destroy all her cattle from beside abundant waters no longer to be stirred by the foot of man or muddied by the hooves of cattle.

<sup>14</sup> Then I will let her waters settle and make her streams flow like oil, declares the Sovereign LORD.

<sup>15</sup> When I make Egypt desolate and strip the land of everything in it, when I strike down all who live there, then they will know that I am the LORD.

#### **Joel 1:20 (NIV)**

<sup>20</sup> Even the wild animals pant for you; the streams of water have dried up and fire has devoured the pastures in the wilderness.

#### **1 Corinthians 4:1 (NIV)**

This, then, is how you ought to regard us: as servants of Christ and as those entrusted with the mysteries God has revealed.

## **Caring for Water**

**Theme:** Connecting Through Stewardship: Water Responsibility

**Bible Passages:** Joel 1: 19-20, John 4:14

**Main Idea:** God has entrusted the stewardship of water resources to humans and when we use more than we need or are wasteful, we affect the availability of water for other living things.

**Audience:** Grades 6-8

### **Approach to Christian Care for Creation Guideline(s) (AC3):**

E2. Exploring Christian Care for Creation—

**AC3 Goal:** To explore how the choices we make contribute to our water footprint, a measure of how we are caring for our water resources.

### **Environmental Education Goals:**

Awareness: To be aware of how our choices affect our water resources.

Knowledge: To discover the ways we use water and explore examples of how quantity is limited, because we use it faster than it can be cleaned.

Attitude: To value water as a resource that should be used wisely

Personal Investment: To see the connection from individual actions create a footprint that shows our personal effect on the water supply. Knowing one's "footprint" allows students to explore how they can make different choices that conserve water.

Skill: To identify the choices we make regarding water and know which choices waste or conserve water.

### **Outcomes:**

Students will be able to:

- Describe how our choices in how we use water can affect the water supply available to living things.

- Identify actions that waste water.
- Identify actions that conserve water.

**Supplies:** Bible, Access to Internet for Footprint exercise

### **Background**

- See “Additional Resources” for details on water footprint calculators, videos, local resources and Bible passages.
- The “Water Footprint Assessment” can be done as a class by using averages, by each individual with individual access or as a homework assignment. Instructions are found in “Caring for Water: Additional Resources.” This example allows students to conduct the assessment as a class.
- Pre-lesson activities could include a video on water scarcity, a trip to an area affected by drought, or the “Water Footprint Assessment” as homework.

### **Session Opening**

- Ask: “Why do we need water? What do we use for water for?”
- Say: “All living things need water but we know there is a limited supply of water in Creation. Today we are going to explore how we use water and our responsibility to take care of God’s Creation.”

### **Presenting the Main Idea**

- Ask: “How much water do you think you use in a day? Do you think you use more water than you need?”
- Say: “The average American uses 2000 gallons of water each day<sup>1</sup>. Some people in the world live on much less and may even have to collect it every day.”

---

<sup>1</sup> National Geographic Change the Course – Water Footprint Calculator, 2015

- Say: “Close to 700 million people lack access to clean water. That is two and a half times the population of the United States.”
- Say: “By misusing or wasting water we are acting as if God’s Creation is not valuable. These actions separate us from God and affect the supply of water available to other living things.
- Say: “It is certain that we need water and we need God. Water provides us physical life and God provides a spiritual life. Our actions need to reflect our love of God and our understanding and love of the Creation as it was created.
- Say: “Today we will be exploring the value of water as we examine how we use it and perhaps even waste it. It is important for us to learn if our actions are the best ones when considering our responsibility to care for God’s Creation.

### **Exploring the Main Idea**

The “Water Footprint Assessment” can be conducted in several ways. This example will describe the assessment as conducted by a survey of the class and their averages.

- The National Geographic Water Footprint Calculator is found here:  
<http://environment.nationalgeographic.com/environment/freshwater/change-the-course/water-footprint-calculator/#>.
- Say: “The Water Footprint Assessment will tell us on average how much water we use on a daily basis. The assessment will also report on the actions we take that have the greatest impact on the water supply.”
- Take the assessment online as a class. Use the instructions found in “The Responsibility of Water: Additional Resources” section for information on averages you can use in places where the questions focus on transportation and energy. For questions the students

can answer, collect all the responses and select the answer from the greatest majority represented. A show of hands vote can make this process simple. You should be able to vote for several questions as a class. For those questions that seem hard to measure, use the averages provided in “Additional Resources.”

Following the activity, have a discussion about the findings. If the assessment were done individually, it would be good for students to share findings. You could find commonalities and differences amongst the responses. Use the site information to explore solutions that are provided in each area that needs improvement.

- Ask: “What part of this assessment surprised you and why?” What did this assessment confirm that you knew already? Are there ways we can conserve water in the areas where we use the greatest amounts? Can you give me some examples?”

### **Responding to the Main Idea**

- Ask: “What do you think God thinks about how we use water?”

Have students read Bible Passages Joel 1: 19-20 and John 4: 14 aloud.

- Say: “There are many places in the Bible where drought or the threat of drought is discussed. People of the Old Testament, the people in these verses we read, were faced with drought as a punishment for disobeying God. It is certain that all living things in Creation need two things water and God. Water needs to be managed so that all living things are taken care of. When we are wasteful with our water, we are not managing those resources as God would want. Our actions are contributing to drought.”

Have students read an excerpt from a news article about drought. Some examples are found in “Additional Resources” but any example of drought, especially a relatively local example, would be appropriate.

- Ask: “Are we acting as responsible stewards of water? What about those in the world that have to struggle with getting the water they need?”

### **Closing**

- Ask: “We have discussed so many ways that water is used to provide all that is needed by the living things in Creation. We also learned that we may have a greater impact on the water supply than we thought.”
- Ask:” In what ways can we change how we use water so that we are not wasteful or using more than we need?”
- Say: “Those are all good ideas. Let’s end in a prayer of thanksgiving for God’s Creation and a request for guidance in making decisions about how to manage our resources.”

### **Follow-up Assessment/Reflection**

- Set up a challenge for the class and have them monitor their water usage for a week. The team/individual with the least water usage wins. Have them monitor everything they buy, eat, and other direct uses of water. Each group/individual will need to record their actions and approximate data. In delivering their thoughts after the week is over and explain what actions they took to try to reduce the amounts of water used.
- Have students carry 40 lbs. of water, which is the weight of the average jug used to collect water in some developing countries. Talk to the students about how important water is and what it would be like if they had to collect their own water. Describe ways some folks who have to collect their water daily may conserve and or reuse water to get the most out of what they collect. This could also be used as an opening activity.

