SENSE AND SUSTAINABILITY: AN ASSESSMENT OF SKIDMORE'S SUSTAINABLE DEVELOPMENT

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INTRODUCTION

Modern Environmentalism as a philosophy has become increasingly involute since its origin. As a movement it has had its accomplishments, but at a slow pace. Scientific evidence continues to pile upon itself, delivering the message that haste must be made: humans must reduce the effect that their current lifestyles have on the cohesive functioning of the planet, and soon. The problems we face today are countless. It is becoming clear with each record temperature, each natural disaster, and each extinct species, that we are not acting quickly enough or on a large enough scale. The efforts of the environmental movement are simply not saving the planet, nor adequately portraying the urgency and severity of the issue to outlying citizens. A recent Washington Post/ABC poll found that the percentage of Americans who think global warming is happening at all has dropped eight points in just the past year, and only 57% of poll respondents think there is evidence of warming.

Positive change is locked in a political, economic, social and environmental crisis (Speth 2010). Examining the cause for this stagnation is necessary, and examining possible solutions is critical. Movement from citizen's power political and economic change, and it is necessary to establish appropriate methods of inspiring support in this environmental endeavor. The basis for this support will be found in students of higher education. The importance of a university or college campus' sustainability is often underestimated, but a growing body of studies is starting to point out the obvious: universities churn out millions of students who eventually develop into professionals that further contribute to the development of their own societies (Alshuwaikhat 2008).

Institutions of higher education have begun to take ownership of this idea, and for the past two decades a steadily increasing number of universities and colleges have been taking "green" initiatives and making sustainable choices. Skidmore College is no exception to this emerging trend, but what have they done and how well have they succeeded? To understand Skidmore's current place in the field, we must first comprehend the growth of the movement as a whole. This movement began in the early 1990s with a number of declarations made at an

international level by the United Nations International Environmental Education Program (Wright 2004).

There were four declarations made between 1990 and 2000 that specifically related to sustainability and institutions of higher education. The first was The Talloires Declaration, 1990. This Declaration was the first official statement given by university administrators affirming a commitment to environmental sustainability in academe. Since 1990, signatories from around the world have increased from 20 to over 275 (Wright 2004). The next declaration was the Halifax Declaration, 1991, which emphasizes universities' moral obligation towards environmental sustainability (Wright 2004). It also offers an Action Plan for signatory universities to follow. This Plan outlines short and long-term goals for universities to work toward, as well as a specific framework for action. The Kyoto Declaration of 1993 challenges universities to promote environmental sustainability through both environmental education and physical operations (Wright 2004). The Thessaloniki Declaration, 1997, states that environmental sustainability must be clearly linked with population, poverty, food security, democracy, human rights, and a respect for traditional cultural and ecological knowledge, peace and health (Wright 2004).

The Lüneburg Declaration synthesizes the majority of declarations related to sustainability in higher education. It stresses the need to understand the interconnectedness of globalization, poverty alleviation, social justice, democracy, human rights, peace and environmental protection issues in relation to sustainability and higher education. It is a unique declaration in that it recognizes the problems encountered when implementing sustainability declarations in the past and calls for the development of a "toolkit" that universities can use in order to translate their written commitment toward sustainability into action (Wright 2004). These Declarations fuel many of the sustainable changes and choices made by institutions of higher education. The Declarations inspire institutions towards the ultimate goal of achieving a holistically sustainable campus that attracts an outstanding body of students. The steps a college takes towards this goal manifest themselves differently from school to school, but success is globally comprehensible.

Assessing the sustainability of institutions of higher education is a complex task. There are countless definitions of what "successful" sustainability on a campus might look like. A combination of changes in the appropriate balance for each school leads to a sustainable institution, and the overall affects of these initiatives can be placed into two over-arching forms of "success":

Success 1): **Reducing the carbon footprint and negative ecological impacts of the institution.** University sustainability is a logistically and physically crucial task, as campuses form miniature cities that people depend on daily. These institutions are responsible for providing various resources, managing waste, and supplying electricity, heat, and fuel, all while maintaining a safe and desirable environment for those residing in or around the campus (Alshuwaikhat 2008). Managing all of these factors can be overwhelmingly complex, but addressing all of them is paramount. Due to the growing number of variables and responsibilities each campus must address, a fundamentally holistic approach towards sustainability is the only conceivable option (Beringer 2008).

Success 2): **Fulfilling the obligation to help create a global sustainable future.** Higher education has a moral responsibility to become physical models of sustainability, as well as centers of sustainability research and teaching expertise. Colleges and universities are vested by society with the task of discerning truth, imparting values, and socializing students to contribute to social progress and the advancement of knowledge (Clugston 1999). Higher education has a major responsibility to impart the moral vision and technical knowledge needed to ensure global sustainable developments in the near future (Wright 2009). Breyman (2008) expands on this concept, expelling that "Individual sustainable institutions are valuable in their own right, but are more important as signals to society that alternatives to waste and excess, to myopia and disregard for the future are not only desirable and urgently necessary, but possible". This responsibility falls not only on the shoulders of large, research-based institutions, but on liberal arts colleges as well.

As “sustainability” edges its way into the common vernacular, the liberal arts education becomes, more and more, a crucial facet of the ideal sustainable future. The well-rounded nature of the liberal arts structure offers advantages that department-specific training cannot, such as an understanding of history, knowledge of various social perspectives, an awareness of moral debates, and a general reflective curiosity regarding humanity throughout the ages (Rhodes 2006). As beneficial and crucial as University-based research is in emerging environmental studies, narrowed scopes do not necessarily offer the full gamut inherent in liberal arts.

