

**Belgrade Lakes, Maine:**

**The History of a Summer Community and its Effect on the Environment**

**(1774 - 2009)**

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America's Environmental Histories

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It's Sunday morning on Great Pond, and Maine's summer is at its peak. The air is cool and fresh with dew, but the heat will come. The sun rises slowly into the soft blue sky, sending its rays sparkling across the water. Their reflections dance on the camp's wooden walls to a joyous summer waltz, mingling with the shadows of the porch rocking chairs. The air smells of coffee, pine, and warm sunlight and the only sounds are the morning greetings of the birds and the rhythmic lapping of the lake on the shoreline rocks. In town, people arrive slowly in their boats, putting up quietly to the docks in the Belgrade stream in search of coffee from the Lazy Lab Cafe or fresh doughnuts from Day's Store. Young children in orange lifejackets scamper barefoot across the street, eager to get back on the water for the day of fishing and swimming that waits. Standing at the dam that separates Great from Long Pond and looking back through Belgrade Lakes allows for an interesting perspective. On the surface, little has changed since the community's beginnings 150 years ago<sup>1</sup>. The road is now paved and no longer lined with elm trees, but the bustling contentment of a summer morning remains constant. People return here each year, beckoned back to the lakes for another summer spent in the Maine outdoors. A closer look, however, reveals the real story, and the immense changes that have occurred in the area. The summer community of Belgrade Lakes developed in the late nineteenth century in the context of the growing attraction to vacationing amidst the beauty of nature, a revolution in transportation, and the popular wilderness theories of the time. However, as an ever-increasing number of tourists have flocked to the Belgrades in recent years in search of nature and recreation, residential and commercial development continue to expand, degrading the lake environment and threatening the wilderness. The community's environmental history reveals the

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<sup>1</sup> Yeaton, Carl et al. *The Town of Belgrade, Past and Present: Pictures, Places, and People (1796-1996)*. (Belgrade, Maine: 1995), p. 6.

importance of the area's continued existence, and the ways in which it can be sustained over the long term.

Before the arrival of the first European settlers to Belgrade in 1774, Abenaki Indians inhabited the area. This hilly central Maine region was a wilderness of forests, wetlands, and lakes, used by the native groups for hunting and gathering. Although there is little known about the relationship between this Native American tribe and the settlers, it is understood that despite the friendly manner in which the Abenakis greeted their new neighbors, their kindness was not reciprocated. Violence resulted from the Abenakis' growing distrust of the white men, and led to the eventual evacuation of the tribe from the Belgrade region.<sup>2</sup>

By 1790, Belgrade's population was increasing at a rapid rate as more and more settlers arrived. Agriculture quickly grew to be the area's leading industry, with potatoes and apples as the primary crops in 1886.<sup>3</sup> The region's seven lakes supplied ample water power, allowing for the birth of a prosperous mill industry, with several grist and lumber mills providing additional sustenance for the economy. The region's principal mill and its associated spool factory were located at the dam between Great and Long Ponds, an area known first as Locke Mills. Over time, the narrow strip of land's name changed to Chandler Mills, then Belgrade Mills, and finally to Belgrade Lakes, which it continues to be known by today.<sup>4</sup> These frequent name changes are a good representative of the extreme evolution undergone by the community itself.

By the mid-1800s a new industry began to develop, one that would grow into a main source of economic revenue. Tourists (wealthy city-dwellers, for the most part) began to frequent

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<sup>2</sup> Belgrade Maine Community Website. *History of Belgrade*. (Belgrade, Maine: Town of Belgrade, 1999). <http://www.belgrademaine.com/history.html> (accessed 11/2/09).

<sup>3</sup> Belgrade Regional Conservation Alliance. *All Aboard for a Joy Ride: The Tourist Landscape of Belgrade Lakes, 1900 to 1930* (July 2, 2009).

<sup>4</sup> Bangor Daily News. *Belgrade Local Town History Centennial Projects Written by Students about their Communities*. (Bangor, Maine) May 30, 2000 (1).

Belgrade to spend time amidst the lakes, drawn to the beauty and recreation they afforded.<sup>5</sup> The region's topography of lakes and highlands created a wilderness haven that has been described as being "among the most satisfactory visions vouch-saved for us mere mortals."<sup>6</sup> This wonderful natural setting and the economic opportunities it afforded, however, have evolved into a situation of difficult irony. We "mere mortals" have been given the chance to enjoy this setting, and we have done so, with enthusiasm. But, the ways in which this has occurred have begun to bring about the destruction of this beauty which so many of us hold in our hearts. The struggle that we face today is finding a way to enjoy the nature of the Belgrade Lakes in a way that does not cause them any harm.