## **Caring for Water: Additional Resources**

### **Water Footprint Tools:**

- Water Footprint Assessment Tools and Resources: The purpose of the assessment is for students to look at how their personal consumption is related to the national average and to see what actions they have the greatest impact on water supply.

- National Geographic

<http://environment.nationalgeographic.com/environment/freshwater/change-the-course/water-footprint-calculator/#>

Use the typical calculation for information the class cannot report, such as driving and traveling.

- Waterfootprint.org

- Infographic of American Water Usage, The Nature Conservancy

<http://www.nature.org/ourinitiatives/habitats/riverslakes/explore/water-footprint-of-an-american.xml>

- Twelve Ways to Reduce Your Water Footprint

[http://www.huffingtonpost.com/wendy-pabich/reduce-water-footprint\\_b\\_1957546.html](http://www.huffingtonpost.com/wendy-pabich/reduce-water-footprint_b_1957546.html)

### **Videos/Resources on Drought:**

- California Drought

<https://www.youtube.com/channel/UCKt6dYzHqHfpcp1lgj4bl1A>

- Years of Living Dangerously: Episode 1 Clip- Drought

<https://youtu.be/a5G5jg5l2E8>

- Your Contribution to the California Drought Infographic



[http://www.nytimes.com/interactive/2015/05/21/us/your-contribution-to-the-california-drought.html?\\_r=1](http://www.nytimes.com/interactive/2015/05/21/us/your-contribution-to-the-california-drought.html?_r=1)

Activity adapted from Project Wet Curriculum and Activity Guide 2.0. (2011). My Water Footprint. Bozeman, MT: Project WET Foundation

## **Caring for Water: Additional Resources**

### **Bible Passages:**

#### **Joel 1:19-20 New International Version (NIV)**

**<sup>19</sup> To you, LORD, I call,**

**for fire has devoured the pastures in the wilderness**

**and flames have burned up all the trees of the field.**

**<sup>20</sup> Even the wild animals pant for you;**

**the streams of water have dried up**

**and fire has devoured the pastures in the wilderness.**

#### **John 4:14 (NIV)**

**<sup>14</sup> but whoever drinks the water I give them will never thirst. Indeed, the water I give them will become in them a spring of water welling up to eternal life.”**

## **Redeeming Water**

**Theme:** Connecting Through Stewardship: Water Redeemed

**Bible Passages:** Ezekiel 47:7-9, 1 John 2:17, Revelation 22:1-5

**Main Idea:** God’s Vision for Creation will be one day be revealed, in the mean time we can focus on keeping and improving Creation by being “good” stewards of water.

**Audience:** Grades 6-8

Approach to Christian Care for Creation Guideline(s) (AC3):

**E3.** Understanding God’s Plan for a New Earth —

**AC3 Goal:** To show an understanding of God’s plan for a new Earth by acting as a good steward of a local water source.

### **Environmental Education Goals:**

Awareness: To be aware of a local source of water that is polluted.

Knowledge: To discover the choices made that led to our local water source being polluted.

Attitude: To discover the value water has as a resource that should be treated with concern.

Skill: To identify the source of pollutants in a local water source and how to clean them up.

Action: To participate in a community based group activity involving the clean-up of a local water resource.

Intention to Act: To agree to take action to improve upon an environmentally polluted site.

### **Outcomes:**

#### **Students will be able to:**

- Describe how their actions glorify God and that by taking these actions, a water source can be improved for the living things that depend on it.
- Actively participate in a clean-up event for a local water source.

**Supplies:** Bible, identified local site with known pollution (See *Finding Local Sources* in “Additional Resources” for assistance), Supplies for Clean-Up (See “Additional Resources” for list)

### **Background**

- See “Additional Resources” for details on clean-up events, finding local water resources and Bible passages.
- Pre-lesson activities could include a walk to the proposed clean-up site to take inventory of its location and possible sources of pollution.
- This lesson can expand up to two class sessions and a time for the clean-up/restoration activity. It can be shortened by cleaning up for a shorter period or planting just a few restorative plants.

### **Session Opening**

- Say: “If our water was not kept clean we would say that our water quality was poor. One of the ways we affect the quality of our water is by polluting it. Pollution of our water resources happens in various ways every day and, for the majority of the time, without us even knowing it.”
- Say: “Today we are going to explore ways our water is polluted and how pollution can be prevented to protect our water resources as God would want us to.”

### **Presenting the Main Idea:**

- Ask: “How do we pollute our water?” Allow students to share.
- Say: “Many of our local water sources are polluted. There are many ways we can help clean them up and preserve the quality of the water.”

- Say: “God designed an amazing system of water, which has the ability to clean itself, yet many of the ways water is used causes pollution that occurs faster than the Earth can clean it. As stewards of God’s Creation we need to know how to protect our water resources.”

### **Exploring the Main Idea**

- Say: “Water is polluted by the choices people make when disposing of waste or by not protecting the natural areas that help clean water.”

Have students research a local water source or provide this information to discuss individually. Discuss the different ways the source of water could be polluted. Expand this conversation by exploring some additional ways waterways are polluted. Engage by giving the source of pollution and asking students to comment on how they think that particular source pollutes the water. See “Additional Resources” for ideas on where to find local resource information and examples of waterway pollution.

- Say: “There are several ways we can improve the condition of our water resources and by doing that we can improve a part of Creation. As stewards of God’s Creation, we are called to care for the natural world, including our water.”

Stage a clean-up of a local water resource. You are welcome to select this location but allowing the class to discuss possible options may make it more personal to them. Brainstorm as a class, what a good activity would be that would improve the condition of that water source. This can be the same day or a separate day event, depending on the scope of the event. Once your class decides what activity that they would like to do, or if you have already chosen, preparations will need to be made. Waterway clean-up events take time to plan and research and this could be

done together as a class use the time remaining in one class/meeting period. See “Additional Resources” for resources to support these types of activities/events, with systematic instructions.

### **Responding to the Main Idea**

Once your activity to improve pollution in waterways has been completed, spend a session discussing your involvement and what it means to be a steward of God’s Creation.