David Orr (1996) explains this necessity to become ecologically knowledgeable as a generational duty for those presently immersed in education. He goes on to tout the overlooked inherent benefits of a liberal arts education: while liberal studies used to place emphasis on the

expansion of man's domain, it is now time for studies to create holistic learning that will prepare the future for environmental comprehension, respect, and repair (Orr 1996). Holistic approaches to the climate change conundrum are fast emerging as the most comprehensive method, due to the complex relationships inherent in ecosystems. Most environmental issues lack a singular origin, instead being composed of multiple dilemmas from multiple sources. Similarly, most environmental issues lack a singular solution, requiring instead a multitude of frameworks, contexts, and backgrounds (Rhodes 2006). Therefore, a holistic approach to learning offers the most fulfilling backdrop for success in any department, especially Environmental Studies (ES).

Examples of these changes can be seen in many institutions of higher education. For instance, Rensselaer Polytechnic Institute (RPI) boasts a progressive campus that has proven the feasibility of a sustainable institution. Through changes in policy, physical operations, and outreach, RPI contributes to the four principles of ecosystem sustainability: "1) ecosystems dispose of wastes and replenish nutrients by recycling all elements; 2) ecosystems use sunlight as their source of energy; 3) populations are maintained such that overuse of resources does not occur; and 4) biodiversity is maintained" (Breyman 2008). RPI has covered these principles by forming a partnership between their dining hall and local farms, establishing a compost program, creating a low-impact landscape, agreeing to purchase mostly "green" materials, and devising easily accessible information about sustainability online. The University of Prince Edward Island undertook a project involving outreach and sustainable physical operations as well. The goal of this project was to create informal sustainability learning opportunities for the campus community and public, and to create a university-community partnership on sustainable transportation (Beringer 2008). At Harvard University, in Cambridge Massachusetts, 25 "green teams" were established. This administration provides a forum for staff, students, and faculty to discuss and implement sustainability projects in their schools, departments, or buildings (Harvard University, 2009). Evaluating the success of these institutional changes allows for the assessment of an institution in its whole-systems approach. A combination of initiatives can make a notably more sustainable campus, but it seems that implementing a holistic, comprehensive mission statement that has a significant focus on sustainability is an across-the-board diagnosis (Clugston 1999; Lambrecht 2008; Rowe 2002; Shriberg 2003). Centralizing the source of sustainable influence creates a sturdy base for the college to work from. It is a statement that members of the college community can refer to, and it is a representation of the institution as a whole. The mission statement and other plans for development should maintain the institution's personal character and not stray from its overall

goals. Conforming to the university's long-standing identity ensures greater acceptance of new initiatives, and less resistance in the face of change (Clugston 1999). Furthermore, if the initiatives strengthen multiple departments within the institution, more people will be willing to follow through with the policies (Clugston 1999; Rowe 2002). Less likely to flourish are initiatives that weaken certain departments by making them less crucial or forcing them to abide by inhibiting restrictions.

These environmental initiatives should be lead by someone with the credibility and personality necessary for promoting action (Clugston 1999). Without an instigator the movement loses footing and cannot proceed to the best of its ability. However, a persistent, likable, motivated leader can bring varying initiatives to the attention of the students, faculty, and staff, therefore making an effective impact. This individual is often embodied as the director of a sustainability staff, or a sustainability coordinator.

Despite optimistic efforts to assume otherwise, most of the obstacles an environmental shift will face involve money and, more specifically, the lack of it. It goes without saying that colleges have a lot to consider when allocating money and their order of priorities will never please everyone simultaneously. When there *is* fiscal support for sustainable developments, or when there is a fast and notable payback due to sustainable developments, success is near to guaranteed (Clugston 1999; Shriberg 2003). Additionally, beyond the support of money, these efforts need the support of major administrative leaders who have the authority to make sustainability a higher priority and institutionalize efforts through policy (Clugston 1999; Rowe 2002; Shriberg 2003).

Policies should not be based in opinion or intuition if they intend to make a difference. Environmental initiatives should be grounded in a recognized body of knowledge, therefore supplying legitimacy to the efforts (Clugston 1999). With academia supporting the environmental movements, their benefits become unquestionable, crucial, and harder for institutions to deny.

After policies and initiatives have been established, campus-wide success is still debatable. For one, institutions should sufficiently publicize new and prominent steps towards sustainability such as utilizing an alternative energy, forming a new department, or obtaining food from local sources (Clugston 1999). If publicity and acknowledgement are lacking, the initiative only reaches half of its goal: while it may reduce the campus' carbon footprint, it does nothing to adjust campus mentality towards environmental awareness. Furthermore, information should be regularly updated and easily accessible. With this new presence of information a new benefit arises: the ability to include the opinions of the community, student

body, or faculty in decision-making. This change in deliberation establishes a holistic approach, and accomplishes the sustainable goal of community and campus outreach.

Skidmore is a college that prides itself on a liberal arts background, even boasting a Liberal Studies graduate degree. After being declared an "Elite New Ivy" by Newsweek ("25 New Ivies" 2006), Skidmore is gaining significant notoriety and must keep up with trends to maintain its new, formidable title. Due to this unique emphasis on broad, rather than restricted, education, as well as Skidmore's noted success as an institution of higher education, it is in the perfect position to be one of an emerging number of sustainability-minded schools. Although the college has made significant steps towards sustainability, sustainable indices such as "The College Sustainability Report Card," a third-party audit system, gives Skidmore College a B+ (2010). Of course a B+ is a solid grade, one in which any student would surely take pride. However, when the stakes encompass the feasibility of maintaining the institution and preserving environmental quality, improvement is always on the table. However, this rating system does not properly consider or weigh more individual factors such as number of students, size of the campus, location of the school, or available physical and monetary resources. The Report Card is just one measure of the success of Skidmore's current sustainability, and the college's status cannot be fully evaluated by any one means. No matter what Skidmore's current grade is, the school can certainly enhance its current "green-ness".

