



# Seeking Consilience: A Theologian and a Scientist Discuss the Problem of Bottled Water

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Theologians are regularly engaged in interdisciplinary conversations: systematic theologians with theological historians, biblical scholars with homiletics, and so forth. We less frequently have significant discussions with scholars and researchers in other academies, such as political scientists, sociologists, literary scholars, or scientists. The conversation that follows is born of several discussions that took place between a pastor/theologian and a professor/researcher in chemistry. Our goal is to consider both theologically and scientifically what we jointly feel is a growing problem in American culture: the ubiquitous use of water packaged for individual use in plastic bottles.

The term “consilience” is foreign to the theological lexicon. The average pastor is likely not to have encountered it. It has not even made it into the *New Oxford American Dictionary*. However, consilience is a well-known term in the sciences. It became standardized as a scientific term by Edward Osborne Wilson, a biologist and author of *Consilience: The Unity of Knowledge* (Knopf, 1998). The term refers to the understanding that each branch of knowledge engages in the study of a subset of reality and that full understanding depends on factors studied in other branches of inquiry. Our present conversation seeks consilience. In other words,

*Just because we can make, buy, and use plastic water bottles does not mean that we should. The reasons to refrain have to do with both community and ecology, but also with the theological significance of water in biblical faith.*

we intend to discuss the problem of the overuse of plastic water bottles from both a theological and a scientific perspective in order to develop a fuller understanding of the issue.

We hope that readers who overhear our discussion will gain a broader awareness of the problematic use of bottled water. As a pastor and seminary professor, Clay is the theologian in this conversation (designated by T). The other conversation partner is a scientist and college professor, Chris (designated as S), who is also a faithful Christian, believing in God's creation and care for the universe.

## THE CONVERSATION

**T:** I am troubled by a growing problem in American churches and in other places where people speak publicly. Let me offer a vignette to articulate my concern:

The preacher steps up to the pulpit. On one corner stands a plastic bottle of water, with its clean little label and its ergonomically designed shape. It has been provided by an unseen hand, one of the servants who work quietly behind the scenes to make sure that everything proceeds well in worship. The placement of the water bottle is an act of hospitality and generosity. In former days, a glass of simple, free tap water would have been in its place. Now, something dearer is available, and, regardless of the additional cost, it is procured and presented to the speaker. The bottle is there out of a concern for the health and vitality of the person called upon to proclaim the gospel of Christ.

Somewhere during the sermon, the preacher feels a gentle need for a sip of water—something to bathe the mouth, refresh the throat, and rejuvenate the body. Her words have become crisp, the tongue tacky, the lips dry and inarticulate. She reaches for the bottle, accepting the hospitable gesture. She grasps the bottle with one hand and gently twists the bottle top with the other, breaking its seal. The slight tug of the breaking plastic assures her that the water is fresh, clean, untainted, and entirely for her personal use. She removes the top, tips the bottle against her lips, and leans her head back. Gravity pulls the sweet water into her mouth.

It takes some time for the preacher to swig from the bottle. And I do mean “swig,” with the head thrown out of posture and the liquid cascading into her throat. While she drinks, the congregation watches—and it waits. To sip from a glass is a quick, almost unnoticeable act of a speaker. To swig from a plastic bottle takes a bit of time. Every pause in preaching speaks a nonverbal message. The pause to open and drink from a plastic bottle sends a number of messages, some of which speak to the hospitality of the gift while others contradict the preacher's purpose. The two-fisted action draws attention to itself and distracts from the movement of the preacher's message.

**S:** The human body needs water—lots of it. At one level, the hospitable act of giving the preacher clean water to drink is a good thing. Yet, I understand the aesthetic issue that concerns you—it's jarring. Someone in the audience is likely to reflect on

the similarity of this gesture to swigging a Coke or a beer on a hot afternoon. So, the plastic bottle creates a rhetorical problem. It interferes with the preacher's communication. But I suspect there are also some deeper theological issues that bother you. What are they?

T: Some of the theological issues are positive: hospitality, generosity, and honoring the feet and voice of the one who brings good news. But others are problematic, and in fact theologically contrary to the message that the preacher hopes to bring. Drinking from a plastic bottle raises a number of concerns. First, there is the function of turning God's most gracious, plentiful, and free material gift into a commodity that has to be individually packaged and purchased. What was intended as a grace-filled gift to all humanity has become a commercial product.