- Say: “I am so proud of what we accomplished to improve the water at \_\_\_\_ (local site) \_\_\_\_\_. Because we took action, that water will be improved for all the living things that rely on \_\_\_\_\_, either as habitat or as a resource otherwise. God’s Vision for Creation is shown through the perfect systems that he created; these systems sustain life on Earth. Today we helped make a part of that water system healthier for all living things.”
- Ask: “What do you think God thinks about our actions?” Allow students to share. “Let us see what the Bible has to say.”

Read Bible Passages Revelation 22:1 and Ezekiel 47:7-9.

- Ask: What do these verses tell us about God’s vision for water in Creation?”
- Say: “God’s vision for water systems is clear in that they bring life, a healthy life, to living things. By participating in keeping God’s vision we are preparing for what is to come once Creation is made new.”
- Say: “1<sup>st</sup> John 2:17 says the “World is passing away, but those who do the will of God will live forever.” What does this mean to you? How do you think this applies to what we did in preserving the quality of water in \_\_\_\_\_?”

- Ask: “Why is it important to clean-up or restore water sources?” Allow students to answer. “And do we know when the end will come? Do you think God would want us to care for Creation as long as we were here on Earth?”

Read Revelation 22 again but this time verses 1 through 5.

- Ask: “John’s Vision of the water of life and the tree of life represents how those systems depend on each other. The water gives life to the tree; the tree gives life to the people. How can people give life to Creation to keep these cycles going?”
- Say: “By protecting and cleaning up our water sources we are acting as if God’s Creation is valuable. Actions such as the things we did draw us closer to God as well as it improves the quality of water available to other living things.”
- Say: “Water provides us physical life and God provides a spiritual life. Our everyday actions need to reflect our love of God and our understanding and love of the Creation.”

### **Closing**

- Say: “God made water systems as perfect systems that provide water for living things and one day these systems will be restored. Revelation 21:5 says ‘See I am making all things new.’ In the mean time we can help by understanding God’s vision for Creation and take action to improve the systems that are out of balance.”
- Say: “Let’s end in a prayer of thanksgiving for God’s Creation and a request for guidance in making decisions about how to manage our resources.”

### **Follow-up Assessment/Reflection**

- Have students reflect on an action they took in the clean-up or restoration activity. Have them describe how that action contributes to the water system and how it pleases God.

This can be done in multiple ways, pair-share, narrative/poetry writing, act-out a scene, etc.

- Have students write out/describe/illustrate a plan for a renewed water system. They should consider how humans interact with water and what they think God envisioned for humans to do as stewards of water and Creation in general.



## Redeeming Water: Additional Resources

### Water Pollution:

- Water Encyclopedia---Pollution by Garbage and Trash  
[www.waterencyclopedia.com/Oc-Po/Pollution-of-Streams-by-Garbage-and-Trash.html](http://www.waterencyclopedia.com/Oc-Po/Pollution-of-Streams-by-Garbage-and-Trash.html)
- Water Encyclopedia ---Pollution of Lakes and Streams  
<http://www.waterencyclopedia.com/Oc-Po/Pollution-of-Lakes-and-Streams.html>

### Waterway Clean-up Events:

- EPA Information Sheet  
<http://water.epa.gov/polwaste/npdes/swbmp/Stream-Cleanup-and-Monitoring.cfm>
- The Ocean Conservancy---Sponsor of Big Sweep and Coastal Clean-up Events
  - Organize a Clean-up homepage <http://www.oceanconservancy.org/keep-the-coast-clear/organize-the-cleanup.html>
  - Clean-up Specifics <http://www.oceanconservancy.org/our-work/international-coastal-cleanup/during-the-cleanup.html>
  - Do-it –yourself Clean-up Tool Kit <http://www.oceanconservancy.org/our-work/international-coastal-cleanup/before-the-cleanup.html?referrer=http://www.oceanconservancy.org/keep-the-coast-clear/organize-the-cleanup.html>

Use Facebook or Google to Search for local clean-up efforts such as Big Sweep Events. Many parks and recreational areas will also host events and many states offer adopt-a-stream and other similar programs where you can commit to clean-up a particular area on a regular basis.

**Finding Local Sources:**

For NC the Division of Water Quality has links to the classification of waterbodies in the state and by those designations, you can determine the pollution that effects the water source.

<http://portal.ncdenr.org/web/wq/ps/csu/classifications>

Look for similar water related government offices in other states for similar information.

Some water sources are very toxic! Check out EPA Superfund sites that may include water sources near you.

<http://www2.epa.gov/superfund/search-superfund-sites-where-you-live>

Activity adapted from Big Sweep and Coastal Clean-up. (2015). Keep The Coast Clear.

Washington, DC: The Ocean Conservancy.

## **Redeeming Water: Additional Resources**

### **Bible Passages:**

#### **Ezekiel 47:7-9 New International Version (NIV)**

<sup>7</sup> When I arrived there, I saw a great number of trees on each side of the river.<sup>8</sup> He said to me, “This water flows toward the eastern region and goes down into the Arabah,<sup>[a]</sup> where it enters the Dead Sea. When it empties into the sea, the salty water there becomes fresh.

<sup>9</sup> Swarms of living creatures will live wherever the river flows. There will be large numbers of fish, because this water flows there and makes the salt water fresh; so where the river flows everything will live.

#### **1 John 2:17 (NIV)**

<sup>17</sup> The world and its desires pass away, but whoever does the will of God lives forever.

#### **Revelation 22:1-5 (NIV)**

Then the angel showed me the river of the water of life, as clear as crystal, flowing from the throne of God and of the Lamb <sup>2</sup> down the middle of the great street of the city. On each side of the river stood the tree of life, bearing twelve crops of fruit, yielding its fruit every month. And the leaves of the tree are for the healing of the nations. <sup>3</sup> No longer will there be any curse. The throne of God and of the Lamb will be in the city, and his servants will serve him. <sup>4</sup> They will see his face, and his name will be on their foreheads. <sup>5</sup> There will be no more night. They will not need the light of a lamp or the light of the sun, for the Lord God will give them light. And they will reign for ever and ever.