There are three principle reasons for Belgrade's transformation into an important tourist destination. First, it was during this time in history that the United States' popular wilderness views underwent a drastic transition.<sup>7</sup> As the Western frontier declined, people began to appreciate the beauty of nature as they realized its status as a finite resource. According to Roderick Nash in *Wilderness and the American Mind*, "by the 1890s sufficient change had occurred in American life and thought to make possible a reaction against the previous condemnation of wilderness [...] The average citizen could approach wilderness with the viewpoint of the vacationer rather than the conqueror. Specifically, the qualities of solitude and hardship that had intimidated many pioneers were likely to be magnetically attractive to their city-dwelling grandchildren."<sup>8</sup> Americans began to appreciate wilderness in a manner that challenged but never fully overcame the desire to conquer nature. A key transformation had

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<sup>5</sup> Bangor Daily News, *Belgrade Local Town History* (1).

<sup>6</sup> Nutting, Wallace. *Maine Beautiful*. (Garden City, New York: Garden City Publishing Co., Inc.) 1935. Stacks, Maine Historical Society (250).

<sup>7</sup> Nash, Roderick Fraiser. *Wilderness and the American Mind*. Fourth edition. (New Haven, Connecticut: Yale University Press) 2001 (46).

<sup>8</sup> Nash, *Wilderness and the American Mind*, 143.

taken place, however, and the qualities of wilderness that people once feared became recognized as essential components of the American experience. Citizens seized elements such as the log cabin to describe an American character that was “manly, honest, and fair-minded”<sup>9</sup> and acted on the urging of figures such as Theodore Roosevelt, Henry David Thoreau, and John Muir to explore nature with renewed zeal and learn to appreciate its distinct power.

In addition to the change in wilderness perception, a transportation revolution that resulted from the introduction of the railroad and the automobile in the United States changed the landscape of Belgrade Lakes. In 1849 the Maine Central Railroad added a stop at the Belgrade Depot, which increased the region’s accessibility and allowed people from all over New England, New York, and as far away as the West to visit the area.<sup>10</sup> During the late 1800s summer camps gained popularity as well, with several sprouting up in prime locations around the Belgrade lakes. These camps gave young boys and girls the opportunity to “escape from urban life and overcome the ills of contemporary society” by “helping youths experience a more primitive life.”<sup>11</sup> They became so popular that by the beginning of twentieth century railroads had introduced special trains to ferry the children up to the camps in the Belgrade Lakes region each summer.<sup>12</sup>

The automobile, however, was the most instrumental transportation advancement that contributed to Belgrade’s transition into a summer community. The growing popularity and availability of the family car allowed people to visit the area whenever they wanted to and

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<sup>9</sup> Gilborn, Craig. *Adirondack Camps: Homes Away from Home, 1850—1950*. (New York: Syracuse University Press) 2000 (12).

<sup>10</sup> BRCA, *All Aboard for a Joy Ride*. 2009.

<sup>11</sup> Kanes, Candice. *Summer Camps*. Maine Historical Society: Maine Memory Network Exhibit. <<http://www.mainememory.net/bin/Features?fn=66&fmt=list&n=1&supst=Exhibits&mr=all>> (accessed 23 November 2009).

<sup>12</sup> BRCA, *All Aboard for a Joy Ride*. 2009.

enabled them to drive directly down to the lakeshores in remote areas.<sup>13</sup> Belgrade's accessible location between the cities of Augusta and Waterville, as well as its development into a prime recreational and residential area, encouraged the residents of these cities to buy shorefront properties as the town's popularity increased.<sup>14</sup>

The final major contributors to Belgrade's rise in tourism were the popular wilderness ideals that were growing in the United States during this time. In the late nineteenth century Theodore Roosevelt's strenuous life movement was gaining momentum, and people were encouraged and inspired to take to the outdoors and engage in activities such as fishing, hunting, swimming, sailing, boating, baseball, tennis, golf, and hiking.<sup>15</sup> Landscape architect Frederick Law Olmsted encouraged people to spend time in the outdoors as an escape from the stress of everyday life, for it was a place of peace and tranquility where man could return to a state of virility. Olmsted and his followers worried about the continuous decline in green spaces, and believed that "if areas were not provided where people could find the glories of nature, serious mental disorders might result."<sup>16</sup>

John Muir, an early environmental activist and the founder of the Sierra Club, added an additional perspective to the wilderness ideas of the time by bringing together ideas from nature and religion. Muir believed that nature was the perfect place in which to feel the presence of the divine, and supported the idea that "the clearest way into the Universe is through a forest wilderness."<sup>17</sup> His ideas rapidly gained popularity and contributed to the growing support for the

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<sup>13</sup> BRCA, *All Aboard for a Joy Ride*, 2009.