As stated, Skidmore College has taken some initiative and is certainly on the path to sustainability. Skidmore recently completed a greenhouse gas inventory and is currently drafting a Climate Commitment based on the results. This document will include an emission-reduction percentage goal and a target date. Additionally, facilities make efforts to update mechanisms to the most current and sustainable models. The Skidmore Garden has been a great success since its start in 2009. The three most recent development projects, the North Woods Apartments, the Murray-Aikins Dining Hall, and the Arthur Zankel Music Center all utilize geothermal heating/cooling, which works efficiently in our geologic setting (Skidmore College Current Initiatives). In addition, the school recently institutionalized the position of Sustainability Coordinator. The actual impact these efforts have made on both reducing Skidmore's carbon footprint and changing the mindset of students in a way that leads to positive change has not been measured or assessed in any way.

Our project aimed to quantify the success of past and current environmental initiatives of the Skidmore College community on two fronts: 1) Lessening the stress on the environment by reducing Skidmore's carbon footprint, and 2) Impacting the mentality of the Skidmore community in a significant and lasting way. We utilized the results to assess the effect of change

and the need for further change. We aimed to create a working archive of what Skidmore's initiatives have been, to what extent they have succeeded, and what must be addressed in the ongoing process of development.

METHODS

Our analysis of campus sustainability was based around the presence and successes of 4 types of changes campuses can make in an effort towards sustainability:

1) Environmental literacy
2) Outreach efforts
3) Physical operations
4) Governance/policy

In our effort to evaluate the success of sustainability initiatives at Skidmore, we turned to the Sustainability in Higher Education declarations described above. These declarations were created to challenge the global community to make a commitment to sustainability in higher education. These declarations (Talloires 1990, Halifax 1991, Kyoto 1993, Thessaloniki 1997, and Luneberg 2002) urge universities to promote environmental sustainability through both environmental education and physical operations. The declarations also highlight the moral obligation of higher education to contribute and lead the way towards global environmental sustainability, as well as to create the necessary international consciousness and global sense of responsibility and solidarity. Wright (2002) synthesizes the declarations, and states that there are a number of emerging themes throughout. We modified this list of themes, based on what we determine would be most applicable to Skidmore's campus, and used it to establish the four categories of change.

Once the types of possible changes were established, we utilized outside sources to further define the changes.

Environmental Literacy: Interdisciplinary curricular changes that engender environmental/ecological literacy- any curricular changes (courses, research opportunities, programs, incentives etc.) which aid in the development of professionals and citizens prepared

to meet the challenge of converging global environmental problems. These initiatives should enable students to understand humans, the earth, and the relationship between the two from a variety of perspectives (Katherine 2008).

Outreach: Outreach efforts to both the campus and the surrounding community that reflect the recognition of the moral obligation that institutions of higher education have to not only seek knowledge, but also apply it towards solutions for the complex problems of society (Wright 2002)- Actions from within the college community to engage students, faculty, staff, and local residents to take part in sustainable efforts that benefit both the college and the surrounding locals. As a means of dispensing information, outreach programs should be accessible, effective, and informative, and promote the spreading of ideas and further inquiries.

Physical Operations: Any actions that work to effectively increase energy efficiency on campus, promote renewable energy, properly distribute energy generation, decrease harmful releases into the environment, promote the ecological soundness of the surrounding environment, and decrease waste or utilize waste products in sustainable or regenerative practices (GCP 2009)

Governance and Policy: Themes in policy and established organizations that show a clear acknowledgement of sustainable practices, actions, and implementations. These endeavors are solidified in the school's Master Plan, and carried out across departments via commitments, organized programs, and investments in a coherent and planned manner (Sustainability Policy)

Environmental Literacy

Methods

To gather information and a time line of environmental literacy's development at Skidmore, we first contacted faculty members who have played a significant role in the development of the Environmental Studies program. We interviewed Judy Halstead, Professor of Chemistry, who was one of the first professors involved with the creation and maintenance of the ES program. She supplied us with an updated time line of significant events within Environmental Studies. Karen Kellogg, Associate Professor and Director of Environmental Studies Program, and Kim Marsella, Program Coordinator and Lecturer for Environmental Studies Program, discussed

their experiences in the program over the more recent years, since they joined Skidmore. We also interviewed Sue Van Hook, former Senior Teaching Associate in Biology, who had significant experience with and significant influence on the ES program, and also maintains a steady involvement with the campus.

We also collected information on initiatives from the ES department Annual Reports, a regular report that reflects upon the ES program for that year. The Report touches upon events that occurred within the year, but also features comments and suggestions from students and faculty. These reports can be found within the Environmental Studies archive, but due to their limited access were supplied to us via Karen Kellogg. Campus Environmental Committee's (CEC) Annual Reports feature strides made on campus with regard to environmental concerns, and supplied a useful source for initiatives that apply to environmental literacy but fall outside the boundaries of the ES program. Sue Van Hook and Kim Marsella, both former chairs of the committee, were able to supply us with these documents. Skidmore Course Catalogs from 1994-2011 allowed us to examine the development of the program's curriculum, and an assessment of registrar data supplied us with an idea of student interest and commitment to the program. All of Skidmore's Course Catalog's can be found in the Phondorff room of Skidmore's library.