## **Resources for Journey Through God's Creation: A Guide to Integrating Christian Education with Environmental Education (EE)**

### **EE Activity Sources**

- Project WET—[www.projectwet.org](http://www.projectwet.org). This curriculum guide focuses on water education. It offers many water activities for children, ranging from K-12. It was originally developed by the North Dakota State Water Commission and is currently maintained by the Project WET International Foundation.
- Project WILD / Aquatic WILD—[www.projectwild.org](http://www.projectwild.org). This curriculum guide focuses on animals. It includes numerous activities that are designed to help students learn more about the creatures found around them. The activities range from K-12. It was developed by the Department of Natural Resources and the Council for Environmental Education. In addition, regional guides have been produced for a number of states. An early childhood supplement has also been developed.
- Project Flying WILD—[www.flyingwild.org](http://www.flyingwild.org). This curriculum guide was developed by the Council for Environmental Education. Appropriate for K-12 students, its activities focus on birds.
- Project Learning Tree—[www.plt.org](http://www.plt.org). This guide was developed by the American Forest Foundation and the Council for Environmental Education. It focuses on plants, especially trees in the activities it describes. Its activities are designed for grades preK-8. The curriculum also includes an early childhood supplement that has been developed specifically for pre-school education.
- Project Food, Land, and People—[www.foodlandpeople.org](http://www.foodlandpeople.org). This curriculum guide is designed to help students learn about the interrelationships between agriculture, the environment, and

people. Offering lessons for preK-12 grades, the guide helps students explore the sources of their food. It was developed by the non-profit organization Food, Land, and People. A second edition of this guide was recently published that features additional resources for educators.

- The Aldo Leopold Project–Leopold Education Project–[www.lep.org](http://www.lep.org). This curriculum guide was developed from the book *A Sand County Almanac*, by Aldo Leopold. The activities in this guide focus on phenology and are detailed for a particular month of the year. Each of the 12 months has activities, based on the natural happenings at those times of the year. This guide is an excellent resource for use as a year-long curriculum.

Many other activities and curriculum guides are available. See [NAAEE.org](http://NAAEE.org) for more information. (Excerpt from “A Field Guide for Christian and Environmental Education,” Light, 2009, p. 119) Light’s work is of note for educators who seek to look further into the integration of Christian Education and Environmental Education.

## **Exploring Biblical Content**

### **Step One: Find the biblical support for your topic, as defined by the Environmental**

**Education activity, and explore what you find.** For example, in the “The Wonder of Water” activity (See “Sample Activities” in the “Journey” guide) you would want to search for “water,” or even “water cycle.” There are many ways to go about this. Most Bibles have an index of topics; this is one way. You can also do internet searches for information. Be sure to check your source. Many Bible apps also work well. It is important to use many resources and translations once you decide on the biblical support you want to use. Comparing translations will cultivate a better idea of what is important in the passage. You will also want to study what comes before and after the passage for context.

**Step Two: Study the words about God and his relationship to Creation.** For example, in adapting the “The Wonder of Water” activity, the passage of Job 36: 27-28 seemed to fit the topic well. It is evident that God is in control from this passage and that he is great because of this process in his Creation.

**Step Three: Study the background of the Book where the passage is taken.** This can provide context on how ideas may be interpreted. For example, the Job 36: passage from is taken from the middle of a young man’s argument for how Great God must be. How might that background information strengthen this point?

**Step Four: Study important words about your topic.** For example, the passage in Job describes, with detail, processes of the water cycle; “For he draws up the drops of water; he distills his mist in rain, which the skies pour down and drop upon mortals abundantly” (Job 36: 27-28, NRSV, 1989). Another take on Job 36 27-28, says, “He pulls water up out of the sea, distills it and fills up his rain-cloud cisterns. Then the skies open up and pour out soaking

showers on everyone” (The Message, 2000). What does distill mean? What word (s) do we use to describe this process?

**Step Five: Study the topic and its concepts.** For example, the passage in Job is followed by even more examples of how God’s greatness is amazing. Creation is amazing and mysterious. It seems as though the young man is trying to express this same idea when in the next verse he asks, “Does anyone have the slightest idea how this happens?” (Job 36: 27-28, NRSV, 1989; The Message, 2000). Connections such as this can provide great material for discussion questions.

## Sample Template

### Title:

**Theme:** Your theme will come from the approach you are using (Spirit or Stewardship), your selection of EE activity, and the biblical support for the topic.

**Bible Passages:** The Bible Passages are the biblical support for your lesson. These passages should guide questions and discussion ideas for your session and how you explore your main idea. See the “biblical Exploration” section on page \_\_\_ of this guide for assistance in how to brainstorm and work through ideas based on the biblical references you choose.

**Main Idea:** This section states the major ideas and concepts of the selected EE activity and of the biblical connections.

**Audience:** Your audience

### Integrated Goals:

#### Approach to Christian Care for Creation Guidelines Goal (AC3):

This goal will be guided by the Conceptual Framework. For each guideline that you wish to encourage, a goal should be written to name the desired results of your session. See “Identifying Guidelines” on page \_ of this guide for assistance in writing goals and formulating questions for sessions. The guideline as written should be able to help formulate a particular goal. For example if you wanted to use the Spirit guideline S1. Cultivating Awe and Wonder, you may state that the goal of the session is “To cultivate awe and wonder by...” and then describe your particular goal.

#### Environmental Education Goals:

The first set of goals is based on the Tbilisi Declaration (Awareness to Action) goals (1978) for environmental literacy.



Another goal is based on Hungerford and Volk's Environmental Citizenship Behavior Model (1990) is represented under the Tbilisi goal (1978) as a further extension of what the session is aiming to accomplish. This goal is connected to the conceptual framework goals. For example, if your AC3 goal is "S1. Cultivating Awe and Wonder" then your goal here will be "Sensitivity" and your goal as written should be "To build sensitivity..." and describe the intention of the EE activity.

**Outcomes:** Outcomes should be SMART, meaning Specific, Measurable, Attainable, Relevant, and Timely. They should describe what the learner will be able to do or will know at the conclusion of the session. These are closely tied to the assessment piece and once written can be used to formulate assessment activities.

**Supplies:** Supply lists will come from any activity that you adapt but also from going through the activity and finding what works best. Always read the activity, even if a list is provided to be sure you have everything that is needed. Additional supplies may include Bibles, writing supplies, etc.

### **Activity Outline:**

#### **Session Opening**

The Opening is a way to welcome students and setting the stage for the session. Many Environmental Education activities provide an introductory activity or way to begin talking about the session. Simply a greeting and prayer is sufficient however, in most cases.

#### **Presenting the Main Idea**

Presenting the Main idea is making sure the concepts you want to present are clear. For our purposes, the goal here is to examine the concepts of the environmental education activity and the biblical passage(s) that support those concepts.