<sup>14</sup> Colby, George N. *Atlas of the State of Maine, including statistics, descriptive history, educational system, geology, railroads, natural resources, summer resorts, and manufacturing interests*. (Houlton, Maine: 188), p. 917.

<sup>15</sup> BRCA, *All Aboard for a Joy Ride*, 2009.

<sup>16</sup> Nash, *Wilderness and the American Mind* (106).

<sup>17</sup> Nash, *Wilderness and the American Mind* (126).

wilderness experience. The presence of religion in the wilderness movement was visible in Belgrade Lakes' Seventh Day Adventist campground, which was located adjacent to the Belgrade Depot and thereby served as a draw to the area for religious-minded families and individuals who sought divine power in the outdoors.<sup>18</sup>

The evidence of human impact in the Belgrade Lakes region has made it obvious that “like an increasing number of our natural resources, those lakes are on their way to being loved to death.”<sup>19</sup> The tourists who visited the Belgrade region were predominantly middle and upper-middle-class citizens and their demand for summer amenities resulted in the construction of a number of high quality hotels, camps, and inns during the early 20<sup>th</sup> century.<sup>20</sup> As more and more people flocked to the lakes during the summer months in search of nature, relaxation, and rejuvenation, the area gradually developed and the landscape began to change. By the 1930s, the once once-abundant farms that bordered Great Pond grew less and less common as farmers sold off their land to be subdivided and developed into lakeshore cabins.<sup>21</sup> The spool mill at Belgrade Lakes closed as well, and residents of the area began to depend mainly on tourism or employment in neighboring towns and cities for a source of income.<sup>22</sup> The construction of roads, summer cabins, and tourist amenities, along with the increased usage of the land in the Great Pond watershed, contributed to a decline in the lake's environmental condition. The increase in development has especially affected the area around Great Pond. This watershed, or “the land from which water drains into a specific body of water,” consists of five of the Belgrade lakes.<sup>23</sup>

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<sup>18</sup> BRCA, *All Aboard for a Joy Ride*, 2009.

<sup>19</sup> Morning Sentinel Opinion Page, 2009

<sup>20</sup> Maine Sunday Telegram. *Belgrade Lakes Area Offers Fishing, Boating, and Scenery*. August 25, 1957.

<sup>21</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (12).

<sup>22</sup> Bangor Daily News *Belgrade Local Town History* (1).

<sup>23</sup> Kallin, Peter L. *The Belgrade Lakes Watershed*. (Belgrade Lakes, Maine: Belgrade

Great Pond is the fifth lake in the chain, receiving water from North Pond, East Pond, Salmon Lake, and McGrath Pond, and draining into Long Pond at the dam in Belgrade Lakes.<sup>24</sup> It is also the largest lake of the Belgrades, with a surface area of 8,186 acres, a maximum depth of 69 feet and an average depth of 19.5 feet.<sup>25</sup> The watershed covers 29,067 acres (45.4 square miles) and includes the towns of Belgrade, Rome, Mercer, and Smithfield.<sup>26</sup>

Three characteristics determine a lake's water quality: phosphorus, dissolved oxygen, and water clarity. Phosphorus is the limiting nutrient in freshwater systems, and is therefore seen as the most significant.<sup>27</sup> In other words, phosphorus is essential for plant (algae) growth but only very small quantities occur naturally in the average lake. Therefore, any additional influx of this chemical negatively affects aquatic ecosystems and often results in the growth of an algal bloom. Great Pond is mesotrophic, which means that it contains a medium amount of nutrients and algae, and has an intermediate amount of plankton production.<sup>28</sup> In general, a phosphorus level in a lake greater than 12 parts per billion (ppb) is considered to be enough to produce a nuisance algal bloom, but there are a number of other factors to take into account when interpreting such measurements, including the structure of the lake, the terrain of the watershed, and the level of

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Regional Conservation Alliance) October 2007 (slide 6).

<sup>24</sup> Belgrade Regional Conservation Alliance, Maine Department of Environmental Protection, U.S. Environmental Protection Agency. *Long Pond Watershed-Based Management Plan*. (Portland, Maine: F.B. Environmental Associates, Inc.) November, 2009 (15).

<sup>25</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (15).

<sup>26</sup> Belgrade Regional Conservation Alliance. *Great Pond Watershed Protection Plan*. (Belgrade Lakes, Maine: 2000), p. 26.