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S: I understand that you are concerned about the theology of water and water use—especially the water bottle—but as a scientist and an environmentally concerned citizen, my concerns are a bit more earthly. We all know that almost all of these plastic bottles are now made from oil, a nonrenewable fossil fuel. So using it for plastic bottles means that we may not have the oil for other uses and, more important, our children and grandchildren will not have the oil for purposes yet to be invented. I also know that much of that oil is imported, some from countries where the citizens don't like us very much. Indeed, some of those folks have tried (and lamentably succeeded) to kill many of our fellow Americans. So our consumption of oil funds their capacity for exporting terrorism. That is not good for any of us. We also recognize that packaging and transporting all that water by truck uses even more oil. Now, I don't have hard numbers on the amount of oil that is used, but using any amount seems like a waste in a country that has safe, highly regulated, and frequently tested water readily available from a domestic tap. I am pleased to see some restaurants putting up signs that proclaim tap water as the "greener" alternative.

T: That is a strong point, and it is not merely an environmental one. It is also a theological issue relating to our stewardship of the earth.

S: Yes, we are too quick to substitute technology for stewardship. Now don't get me wrong. As a scientist, I recognize the incredible positive impact of science and technology on our lives and would surely not want to live in the 1700s or the 1800s. Life for the ordinary person in those eras was rather short and quite difficult. Nevertheless, the Bible and environmental understanding both point us toward being good stewards of the gifts of creation. Just because we *can* do something (like buy a case of

bottled water) does not mean we should, and that is a difficult idea for our materialistic culture to grasp. Perhaps this interface between technology and stewardship centered on reflections upon a simple water bottle is where the idea of consilience can gain traction and enlighten members of the church.

T: Another of the issues relating to the stewardship of God's resources is what the proliferation of plastic is doing to garbage dumps and to the world's oceans. I hear about two problems: the length of time it takes for certain plastics to decompose in the earth, and the astonishing problem of the so-called "Great Pacific Garbage Patch." Can you tell us about plastics and what happens when they are discarded?

S: Well, you are absolutely right. The most recently published data show that about five billion pounds of plastic bottles are produced each year in our country but only about one-third are recycled.<sup>1</sup> When those bottles end up buried in landfills they decompose very slowly; indeed, scientific studies show only about 0.2% decomposition after ten years.<sup>2</sup> It is worth remembering that companies manufacture these bottles to be inert so they will not react with the soda, juice, or water contents or decompose if accidentally left sitting in the sunshine of a hot car for a month.

T: And what about plastics that end up in the oceans? Can you tell us about the so-called "Garbage Patch" in the Pacific?

S: Ah yes, the combination of surface winds and the ocean currents create a vortex in the northern Pacific Ocean.<sup>3</sup> The action of the wind drives flotsam of every kind together in a large, floating mass commonly called the "Great Pacific Garbage Patch." It is not a solid mass of garbage material, but a sprawling web of plastics and other debris that covers a huge area. Some estimates place it at the size of Texas. It is hard to gauge its actual size because much of the plastic debris is small and hard to see. Over time, the sun and the waves break the plastic into smaller pieces that float upon the water, but also suspend in the upper layer of ocean water. The pieces are small enough for fish to ingest. While this plastic is largely inert, it does absorb chemical pollutants from near coastal areas and transports them to these more pristine locations.<sup>4</sup> The problem this creates is not merely the visible problem of garbage floating on the sea. When fish ingest the plastic, the pollutants can accumulate and become a human problem when we catch and eat those fish.

The "Garbage Patch" is not merely a Pacific Ocean problem. There are also patches in the Atlantic and Indian Oceans and likely in many other places. This is another of the great problems that result from our overuse of plastic and our failure to dispose of it responsibly.

<sup>1</sup>B. Halford, "A New Life for Soda Bottles," *Chemical and Engineering News* 89/38 (September 2011) 30.

<sup>2</sup>P. Roy et al., "Degradable Polyethylene: Fantasy or Reality?" *Environmental Science & Technology* 45/10 (May 2011) 4217–4227.

<sup>3</sup>R. Day and D. Shaw, "Pattern in the Abundance of Pelagic Plastic and Tar in the North Pacific Ocean, 1976–1985," *Marine Pollution Bulletin* 18/6 (June 1987) 311–316.

<sup>4</sup>P. Roy, "Degradable Polyethylene," 4223.

T: I notice on the plastic bottles that we buy, whether for water, soda, or detergent, that there are some markings that indicate the type of plastic and give us guidance about what can be recycled. Can you explain that?

S: My “green” friends point to the little triangle with the recycle number in the center and say, “These bottles get recycled. What’s the problem?” Indeed, the ones with numbers 1 and 2 can readily be recycled, but I was amazed to learn from data published by the EPA in 2009 that less than 30% of the PET (polyethylene terephthalate, #1) and HDPE (high density polyethylene, #2) bottles actually do get recycled. Do you realize the same study showed that 50% of the aluminum cans and 60% of yard trimmings (yes, yard trimmings) as well as more than 90% of auto batteries get recycled? Unfortunately, very little—if any—of the other plastics like polyvinyl chloride, PVC (#3); low density polyethylene, LDPE (#4); polypropylene, PP (#5); and polystyrene, PS (#6) gets recycled.<sup>5</sup> That is not good, but the story is even worse. At the same time, people are constantly using these plastic containers to reheat food in microwave ovens, a process that may result in the plastic’s decomposition and release of chemicals into the food.<sup>6</sup> That cannot be healthy, especially for vulnerable populations like young children. Unfortunately, people don’t think about that possibility because it is just so convenient.