**Exploring the Main Idea**

This part of the activity is where the Environmental Education (EE) activity is carried out. (Or the portion of the EE activity you have selected) When designing these activities be sure you have selected an activity that fits within your allotted timeframe. Many environmental education activities can last for multiple sessions or over more time than you may have.

**Responding to the Main Idea**

“Responding to the Main idea” is where students have a chance to respond to the ideas and make connections to the main idea. This is where questions need to be incorporated that stem from your goals, which are derived from the guidelines of the conceptual framework.

**Closing**

The “Closing” is the time when all the ideas of the activity come back together. Ferguson (2008) notes that this time in the activity is also for the “celebration of what has been learned” (p. 64). Close session with prayer and goodbyes.

**Follow-up Session/Reflection**

This is time to evaluate students’ progress throughout the session. Look back at the outcomes that you described in the beginning and test ways to show your students understanding of those objectives. “The Wonder of Wonder” sample activity shows objectives for understanding the steps and processes of the water cycle and the awe and wonder in how and why water moves. These are both similar questions and the follow-up suggests to have students experience a process of the cycle (i.e. rain event, making condensation, freezing water). Then have them independently reflect on what they observed, describing the process that God created, and how it made them feel about God.

“Exploring biblical Content” and “Sample Template” adapted from *Christian Educators’ Guide to Evaluating and Developing Curriculum* (Ferguson, 2008).

## Connections – EE and Conceptual Framework Goals

- **Connecting Spiritually**
  - **S1. Cultivating Awe and Wonder**
    - *Tbilisi (1978)*—Awareness, Knowledge
    - *Hungerford and Volk (1990)*—Sensitivity
  - **S2. Exploring The Intrinsic Value Of Creation**
    - *Tbilisi (1978)*—Awareness, Knowledge
    - *Hungerford and Volk (1990)*—Knowledge of Ecology
  - **S3. Uncovering God’s Vision for Cosmic Harmony**
    - *Tbilisi (1978)*—Awareness, Knowledge, Attitude, Skills
    - *Hungerford and Volk (1990)*—Locus of Control
- **Connecting Through Stewardship**
  - **E1. Exploring the Christian Mission to Steward Creation**
    - *Tbilisi (1978)*—Awareness, Knowledge, Attitude
    - *Hungerford and Volk (1990)*—In-depth knowledge about issues
  - **E2. Exploring Christian Care for Creation**
    - *Tbilisi (1978)*— Awareness, Knowledge, Attitude, Skills
    - *Hungerford and Volk (1990)*—Personal Investment
  - **E3. Understanding God’s Plan for a New Earth**
    - *Tbilisi (1978)*— Awareness, Knowledge, Attitude, Skills, Participation
    - *Hungerford and Volk (1990)*—Intention to Act

## REFERENCES

- Baer, R. (1989). *Caring for creation: responsible stewardship of God's handiwork*. Grand Rapids, MI: CRC Publications.
- Ball, J. (1998). The use of ecology in the evangelical protestant response to the ecological crisis. *Perspectives on Science and Christian Faith*, 50(3), 32-40.
- Barrett, C. & Grizzle, R. (1998). One body of Christian environmentalism. *Zygon: Journal of Religion and Science*, 33(2), 233-253.
- Bratton, S. (1992). Loving nature: Eros or agape? *Environmental Ethics*, 14(1), 3-25.
- Carmichael, C. (2014). Christian education programs & environmental education: Final report and findings. Washington, D.C.: EE Capacity.
- Coffman, M., & Alexander, B. (1992). Eco-religion and cultural change. *Spiritual Counterfeits Project Journal*, 17(3), 15-23.
- DeWitt, C. B. (1994). *Earth-Wise: A biblical response to environmental issues*. Grand Rapids, MI: CRC Publications.
- DeWitt, C. B. (2003). Caring for Creation on biblical grounds: an apologetic for stewardship of God's earth. *Christian Research Journal*, 19 (3), 1-3.
- Feldman, D. & Moseley, L. (2003). Faith-based environmental initiatives in Appalachia: Connecting faith, environmental concern and reform. *Worldviews: Environment, Culture, Religion*, 7(3), 227-252.
- Ferguson, N. (2008). *Christian educators guide to evaluating and developing curriculum*. Valley Forge, PA: Judson Press.

- Gardner, Gary. (2002). Invoking the spirit: Religion and spirituality in the quest for a sustainable world. *Worldwatch Paper 164*. Danvers, MA: Worldwatch Institute.
- Guth, J. L., Green, J. C., Kellstedt, L. A. & Smidt, C. E. (1995). Faith and the environment: Religious beliefs and attitudes on environmental policy. *American Journal of Political Science*, 39(2), 364-382.
- Haluuza-DeLay, R. (2008). Churches engaging the environment: An autoethnography of obstacles and opportunities. *Research in Human Ecology*, 15(1), 71-81.
- Hand, C. M., & Van Liere, K. D. (1984). Religion, mastery-over-nature, and environmental concern. *Social Force*, 63(2), 555-569.
- Harper, F., & Kenneally, S. (2009). Greening our faith: Putting belief into action. *Angelic Theological Review*, 91(4), 619-625.
- Hitzhusen, G. (2006). Religion and environmental education: building on common ground. *Canadian Journal of Environmental Education*, 11, 9-25.
- Hitzhusen, G. (2007). Judeo-Christian theology and the environment: moving beyond skepticism to new sources for environmental education in the United States. *Environmental Education Research*, 13(1), 55-74.
- Hitzhusen, G., & Tucker, M. (2013). The potential of religion for earth stewardship. *Frontiers in Ecology and Environment*, 11(7), 368-376.
- Huguenin, E. (2012). Exploring definitions implementation and integration of environmental education in North American Christian residential camps (Unpublished Masters thesis). Montreat College, Montreat, NC.
- Hungerford, H. R. & Volk, T.L. (1990). Changing learner behavior through environmental education. *Journal of Environmental Education*, 21(3), 8-21.