<sup>27</sup> Colby College, Department of Biology. *Land Use Patterns in Relation to Water Quality in the Great Pond Watershed*. Problems in Environmental Science Course BI 493. (Waterville, Maine: 1999), p. 10.

<sup>28</sup> Kevern, Niles R., Darrell L. King, Robert King. *Lake Classification Systems, Part I. The Michigan Riparian: Michigan Lake and Stream Associations*. February 1996.

<<http://www.mlsa.org/lkclassifl.htm>> (accessed: 11/22/09).



development in the surrounding area.<sup>29</sup> In 2000, Great Pond, which has never had an algal bloom, had an average phosphorus level of 10 ppb. Though this is the lowest measurement of all the Belgrade lakes, it been rapidly increasing. From 1970 (when this data began to be recorded) until 2000, Great Pond's phosphorus level doubled, and it is projected continue on this rapid growth trend in the near future.<sup>30</sup>

Phosphorus growth in turn, has an effect on dissolved oxygen, or the amount of gaseous oxygen present in a body of water.<sup>31</sup> Dissolved oxygen is a key factor in determining the health of fish and other aquatic organisms, and a level of less than 5 parts per million (ppm) generates severe stress for the ecosystem.<sup>32</sup> During the summer months, 14 to 25 percent of the water in Great Pond has low dissolved oxygen, with the smallest amounts recorded in the hypolimnion, or deepest part of the lake.<sup>33</sup> Low dissolved oxygen is also dangerous for a lake for when levels drop below 1 ppm in thermally stratified lakes, the lake reacts to the stress by beginning a pattern known as internal phosphorus cycling.<sup>34</sup> When a lake is stressed from lack of dissolved oxygen in the hypolimnion, the system releases the phosphorus stored in its sediments to supply nutrients to feed the algae.<sup>35</sup> This sudden influx of phosphorus spurs rapid algae growth, which eats up all the nutrients in the water, causing a massive die off of the algae. As the algal bloom decomposes, it uses up all the remaining dissolved oxygen in the water, continuing the vicious cycle by triggering another phosphorus release. Luckily, Great Pond has a flushing rate of .43 times per year and therefore enough turnover so that internal phosphorus release is not an immediate

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<sup>29</sup> BRCA, *Great Pond Watershed Protection Plan* (27).

<sup>30</sup> BRCA, *Great Pond Watershed Protection Plan* (28).

<sup>31</sup> Colby College, *Land Use Patterns* (78).

<sup>32</sup> BRCA, *Great Pond Watershed Protection Plan* (29).

<sup>33</sup> Bouchard, Roy. *Belgrade Lakes: Status and Trends*. (State of Maine Department of Environmental Protection Bureau of Land and Water Quality). 2007 (slide 7).

<sup>34</sup> BRCA, *Great Pond Watershed Protection Plan* (29).

<sup>35</sup> BRCA, *Great Pond Watershed Protection Plan* (29).

threat. However, the lake's dissolved oxygen levels are low enough that they pose danger for the coldwater fish species, which are an important draw for many recreational tourists.<sup>36</sup>

Water clarity is the final important indicator of a water body's quality. It is measured using a secchi test, which consists of lowering a black and white disk into the water and recording its depth when the colors are no longer visible.<sup>37</sup> In Maine, where the average water clarity is 16.1 feet (4.9 meters), a reading of less than two meters is a dangerous sign and a good indication of an algal bloom.<sup>38</sup> Great Pond however, has a very high average clarity of 21.6 feet, whereas other lakes in the watershed, such as East Pond, have troubles with nuisance algal blooms, and therefore have much lower readings, in the range of 11.5 feet<sup>39</sup>. The drastic differences between the lakes in Great Pond watershed can be attributed to their different topographic characteristics, including their depth, flushing rate, and amount of shoreline development.

There are a number of root causes contributing to the decline in Great Pond's water quality. The over-arching cause is simply development, or human impact on the land. The state of Maine considers Belgrade to be a "high growth town," with a population that increased 163 percent during the years from 1970 to 1999. The other towns in the Great Pond watershed fall into this category and have experienced similar increases as well; Rome grew by 150 percent, Mercer by 100 percent, and Smithfield by 64 percent.<sup>40</sup> Most of the watershed is undeveloped, consisting in the year 2000 of 76.6 percent forested land, 9.6 percent cleared land, 7 percent

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<sup>36</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (15,16).

<sup>37</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (16).

<sup>38</sup> BRCA, *Great Pond Watershed Protection Plan* (28).

<sup>39</sup> BRCA, *Great Pond Watershed Protection Plan* (29).