Results

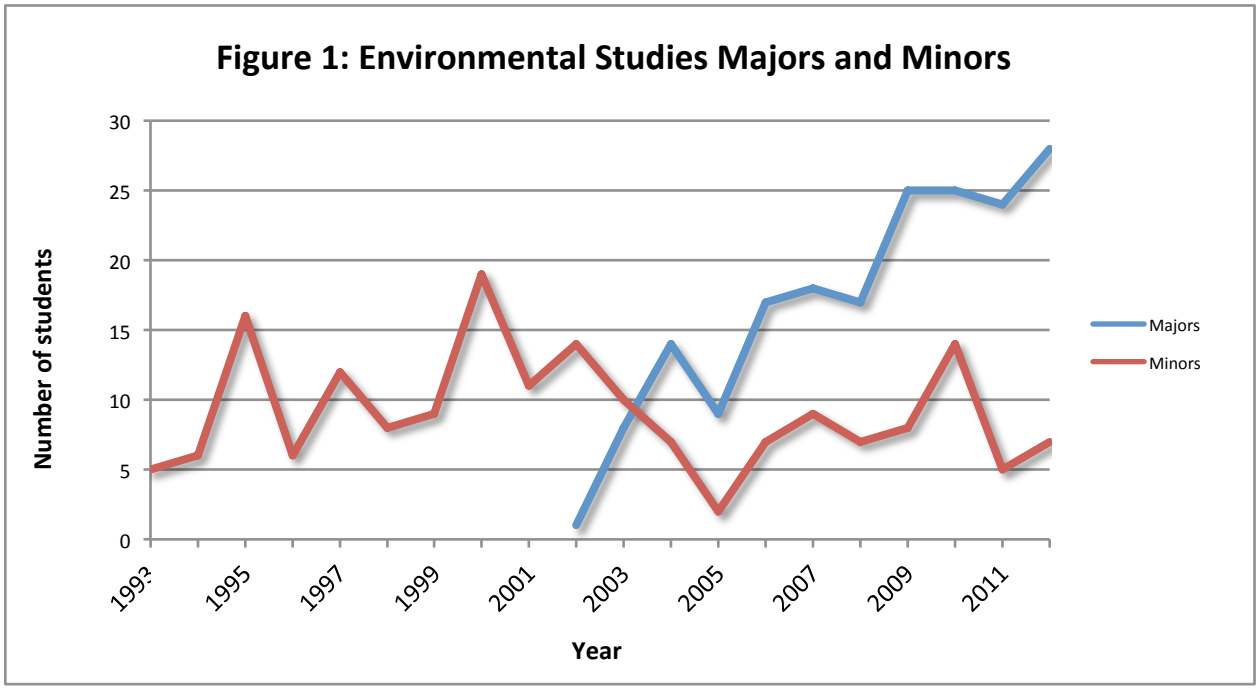
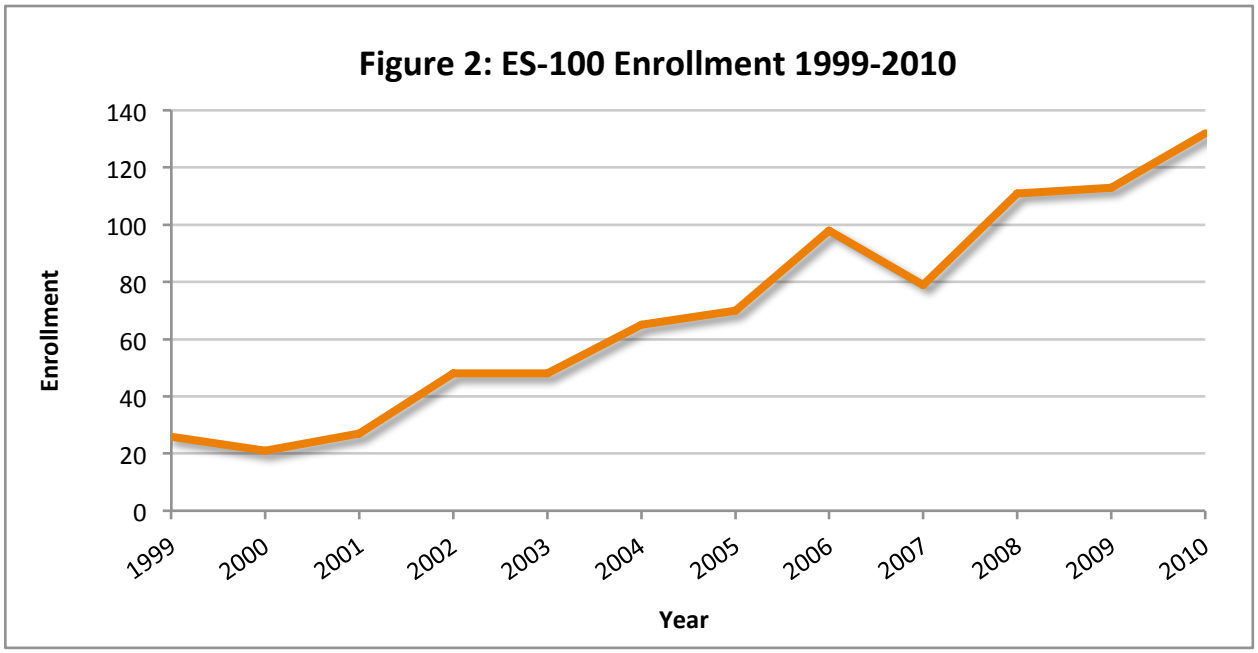
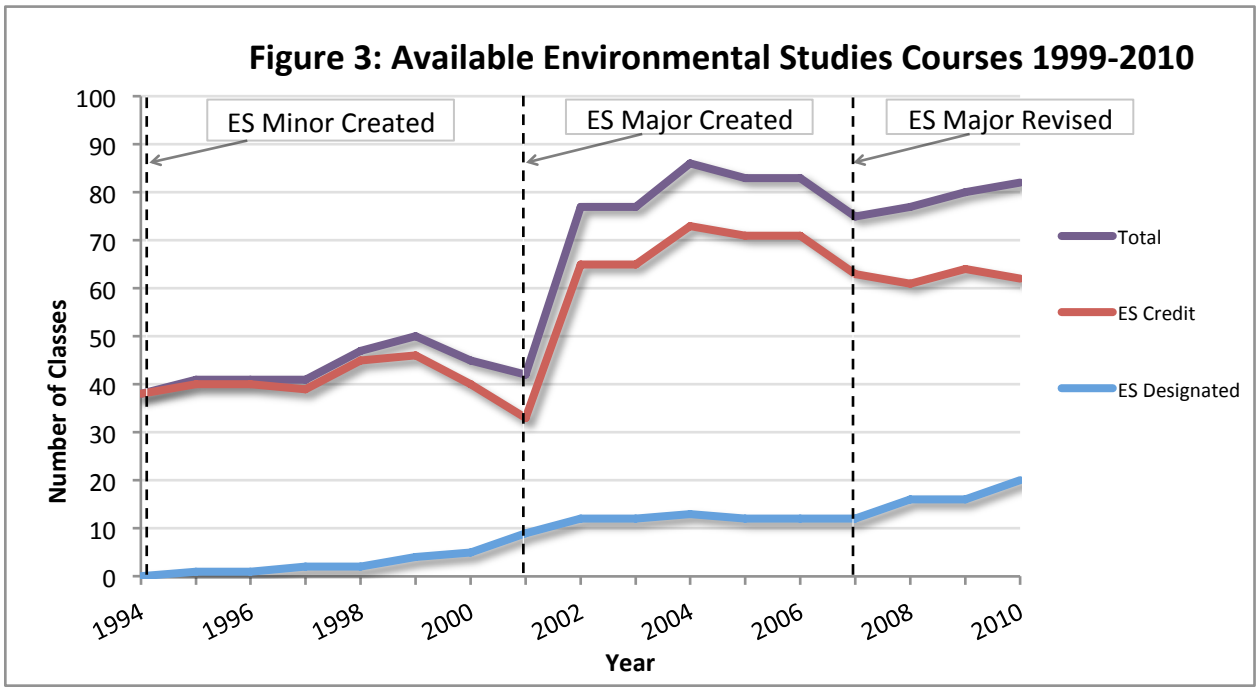