- Jenkins, W. (2009). After Lynn White: Religious ethics and environmental problems. *Journal of Religious Ethics*, 37(2), 283-309.
- Kanagy, C. L. & Nelsen, H. M. (1995). Religion and environmental concern: Challenging the dominant assumptions. *Review of Religious Research*, 37(1), 33-45.
- Kearns, L. (1996). Saving the creation: Christian environmentalism in the United States. *Sociology of Religion*, 57(1), 55-70.
- King, C. M. (2001). Ecotheology: A marriage between secular ecological science and a radical compassionate faith. *Ecotheology*, 10, 40-69.
- Kluckhohn, F. & Strodtbeck, F. (1961). *Variations and value orientations*. Evanston, Illinois: Row & Peterson.
- Light, J. (2006). A study of the integration of environmental education and Christian education: A field guide to Christian environmental education (Unpublished Masters thesis). Hamline University, St. Paul, MN.
- Louv, R. (2005). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books.
- Louv, R. (2014). Leave no child inside. *Orion Magazine*. Retrieved from <http://www.orionmagazine.org>
- Mohler, A. (2009, July 20). Nature deficit disorder: Have our children forgotten how to play outdoors. [Web log post]. Retrieved from <http://www.albertmohler.com/2009/07/20/nature-deficit-disorder-have-our-children-forgotten-how-to-play-outdoors.php>
- Nash, R. (1989). *Rights of nature: a history of environmental ethics*. Madison, WI: The University of Wisconsin Press.

- North American Association for Environmental Education (NAAEE). (2010). *Excellence in Environmental Education: Guidelines for Learning (K – 12)*. Washington, DC: NAAEE Publications and Membership Office.
- Oelschlaeger, M. (1994). *Caring for creation: An ecumenical approach to the environmental crisis*. London: Yale University Press.
- Schaeffer, F. (1970). *Pollution and the death of man: the Christian view of ecology*. London: Hodder & Stroughton.
- Shaiko, R. (1987). Religion, politics, and environmental concern: a powerful mix of passions. *Social Science Quarterly*, 68(1-2), 244-262.
- Sherif, C., Sherif, M., & Nebergall, R. (1965). *Attitude and attitude change: The social judgment-involvement approach*. Philadelphia, PA: W.B. Saunders.
- Smith, A., & Pulver, S. (2009). Ethics-Based Environmentalism in Practice: Religious-Environmental Organizations in the United States. *Worldviews: Environment Culture Religion*, 13(2), 145-179. doi:10.1163/156853509X438580.
- United Nations Education, Scientific, and Cultural Organization—United Nations Environmental Programme (UNESCO-UNEP). (1976). *Belgrade Charter (1976, January 1)*. *Connect: UNESCO-UNEP Environmental Education Newsletter*. Retrieved from <http://unesdoc.unesco.org/images/0015/001533/153391eb.pdf>
- United Nations Education, Scientific, and Cultural Organization (UNESCO). (1978). *Final report: Intergovernmental conference on environmental education* (Organized by UNESCO in cooperation with UNEP, Tbilisi, USSR, 14-26 October 1977). Paris, France: UNESCO. Retrieved from [http://www.gdrc.org/uem/ee/EE-Tbilisi\\_1977.pdf](http://www.gdrc.org/uem/ee/EE-Tbilisi_1977.pdf)



- Wald, K. (1992). *Religion and Politics in the United States* (2nd ed.). Washington, DC: Congressional Quarterly Press.
- Weigel, R. H. (1977). Ideological and demographic correlates of proecology behavior. *The Journal of Social Psychology*, 103, 39-47.
- Weiskel, T. (1990). *Cultural values and their environmental implication: An essay on knowledge, belief, and global survival*. New Orleans, LA: American Association for the Advancement of Science.
- White, L. (1967). The historical roots of our ecological crisis. *Science*, 155, 1203-1207.
- Wilson, E. O. (2006). *The creation: An appeal to save life on earth*. New York, New York: W. W. Norton & Company, Inc.
- Worldometers.info. (2014, January 14). *World population by religion*. Retrieved from <http://www.worldometers.info/world-population/>.
- Worster, D. (1994). *Nature's economy: a history of ecological ideas*. (2nd. ed.). Cambridge, UK: Cambridge University Press.

**APPENDIX A****TBILISI DECLARATION (UNESCO, 1978)**

## APPENDIX A

### TBILISI DECLARATION (UNESCO, 1978)

“The categories of environmental education *objectives* are:

Awareness—to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

Knowledge—to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

Attitudes—to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.

Skills—to help social groups and individuals acquire the skills for identifying and solving environmental problems.

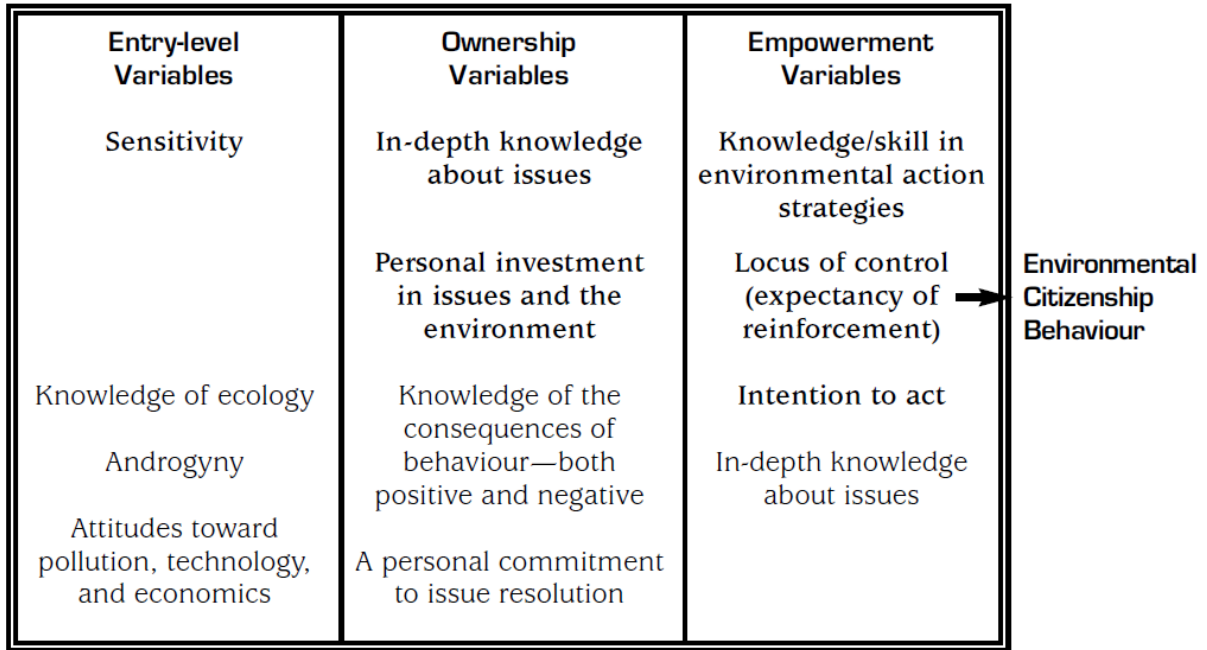
Participation—to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.”