<sup>40</sup> BRCA, *Great Pond Watershed Protection Plan* (30).

wetlands, and 1.4 percent industrial or municipal lands.<sup>41</sup> It is important to note, however, that the majority of the development in the watershed occurs in close proximity to the lakes, with 74 percent of Great Pond's shores listed as developed.<sup>42</sup> In recent years all seven of the Belgrade lakes have been placed on Maine's list of water bodies most at risk from development.<sup>43</sup>

One of the effects of a high development rate is nonpoint source pollution, or pollution that comes from a number of different locations and cannot be traced back to a single source.<sup>44</sup> As humans change the shoreline from a natural to a disturbed environment by constructing summer homes and developing the lakeshore, the direct relationship between increased development and negative environmental consequences is slowly revealed.<sup>45</sup> Transforming the natural lakeside habitat into a camp or other structure, whether commercial or private, increases nonpoint source pollution. This idea is evident in a survey completed in 2009 for the Long Pond Watershed-Based Management Plan, which found that 70 percent of residences on the Long Pond shoreline were sources of nonpoint source pollution.<sup>46</sup> The removal of natural buffers means more erosion from the land, less protective cover for fish, declined habitat for birds, insects, and invertebrates, as well as higher water temperatures, which negatively affect aquatic organisms.<sup>47</sup> In his work, *Belgrade Lakes: Status and Trends*, Roy Bouchard estimated that changing natural forests or fields found along the shoreline to residential lots (without

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<sup>41</sup> BRCA, *Great Pond Watershed Protection Plan* (29) and BRCA et al, *Long Pond Watershed-Based Management Plan* (26).

<sup>42</sup> BRCA, *Great Pond Watershed Protection Plan* (27).

<sup>43</sup> Morning Sentinel, *Towns Need Joint Effort for Belgrade Lakes*. Morning Sentinel Opinion Page. September 17, 2008.

<sup>44</sup> Maine Nonpoint Education for Municipal Officials. *Linking Land Use to Water Quality*. Maine: Partnership for Environmental Technology Education, 2007. <<http://www.mainenemo.org/publication/NEMOfact2.pdf>>. 10/20/09.

<sup>45</sup> Bouchard, *Status and Trends* (14).

<sup>46</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (16).

<sup>47</sup> Bouchard, *Status and Trends* (8).

implementing any protective measures) increases the phosphorus load to a lake by five to ten times.<sup>48</sup> Evidence of this can be seen in increasing amounts of algal blooms, declining water clarity, and changes in aquatic species composition. The construction of impervious surfaces, such as roads, roofs, and driveways, that result from development are especially dangerous to the lake environment. These smooth surfaces allow for easy runoff of eroded soil, fertilizers, pesticides, road salt, motor oil, grass clippings, human waste (from leaking septic systems), and pet waste.<sup>49</sup> All of these pollutants carry phosphorus and are important contributing sources to the decline in lake water quality.

Invasive species are also a threat to the water quality in the Belgrade Lakes. Eurasian watermilfoil, a rooted, aquatic weed common to many lake and stream ecosystems, is a particular problem in the area.<sup>50</sup> There are five species of milfoil native to Maine, but two non-native species, variable leaf watermilfoil and Eurasian watermilfoil have invaded the state. These plants are dangerous because of their ability to spread rapidly. Like most aquatic plants, they reproduce by fragmentation, forming new plants when a piece breaks off in the water.<sup>51</sup> Invasive watermilfoils are highly prolific, particularly those of the Eurasian variety, and continue to reproduce without ceasing, choking out native species and disrupting ecosystems.<sup>52</sup> In August 2008, private homeowners discovered Eurasian watermilfoil in Salmon Lake, which flows into Great Pond through an outlet in Hatch Cove. As of recent, the spread is under control, but its entry into Great Pond would be devastating for the community, and have severe repercussions in economic, environmental, and aesthetic areas. This issue is tightly connected with growing

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<sup>48</sup> Bouchard, *Status and Trends* (11).

<sup>49</sup> Kallin, *The Belgrade Lakes Watershed* (17).

<sup>50</sup> Lakes Environmental Association. "Milfoil and Other Invasive Aquatic Plants in Maine." Bridgton, Maine 2009. <<http://www.mainelakes.org/milfoil.htm>>. 12/13/09.

<sup>51</sup> Lakes Environmental Association, 2009.

<sup>52</sup> Lakes Environmental Association, 2009.

development because as increasing numbers of people come to vacation in the area, foreign species often come with them, entering the water on the bottoms of their boats.