Figure 1 shows the number of ES majors and minors from the program's beginning in 1993-94 to the projected number in 2012. The number of majors has seen a significant increase since its

start in 2002. While fluctuating from year to year, the Environmental Studies graduating class in the program has more than tripled. Fluctuations in the minor appear a bit more arbitrary and fail to show a significant trend.



Environmental Concerns and Perspectives (ES-100), an ES introduction course, has seen a fivefold increase in enrollment from 1999 to 2010 (Figure 2). This means that five times more students are receiving a basic education regarding contemporary environmental issues. Additionally, data from the registrar shows that the number of ES-100 sections offered has gone up from one course per semester in the 1999-2000 school year, to four courses per semester in the 2010-2011 school year.



Available ES courses have also increased over the past 20 years (Figure 3). During the first academic year of Environmental Studies, 1994, Skidmore offered 38 classes that counted towards the ES minor. By 2010, 82 different courses were applicable to the Environmental Studies major and minor, with 20 of them being ES designated (meaning they were offered specifically from the ES department). Currently, 62 courses are available within 15 different departments.

Discussion

ES-100 is a broad introduction to the world of environmental studies, and it increases environmental awareness over a spectrum of subjects. The steady increase of enrollment shows that a general understanding of talking points related to sustainability is becoming common knowledge (Figure 2). Furthermore, the necessity for additional ES-100 courses per semester means that not only are students enrolling in a course that's already offered, but that their demand for such a course has exceeded the previous limitations.

The addition of so many ES courses, seen in Figure 3, shows a growing department as well as a developing understanding of current environmental issues. With each additional ES course offered a different aspect of the study is probed further. The dramatic increase in courses that are counted towards the Environmental Studies Program shows a growing

acknowledgement of environmental issues in multiple venues. By making the program so interdisciplinary, Skidmore is implementing the concept of holistic learning in the interest of both liberal arts and environmental studies.

Based on available information, Skidmore's first significant step towards Environmental Literacy began in 1991 with the proposal for an Environmental Studies minor. Efforts before 1991 in the realm of environmental studies were embodied in the now-retired Liberal Studies program. The Liberal Studies course used to be a requirement at Skidmore, and the LS-IV section of this course saw the beginnings of environmentally-minded teaching with the unit, “Environmental Concerns in Perspective” (Halstead). By 1992 the ES minor was approved unanimously by the Skidmore Faculty, and by 1995 the ES program had developed its first official ES course with Field Studies in Environmental Science (Halstead). Most of the ES program was still dependent upon other departments for material, such as in 1999 when the Environmental Studies Program and International Affairs Department cooperated to introduce and revise 24 courses (Halstead). In this way, the ES Program gained legitimacy in its academic surroundings.