**APPENDIX B**  
**ENVIRONMENTAL CITIZENSHIP BEHAVIOR MODEL**

## APPENDIX B

### ENVIRONMENTAL CITIZENSHIP BEHAVIOR MODEL

(HUNGERFORD & VOLK, 1990)



Major variables; Minor variables

Figure 1. Environmental behaviour model: Major and minor variables involved in environmentally responsible behaviour (adapted from Hungerford & Volk, 1990).

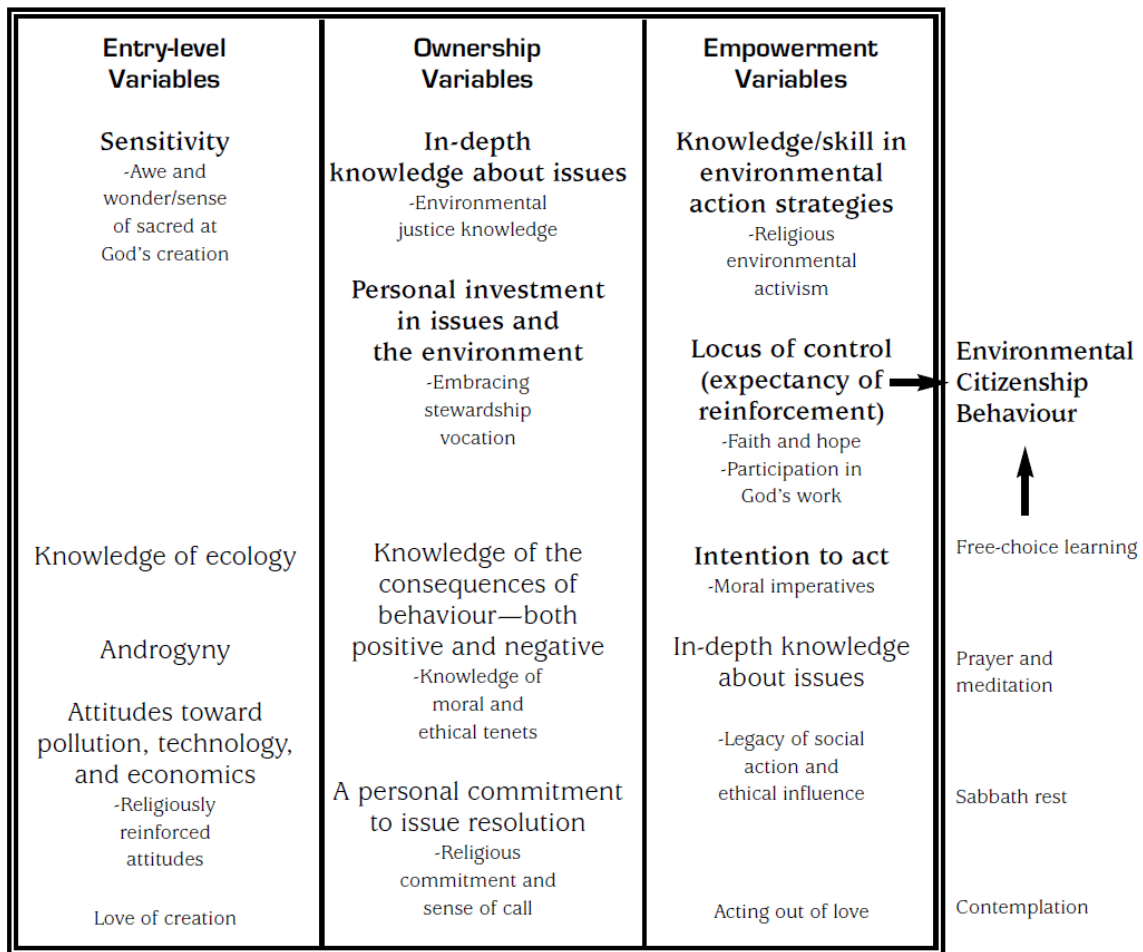
## **APPENDIX C**

### **RELIGIOUS VARIABLES ADDED TO HUNGERFORD AND VOLK'S MODEL**

## APPENDIX C

### RELIGIOUS VARIABLES ADDED TO HUNGERFORD AND VOLK'S MODEL

(HITZHUSEN, 2006)



Major variables; Minor variables; religious variables

Figure 2. Religious variables added to Hungerford & Volk model.

## **APPENDIX D**

### **CONCEPTUAL FRAMEWORK GUIDELINES AND CONNECTIONS TO GOALS FOR ENVIRONMENTAL EDUCATION AND PRO-ENVIRONMENTAL BEHAVIOR**



## APPENDIX D

### CONCEPTUAL FRAMEWORK GUIDELINES AND CONNECTIONS TO GOALS FOR ENVIRONMENTAL EDUCATION AND PRO-ENVIRONMENTAL BEHAVIOR

- **Connecting Spiritually**
  - **S1. Cultivating Awe and Wonder**
    - *Tbilisi (1978)*—Awareness, Knowledge
    - *Hungerford and Volk (1990)*—Sensitivity
  - **S2. Exploring The Intrinsic Value Of Creation**
    - *Tbilisi (1978)*—Awareness, Knowledge
    - *Hungerford and Volk (1990)*—Knowledge of Ecology
  - **S3. Uncovering God’s Vision for Cosmic Harmony**
    - *Tbilisi (1978)*—Awareness, Knowledge, Attitude, Skills
    - *Hungerford and Volk (1990)*—Locus of Control
- **Connecting Through Stewardship**
  - **E1. Exploring the Christian Mission to Steward Creation**
    - *Tbilisi (1978)*—Awareness, Knowledge, Attitude
    - *Hungerford and Volk (1990)*—In-depth knowledge about issues
  - **E2. Exploring Christian Care for Creation**
    - *Tbilisi (1978)*— Awareness, Knowledge, Attitude, Skills
    - *Hungerford and Volk (1990)*—Personal Investment
  - **E3. Understanding God’s Plan for a New Earth**
    - *Tbilisi (1978)*— Awareness, Knowledge, Attitude, Skills, Participation
    - *Hungerford and Volk (1990)*—Intention to Act