As a summer community, Belgrade Lakes is culturally significant. As Tore Bjerke and his colleagues have argued about cabin life in Norway, “most people who acquire a second home do so in order to achieve some aspects or dimensions of a lifestyle that are not offered in their primary home or ‘ordinary’ life.”<sup>53</sup> The Norwegian study also found that the principal reasons for taking a vacation in nature or purchasing a second home in a rural area include access to outdoors recreation activities, relaxation, a place to be in contact with nature, and the chance to experience something that regular life does not offer.<sup>54</sup> The Belgrade Lakes region is an example of this summer home culture. The area is full of beautiful, natural sights that allow people who live in a more populated, developed area a chance to enjoy the outdoors.

Spending time in nature also provides humans with a number of mental benefits. Cabin life allows for recovery from the stress of everyday life, letting people focus on relaxation and restoration of the mind. Several theories exist that explain the restorative and stress-reducing effects of the environment, most importantly, attention restorative theory (ART), which states that that the natural environment has the capacity to restore strong mental processes after exhaustion resulting from continuous directed attention.<sup>55</sup> These studies link back to Frederick Law Olmstead’s theories from the early 20<sup>th</sup> century and demonstrate the continued beliefs about the importance of nature in everyday life. A 1999 study conducted by Ulrich et al. also found a strong correlation between stress relief and time spent in natural, rather than urban

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<sup>53</sup> Bjerke et al. “Cabin Life: Restorative and Affective Aspects.” From McIntyre, Norman, Daniel Williams, Kevin McHugh, eds. *Multiple Dwelling and Tourism: Negotiating Place, Home, and Identity* (Oxford, UK: CAB International) October, 2006 (88).

<sup>54</sup> Bjerke et al, *Multiple Dwelling and Tourism* (95).

<sup>55</sup> Bjerke et al, *Multiple Dwelling and Tourism* (89).

environments.<sup>56</sup> Today, where people grow ever-increasingly busy with school, work, and life, natural places where one can go to escape the stress of everyday life are of incredible importance. Unfortunately, with an exponentially growing population and continuous development and expansion all across the United States, wilderness and nature have been becoming increasingly scarce. Growing income disparities and urbanization are also important factors in decreasing the amount of contact people have with the natural world.

This also reveals much information about the composition of many summer communities, both in the United States and elsewhere. The mental benefits gained from spending a summer in nature are wonderful, but they are hardly available to everyone. The socio-economic class dimensions of summer communities are fairly homogenous, for it is mostly those with the money to buy land and take time away from work, or those who have familial connections to these areas that have access to them. Growing income disparities and urbanization must also be considered, for they raise difficult questions about preservation of areas of natural beauty such as the Belgrade Lakes. The environment cannot be preserved without the will of the people, but people will have no care to preserve it if they do not have the opportunity to experience them. So many individuals do not have the chance to come in contact with nature by way of a summer community because they lack the funds to do so, which means they most likely will not support any form of protection legislation. A cycle is revealed here, one that links back to the idea of “loving nature to death.” In today’s world, in order to preserve an area, people must love it, and to love it they must experience it. But how can the area be experienced on a large scale without causing environmental damage? And how can it be ensured that people have an equal opportunity to enjoy such an area? These are important questions that will be grappled with far

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<sup>56</sup> Bjerke et al, *Multiple Dwelling and Tourism* (89).

into the future.

There are three equally important reasons for the continued preservation of summer communities for use in the long run. First, there are ecological reasons. Lakes are home to an incredible array of both aquatic and terrestrial organisms. For example, the Belgrade Lakes are the only areas in Maine that still contain mud puppies, a species of aquatic salamander.<sup>57</sup> The watershed is also home to bobcats, coyotes, moose, deer, mink, fisher, otter, ducks, loons, bald eagles, and osprey, as well as the painted turtles, which are a species of concern.<sup>58</sup> The extinction of one organism has drastic effects all across the ecosystem, often resulting in a trophic cascade. The destruction of the lake ecosystem would affect the terrestrial ecosystems in the area, which would then affect humans, and their physical and mental well-being.

The environmental consequences resulting from the increased development of the watershed are tightly linked to the economic reasons for sustaining the summer community in the Belgrades. The town of Belgrade depends on tourism to sustain its economy. Belgrade, in general is a “bedroom community”, with the majority of its inhabitants working in neighboring towns and the nearby cities of Augusta and Waterville.<sup>59</sup> The region’s wildlife and natural beauty are major draws to Belgrade Lakes, and without these features, people will be less inclined to visit the area. A drop in tourism would negatively affect the town economically, for those who do have small businesses in the area cater mainly to summer people, and a small amount of local residents. This leads to an ironic situation similar to the one previously discussed. The development of the Belgrade Lakes region promotes tourism, but destroys the environment, thus potentially destroying the tourist trade. The result is the need to strike a balance between

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<sup>57</sup> BRCA, *Great Pond Watershed Protection Plan* (29).