Additionally, 1999 saw new funding go towards Environmental Studies faculty opportunities, which showed a significant change in college funding distribution as well as ES notoriety. With this increased presence on Skidmore's campus, the ES program also gained library acquisitions and a substantial International Environmental Speakers Series (Halstead). In 2000, while changes were being made academically and within the curriculum, namely in the revision of the ES Minor, changes were also being made socially. The Campus Environmental Committee instituted a voluntary pledge for graduating seniors, stating that they would "carry environmental mindfulness into their workplace" (CEC 2000-2001). While the crux of this pledge is only six words long, the importance of it is much greater. In this step the concept of "environmental mindfulness" was not only brought out of the classroom setting, but was also brought out of the college setting. It intended to influence the choices students would make in their upcoming future, outside the confines of their Skidmore habitat. The pledge implies a mindfulness that moves beyond philosophy and learning, and on to action and practice in the graduate’s daily life.

The biggest success in Skidmore's development of environmental literacy came in 2001 with the approval of a now nationally recognized Environmental Studies Major. At this point, the ES Program could expand its domain and substantially build up their faculty (Halstead). The latter was fulfilled in the past few years, during which Skidmore hired 3⅓ new professors for the program (the “⅓” refers to a professor who is shared with the Biology department). The

introduction of the ES Major meant that those with environmental interests could move beyond the Minor and involve themselves more heavily in environmental issues (Figure 1). However, Karen Kellogg explains that the number of minors is increasing again, and that this increase shows the growing importance of environmental knowledge within other studies (Kellogg). This also shows the emerging applicability of environmental studies in various lines of academia, in keeping with the liberal arts approach of holistic learning.

While it is expected for any new major to gradually accumulate interest, the ES major has exceeded the expectations of its program faculty. Karen Kellogg explains that they had anticipated the number of majors to plateau around 24-26 students, but that number is now nearing 29 and 30 (Kellogg). Kellogg also mentioned that the number of incoming freshmen anticipating enrollment in the environmental studies major has skyrocketed. Public knowledge, interest, and mentality are growing towards environmental studies, even before students reach the institution.

Sue Van Hook mentioned a concern that students aren't getting enough time immersed in hands-on experiences. She expressed that students are losing their connection to their surrounding environment and are lacking knowledge of the natural history around them (Van Hook). This is a continuing point of discussion within the program, and courses are constantly emerging and retracting in their applicability to local conditions.

A significant aspect on the ES Major is the Senior Capstone Course, ES 375, which began in 2003. This gave ES Majors the opportunity to conceive, research, and develop their own projects under the guidance of advisors and with the support of peers. Similar to the voluntary pledge, this pushed environmental issues out of the classroom and gave students an opportunity to apply and analyze the efficacy of their environmental education.

Both Kim Marsella and Karen Kellogg think that, while the ES program is successful for those intentionally involved with environmental studies, there needs to be a more foundational expectation for incoming students to be at least somewhat immersed in environmental knowledge. Marsella, for example, believes that if first year students were taught from day one about sustainability, four years later it could be the campus norm. Kellogg believes that as a liberal arts institution it is Skidmore's responsibility to offer courses that are so fundamental to "the future of humanity". This is not limited to environmental studies; she also believes that dialogue pertaining to imminent and future issues, such as social justice, is crucial to a well-rounded education. An institutionalized course in these subjects would give students a common experience that would allow and encourage discussion in and out of class (Kellogg). Human

Dilemmas, from the old Liberal Studies Program, used to fit this niche, and attempts at recreating this experience in ES-100 have not yet been successful (Kellogg).

Overall, curricular improvements have made Environmental Studies a steadily growing norm on Skidmore campus. Karen Kellogg has noticed, appreciatively, that all corners of the school are starting to get involved with the ES program. This nexus stretches from student projects in the Business Department to environmentally relevant art exhibits at the Tang. Efforts such as these have established environmental issues as a core component of a liberal arts education, and a growing body of courses and faculty matches growing student interest. The ES program now serves as a role model for many like-minded colleges that are trying to bring environmental studies to their own campuses, and the program's national recognition has meant impressive and substantial grants for those involved (Kellogg). An important success for the program lies in the department's annual assessments; students are asked to offer comments and suggestions for revising and developing the program, making the whole experience adaptable to the ever-changing priorities both in Skidmore and beyond (Kellogg). The school itself has been extremely responsive to and supportive of the many academic endeavors initiated. Awareness throughout the student body has been a bit less effective, only appearing now and again, but certainly with increasing frequency. Struggles are apparent where Skidmore tries to spread environmental considerations outside of the classroom, but through efforts made by various initiatives and student groups there is still an ever-growing knowledge regarding Skidmore's placement in the environment, and the role each student plays.

Outreach

Methods

We conducted a number of interviews with people who have had a significant influence on Skidmore's past and current outreach efforts, and who were able to best critically evaluate Skidmore's success in outreach from both internal and external perspectives. Our interviews included Jonathan Greene '07, who played an important role in achieving EAC's current status, is a current member of the Saratoga Springs community, and is still involved in sustainability at Skidmore; Laura Fralich, the current president of EAC; the professors we also talked with for Environmental Literacy, as well as Riley Neugebauer.

Kris Scully, of Leadership Activities, supplied us with documents chronicling EAC's developing budget since 1999. Not only did these documents inform us of EAC's allotted budget each year, it also offered a breakdown of how this money was spent. This enabled a detailed analysis of what types of events and initiatives EAC supplied. Campus Environmental Committee Annual Reports and the Skidmore Sustainability web page documented outreach efforts as well.