T: So, is recycling a waste of time or should we simply redouble our efforts in recycling plastics, especially if we are using bottled water?

S: Recycling is certainly not a waste of time and should be encouraged, but recycling only deals with one aspect of “being a good steward.” I believe stewardship involves other theological issues that we should be concerned about.

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T: Yes, another theological issue is making use of water in such a way that it works against God’s intention for water to be the material element that signifies belonging and supports human community. God chose water as the symbol for baptism. It is through the water rite that people are initiated into the body of Christ. Water is a symbol that represents leaving our individual and selfish concerns behind to become part of the community of faith. In baptism, we do not lose personal identity, but we do invest our identity with a new dimension. We become God’s people and commit ourselves to a life of service to others. The act of drinking from a common

<sup>5</sup>National Geographic, *National Geographic’s Strange Days on Planet Earth*, hosted by Edward Norton (2008), DVD.

<sup>6</sup>M. Bomgardner, “Taking It Back,” *Chemical and Engineering News* 89/31 (August 2011) 13–17.

cup or drawing from a common well reinforces the symbolic use of water as a sign of community. We might recall the words of the prophet in Isa 12:3, “With joy you will draw water from the well of salvation,” or the story in John 4:1–42 of Jesus sharing conversation with the Samaritan woman by the community well. Plastic bottles of water undermine the biblical use of water as a theological symbol. Their use points away from belonging and communal identity toward a sense of individuation and privilege. Some people can afford privately packaged water. Others cannot.

**S:** The issue of water serving as a biblical sign of community reminds me of another significant scientific issue. The convenient use of plastic water bottles masks an insidious problem that environmentalists call the “inverted quarantine.” All of us are familiar with the concept of the quarantine—where we agree as a community to sequester those who are sick so they don’t share their disease with others, thus protecting the public welfare. The problem arises when we buy water in plastic bottles. In doing so, we are implicitly acting as if the available tap water is not safe. When we try to protect ourselves by buying bottled water, we are, in essence, putting ourselves in quarantine.<sup>7</sup> The difference is that rather than using our influence to advocate for safe water supplies (if we indeed believe the available ones are unsafe)—thus protecting the public welfare and building community—we are instead using our wealth and convenience to provide a barrier against the “unsafe” larger society. This delusion is not good at any level. One can see the consequences of the “inverted quarantine” play out if you read about the food and water supplies in China, where the wealthy and the elite have separate supply systems not available to the average citizen.<sup>8</sup>

**T:** So clearly, the overuse of plastic water bottles is a complex problem and will involve complex solutions. On a simple level, we can encourage churches to care for their preachers and speakers by giving them glasses of water drawn from a filtered tap source. It is just as refreshing, and it avoids some of the rhetorical problems that arise when we say one thing and then undermine the message with our actions. We can also reinforce the biblical intention that water be used as a sign of baptism and faithfulness. Our worship can incorporate moments of baptismal remembrance, rites that celebrate water as God’s chosen element. These are the easy things to do, and they can be done by any congregation made aware of the issue. But what are the solutions to the ecological problems? How can we clean up our planet and reduce our consumption of plastics?

**S:** I would offer two suggestions: First, “think globally; act locally.” Recognize that our everyday decisions have consequences and our decisions should be consistent

<sup>7</sup>A. Szasz, “The Dangerous Delusions of ‘Inverted Quarantine,’” *Chronicle of Higher Education* 54/20 (January 2008) B12–B13.

<sup>8</sup>Barbara Demick, “In China, What You Eat Tells Who You Are,” *Los Angeles Times*, September 16, 2011; online at <http://articles.latimes.com/2011/sep/16/world/la-fg-china-elite-farm-20110917> (accessed November 7, 2011).

with our values, both theological and environmental. Second, “use less.” Choose to make a smaller footprint on all the resources of the planet. After all, that was the original meaning of conservation.

**T and S:** We are not sure we have reached consilience on this issue, but we hope that we have raised awareness about a problem that both the church and the scientific community should care about deeply. We pray that the church can be a strong voice in advocating for a clean planet and the responsible use of our resources. While we are made to have dominion over the earth (as Gen 1 makes clear), we should have no choice but to be thoughtful stewards of all that God has given us—whether water, oil, or plastic. ⊕

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