<sup>58</sup> *Great Pond Watershed Protection Plan* (29).

<sup>59</sup> Belgrade Community Website, 1999.

preserving the health of both the region's environment and economy.

The role Belgrade's environment plays in its economy can also be seen in situations concerning property taxes. The town receives many tax benefits from the payments of shorefront property taxes, and a decline in the lakes' water quality would reduce the value of these cabins and the property on which they exist, thereby reducing the town revenue and prosperity.<sup>60</sup> A study conducted by Michael et al. found that Maine's lakes are high risk for nutrient enrichment through a process known as cultural eutrophication. The health of a lake is usually judged by its trophic state, or "its ability to produce algae and other plants."<sup>61</sup> Trophic states depend on the amount of nutrients present in the lake; those with high nutrient levels are classified as eutrophic, those with moderate levels are mesotrophic, and those with low levels are oligotrophic.<sup>62</sup> 79 percent of Maine's lakes that cover an area greater than ten acres are mesotrophic and show evidence of increased nutrients due to human presence in the area, while 12 percent are eutrophic, and nine percent are oligotrophic.<sup>63</sup> Michael et al. also discovered that water clarity plays a key role in determining property prices around the state of Maine, and that if cultural eutrophication continues to increase and water quality continues to decline, the cost of water changes will become greater and have a larger impact on property prices.<sup>64</sup>

Although not as easy to quantify as the environmental and economic impacts of the loss of the summer community of Belgrade Lakes, the aesthetic and personal reasons for maintaining the area are equally as important. Childhood ties to the region are one of the primary causes of

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<sup>60</sup> Michael, Holly J., Kevin J. Boyle, and Roy Bouchard. *Water Quality Affects Property Prices: A Case Study on Selected Maine Lakes*. (Maine Agriculture and Forest Experiment Station Miscellaneous Report 398: University of Maine). February 1996 (4).

<sup>61</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (19).

<sup>62</sup> Ramey, Vic. *Trophic States in Florida Lakes*. University of Florida, 2003. <<http://plants.ifas.ufl.edu/guide/trophstate.html#trophstates>>. 12/15/09.

<sup>63</sup> Michael et al, *Water Quality Affects Property Prices*, (4).

<sup>64</sup> Michael et al, *Water Quality Affects Property Prices* (14).



return to this area during the summertime. This connection, whether built by time spent at a family cabin, a summer camp, or a camp rented each year has grown over generations, and the area holds a lot of personal meaning for many of the summer people.<sup>65</sup> According to Kent Ryden, “When we go back to places in nature that we have known intimately and loved dearly, we find that we are still ourselves.”<sup>66</sup> This is an important element in the trend of returning visitors to Belgrade Lakes. After frequenting the area as a child, an attachment and sense of place develop, are serve as a major draw for adults to return with their children in hopes that they will acquire a similar passion for the place.

The continued impact made by people on the land and lake will only contribute to the destruction of the region’s natural beauty. Currently, there is a global debate on whether or not access should be limited to areas such as Belgrade in the name of preservation. It is painful to think about setting visitor quotas or closing any natural area off completely, but this question is rising up in areas of wildness and nature all across the world, leaving people wondering if it is possible to keep something wild with people living on and visiting the land. The best way to deal with this problem is to find a balance in the middle of the two extremes. That is, humans should be able to continue to use the land, but they should do so softly, and with caution. If measures of conservation are taken and the needs of the environment are considered on equal ground with human needs, the area’s beauty and nature can be sustained for many generations. This will not be an easy task, for the vast majority of Americans have the mindset that the human population should take precedence over the environment. What they do not seem to realize, however, it that

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<sup>65</sup> Paris, Leslie. *Children’s Nature: The Rise of the American Summer Camp*. (New York: New York University Press). 2008 (2).

<sup>66</sup> Ryden, Kent C. *Mapping the Invisible Landscape: Folklore, Writing, and a Sense of Place*. (Iowa City: The University of Iowa Press). 1993 (13).

many of our needs are the same—human beings cannot live a healthy life without a healthy environment.