**APPENDIX E**  
**BIBLE EXPLORATION WORKSHEET**

## APPENDIX E

### BIBLE EXPLORATION WORKSHEET (Adapted from Ferguson, 2008, p. 65)

**Step One: Find the biblical support for your topic, as defined by the Environmental Education activity, and explore what you find.** For example, in the “The Wonder of Water” activity (See “Sample Activities” in the “Journey” guide) you would want to search for “water,” or even “water cycle.” There are many ways to go about this. Most Bibles have an index of topics; this is one way. You can also do internet searches for information. Be sure to check your source. Many Bible apps also work well. It is important to use many resources and translations once you decide on the biblical support you want to use. Comparing translations will cultivate a better idea of what is important in the passage. You will also want to study what comes before and after the passage for context.

**Step Two: Study the words about God and his relationship to Creation.** For example, in adapting the “The Wonder of Water” activity, the passage of Job 36: 27-28 seemed to fit the topic well. It is evident that God is in control from this passage and that he is great because of this process in his Creation.

**Step Three: Study the background of the Book where the passage is taken.** This can provide context on how ideas may be interpreted. For example, the Job 36: passage from is taken from the middle of a young man’s argument for how Great God must be. How might that background information strengthen this point?

**Step Four: Study important words about your topic.** For example, the passage in Job describes, with detail, processes of the water cycle; “For he draws up the drops of water; he distills his mist in rain, which the skies pour down and drop upon mortals abundantly” (Job 36: 27-28, NRSV, 1989). Another take on Job 36 27-28, says, “He pulls water up out of the sea,

distills it and fills up his rain-cloud cisterns. Then the skies open up and pour out soaking showers on everyone” (The Message, 2000). What does distill mean? What word (s) do we use to describe this process? Showers are precipitation...what are clouds as cisterns? Etc.

**Step Five: Study the topic and its concepts.** For example, the passage in Job is followed by even more examples of how God’s greatness is amazing. Creation is amazing and mysterious. It seems as though the young man is trying to express this same idea when in the next verse he asks, “Does anyone have the slightest idea how this happens?” (Job 36: 27-28, NRSV, 1989; The Message, 2000). Connections such as this can provide great material for discussion questions.

**APPENDIX F**  
**OUTLINE FOR ACTIVITY DESIGN**

## APPENDIX F

### OUTLINE FOR ACTIVITY DESIGN (adapted from Ferguson, 2008)

**Title:**

**Theme:** Your theme will come from the approach you are using (Spirit or Stewardship), your selection of EE activity, and the biblical support for the topic.

**Bible Passages:** The Bible Passages are the biblical support for your lesson. These passages should guide questions and discussion ideas for your session and how you explore your main idea. See the “biblical Exploration” section on page \_\_ of this guide for assistance in how to brainstorm and work through ideas based on the biblical references you choose.

**Main Idea:** This section states the major ideas and concepts of the selected EE activity and of the biblical connections.

**Audience:** Your audience

**Integrated Goals:**

**Approach to Christian Care for Creation Guidelines Goal (AC3):**

This goal will be guided by the Conceptual Framework. For each guideline that you wish to encourage, a goal should be written to name the desired results of your session. The guideline as written should be able to help formulate a particular goal. For example, if you wanted to use the Spirit guideline S1. Cultivating Awe and Wonder, you may state that the goal of the session is “To cultivate awe and wonder by...” and then describe your particular goal.

**Environmental Education Goals:**

The first set of goals is based on the Tbilisi Declaration (Awareness to Action) goals (1978) for environmental literacy.

Another goal is based on Hungerford and Volk's Environmental Citizenship Behavior Model (1990) is represented under the Tbilisi goal (1978) as a further extension of what the session is aiming to accomplish. This goal is connected to the conceptual framework goals. For example, if your AC3 goal is "S1. Cultivating Awe and Wonder" then your goal here will be "Sensitivity" and your goal as written should be "To build sensitivity..." and describe the intention of the EE activity.

**Outcomes:** Outcomes should be SMART, meaning Specific, Measurable, Attainable, Relevant, and Timely. They should describe what the learner will be able to do or will know at the conclusion of the session. These are closely tied to the assessment piece and once written can be used to formulate assessment activities.

**Supplies:** Supply lists will come from any activity that you adapt but also from going through the activity and finding what works best. Always read the activity, even if a list is provided to be sure you have everything that is needed. Additional supplies may include Bibles, writing supplies, etc.

### **Activity Outline:**

#### **Session Opening**

The Opening is a way to welcome students and setting the stage for the session. Many Environmental Education activities provide an introductory activity or way to begin talking about the session. Simply a greeting and prayer is sufficient however, in most cases.

#### **Presenting the Main Idea**

Presenting the Main idea is making sure the concepts you want to present are clear. For our purposes, the goal here is to examine the concepts of the environmental education activity and the biblical passage(s) that support those concepts.

### **Exploring the Main Idea**

This part of the activity is where the Environmental Education activity is carried out. (Or the portion of the activity you have selected). When designing these activities be sure you have selected an activity that fits with your allotted timeframe. Many environmental education activities can last for multiple sessions or over more time than you may have.

### **Responding to the Main Idea**

“Responding to the Main idea” is where students have a chance to respond to the ideas and make connections to the main idea. This is where questions need to be incorporated that stem from your goals, which are derived from the guidelines of the conceptual framework.

### **Closing**

The “Closing” is the time when all the ideas of the activity come back together. Ferguson (2008) notes that this time in the activity is also for the “celebration of what has been learned” (p. 64). Close session with prayer and goodbyes.

### **Follow-up Session/Reflection**

This is time to evaluate students’ progress throughout the session. Look back at the outcomes that you described in the beginning and test ways to show your students understanding of those objectives. “The Wonder of Wonder” sample activity shows objectives for understanding the steps and processes of the water cycle and the awe and wonder in how and why water moves. These are both similar questions and the follow-up suggests to have students experience a process of the cycle (i.e. rain event, making condensation, freezing water). Then have them independently reflect on what they observed, describing the process that God created, and how it made them feel about God.