Results

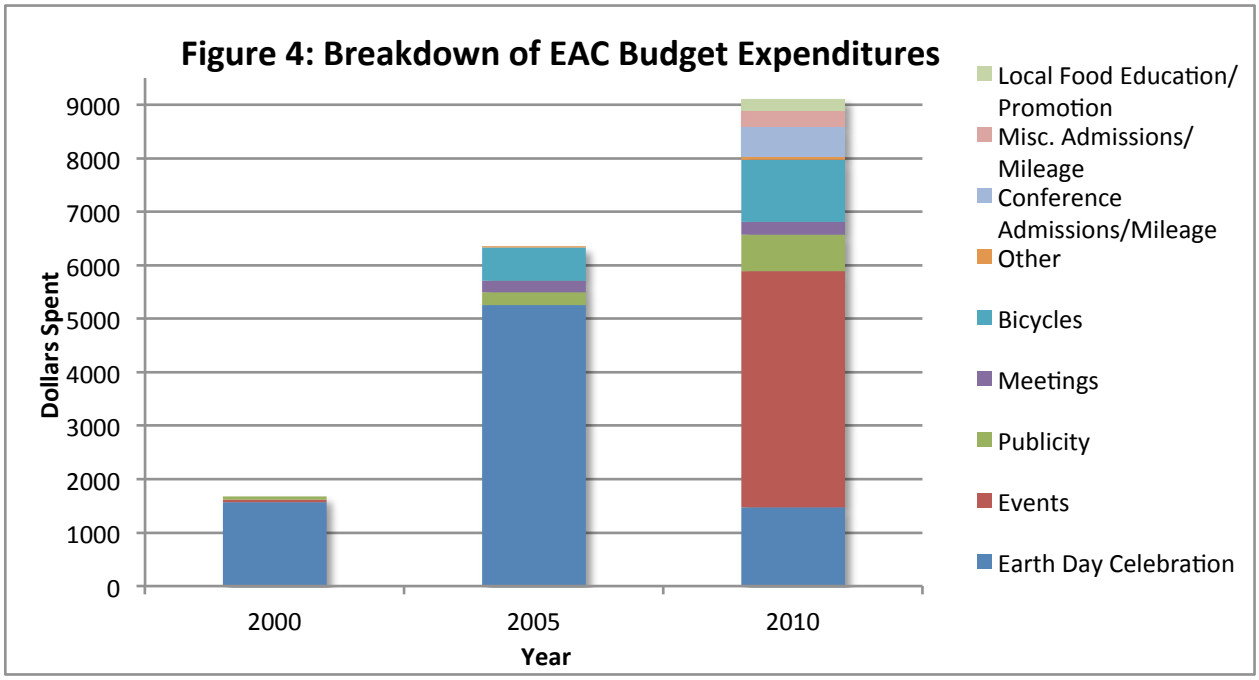


Figure 4 shows the amount of money EAC spent in a number of categories from 2000, 2005 and 2010. In 2000, almost 95% of EAC's comparatively small budget was spent on the Earth Day celebration. There were virtually no resources put into any other initiative. In 2005, about 82% of the budget was spent on the Earth Day celebration; however there was a small expansion in the types of initiatives that EAC put resources into that year, the most notable initiative being bicycle maintenance and repair. By 2010, the budget has increased dramatically, and only about 16% of the money was spent on Earth Day. Nearly 50% of the budget was used to financing other types of events including speakers, activists, film screenings and community events. The rest of the money was spent on sponsoring student trips to various conferences and other off campus events, as well as bike repair/maintenance, and various initiatives to increase awareness, and educate the campus about the importance of local foods.

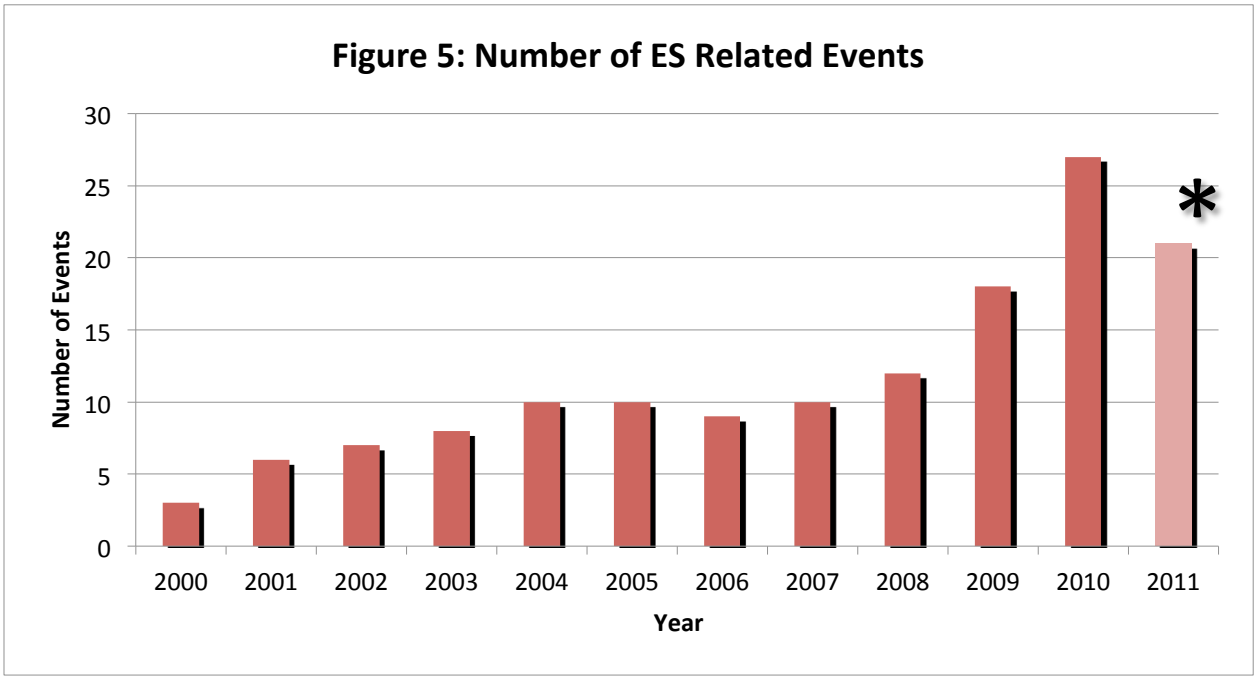


Figure 5 shows the number of ES-relevant events since 2000. The 2011 bar is short because we do not have data past April 2011. There is a clear increase in the number of events between 2000 and 2010.