There are, however, many people and organizations currently working in Belgrade Lakes to protect the environment and sustain the summer community. The Belgrade Lakes Association, and the Belgrade Regional Conservation Alliance are two local conservation organizations that have been instrumental in cleaning up the region and promoting sustainable behavior by all residents, whether they stay in Belgrade all year round, for the summer, for a week, or for several days. This year, these organizations have partnered up with the Maine Department of Environmental Protection, the Kennebec Country Soil and Water Conservation District and the United States Environmental Protection Agency to create a ten-year watershed-based management plan for Long and Great Ponds. The plan sets four primary goals: first, to achieve a stable or decreasing trophic state, second, to reduce phosphorus concentrations in the lakes by .3 to .4 parts per billion, third, to decrease the probability of late summer and early fall nuisance algal blooms, and fourth, to maintain a healthy coldwater fishery.<sup>67</sup>

Remediation, education, and cooperation are all key components for the successful achievement of these goals and the conservation of the Belgrade Lakes summer community.<sup>68</sup> Remediation will involve fixing the problems that already exist, for example, repairing eroding shorelines with riprap, planting vegetated buffers to slow runoff, or restoring dilapidated septic systems and roads.<sup>69</sup> This can be accomplished in part by the Belgrade Lakes Youth Conservation Corps. A sub-section of the Belgrade Regional Conservation Alliance, the Conservation Corps is made up of two five-person crews of local high school and college

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<sup>67</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (4).

<sup>68</sup> BRCA, *Great Pond Watershed Protection Plan* (7).

<sup>69</sup> BRCA, *Great Pond Watershed Protection Plan* (7).

students, two crew leaders, and a field supervisor, who implement erosion prevention measures during the summer months.<sup>70</sup> The program gives homeowners a free estimate of the work needed on their property, provides help choosing and ordering materials, and supplies free labor, all of which are encouraging motives for residents to protect the lakes and their property.

Education is a component that is tightly linked to remediation. The Belgrade Regional Conservation's Watershed Protection Program works using demonstrations, school programs, and media (signs, websites, newspaper columns, etc.) to provide residents with the information they need to protect the valuable resources of the lakes.<sup>71</sup> One of the principles of the 2009 Watershed Based Management Plan is to involve local school children in the effort to care for the lakes. Educating children allows them to take their new ideas home to their parents, who may become aware of the gravity of environmental degradation and take action in their own homes.<sup>72</sup> Another important education effort spearheaded in the area is the Maine DEP Lake Smart Program. Regionally led by the Belgrade Lakes Association, Lake Smart motivates residents to modify their behavior regarding the environment by providing educational information, positive examples, and incentives.<sup>73</sup>

Perhaps the most important of the three components is cooperation, for remediation and education cannot produce successful results without the involvement and collaboration of all the stakeholders. The state of Maine, Belgrade and its surrounding towns, local organizations, and individuals must all work together to bring about improvement in the current environmental situation and prevent problems in the future.<sup>74</sup> Everyone will have to be fully committed to a

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<sup>70</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (23).

<sup>71</sup> BRCA, *Great Pond Watershed Protection Plan* (7).

<sup>72</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (8).

<sup>73</sup> BRCA et al, *Long Pond Watershed-Based Management Plan* (24).

<sup>74</sup> BRCA, *Great Pond Watershed Protection Program* (7).

sustainable lifestyle for the continued existence of Belgrade as a summer community. Funding, of course, is a major impediment of this plan, for remediation, prevention, and education are all expensive. However, with the cooperation of all entities involved, this can be overcome, though it may require a shift in popular thought and a reorganization of priorities.

Belgrade Lake's evolution from an Abenaki village to a mill town to a summer community resulted in a drastic change of its environment through history. Beginning as a wilderness habitat, Belgrade transformed into a tourist destination because of American's growing appreciation of natural beauty, a revolution in transportation, and changing wilderness ideals. While clean, uninhabited nature still abounds in the area, the impact of human development has hurt the environment in ways visible in the lakes' rising phosphorus levels, and rapidly declining water clarity and dissolved oxygen levels. Though the wilderness environment of Belgrade Lakes is declining, it is not too late to reverse this trend. Local organizations and individual efforts have already made great strides in ameliorating existing damage, but much more work waits in the future. While the need for the Belgrade Lakes summer community's continued existence has ecologic, economic, and personal implications, it must be remembered that people and nature are inexplicably linked to each other. Human beings have an inherent need for contact with wildness, a need that grows stronger as people drift away from the outdoors. The results of this are the growing patterns of obesity, depression, and attention-deficit hyperactive disorder prevalent in both children and adults today.<sup>75</sup> With continued efforts to educate the human population on the important correlation between human and environmental health, people will hopefully understand that by working together the task of protection Belgrade can be

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<sup>75</sup> Louve, Richard. *The Last Child in the Woods: Saving our Children from Nature-Deficit Disorder*. Chapel Hill, North Carolina: Algonquin Books. 2008 (15).

accomplished. The summer community of Belgrade Lakes must be sustained, for Henry David Thoreau was right: “in wilderness lies the preservation of the world.”<sup>76</sup>

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