Discussion

It is clear that over time, the Environmental Action Club has expanded immensely. Not only has membership increased, but so has administrative support, as well as the creativity of the EAC members. Jonathan Greene '07 was able to speak with us about the EAC's status and success from 2003-2007 in the time he attended Skidmore and was a member, and for a time president of the group. He expressed frustration at the failure of almost all of the club's initiatives and the lack of administrative support during his first years at Skidmore. He addressed the issue of student turnover in the success of student-led initiatives. At the time when he attended Skidmore, the club underwent a structural transformation that has allowed it to become a more cohesive and smooth running operation.

Greene discussed the club's decision to divide into subcommittees, the results of which are represented in Figure 4. Not only did these subcommittees improve student involvement, but they made members feel like they were a significant component of a significant movement. Prior to this change the club felt more like a number of individual efforts, rather than one large group working for the same goal (Greene 2011). The subcommittees established projects that

had reachable short-term goals. If all went as planned any given project would be institutionalized into Skidmore's policy before the end of 3 or 4 years, and in any given year around 30 projects could be started and completed. An example of this type of success was the double-sided printing in the library. The initiative is considered successful because the students successfully educated and lobbied those who had influence on policy. They pushed t his issue, which resulted in the successful institutionalization of the solution to this problem: campus-wide double sided printing. The new EAC aimed to increase productivity, and decrease the requirement for continuity in projects, and provide for constant student interest, so the issue of student turnover was null.

Because EAC became a productive, active club, there was a notable increase in the budget (Figure 4). According to Greene (2011), when the budget was increased they did not know what to do with the excess money, as the expenses for their operations were not increasing. They opted to supplement other clubs "green" purchasing for events, and in doing so, hoped to provide an incentive for deeper thought outside money management. The changed made in EAC during that time worked to increase the breadth of the environmental conscience on campus, and to have a more widespread, diverse body of action, and to avoid silly expenditures which in the end result in a loss of interest in the club from active students.

Laura Fralich '11 (2011), current president of EAC expressed general satisfaction with the propulsion of initiatives coming out of EAC. She stated that even in the last 4 years, there has been an increase in drive, and success of the various initiatives taken on by the club. She stated that while there are setbacks, there is support coming from the administration which did not exist before, even within the last 4 years. She discussed the intimidating nature of organizing EAC tasks as a common setback for successful student initiatives. Students often feel overwhelmed, because the projects they take on often require that they engage in a dialogue with important members of the campus community. She also notes that the administration will take a student seriously if they overcome these fears, organize their actions and take their project seriously. This success is exemplified in Fralich's own project, the Skidmore Student Garden, which was implemented in 2009 and serves as a source of local food for the Murray Atkins Dining Hall, as well as a valuable education tool.

Another concern for EAC is maintaining an institutional memory. Both Fralich and Greene discussed this issue. A student will often have a passionate awareness about a certain issue, and do not see a direct solution occurring on campus. They also have little understanding of the history of these issues on campus. These students proceed to argue for immediate change without the full picture (Fralich 2011). Not only does this get nowhere, but it forms a negative

relationship between students, and administrators that are actually in control of these decisions. If EAC's initiatives were recorded it would alleviate the stress on upset students, direct them towards more productive measures of action, and relieve the administration from hearing the same unfounded complaints, with no new angles on the argument.

A common issue highlighted in a number of interviews is the presence of a disconnect between the administration, facilities, professors, students, and the Saratoga Springs community. This is especially apparent in relation to sustainability and the environment, because of the intrinsic holistic nature of these issues. Jonathan Greene '07, who currently resides in Saratoga Springs, discussed a large divide between the Saratoga community and Skidmore College. He explained that Skidmore students use Saratoga Springs regularly, but Saratogians use Skidmore's campus and resources much less frequently. He states that Skidmore is not often on the mind of Saratogians, and Skidmore students are not highly regarded in Saratoga. This disconnect translates to environmental efforts. Generally, student activism is less effective in town than on campus (Greene 2011). That's not to say that efforts have not been successful, there are a number of examples where Skidmore student-led initiatives have reached a tangible goal, such as the Cool Cities Campaign of 2009, and this year's Green Jobs rally. The question is whether or not student-led campaigns are occurring, but whether they are reaching the greater Saratoga community with enough power and clarity to actually educate and increase awareness. The community resources could be utilized to a positive outcome, and vice versa, if there was efficient messaging and communication between the right partners.

This same issue is seen within the campus as well. Environmental awareness efforts are increasing, the question is whether their effectiveness is compromised because of a lack of unity across the fields and departments of the college (Figure 5). Karen Kellogg (2011) acknowledged the increase in environmentally themed campus events and lectures as an indication that more faculty members and clubs on campus are interested in spreading awareness and education about these issues. In addition, Laura Fralich '11 described an increase in administrative support of student-led initiatives, even in the last four years. This has led to an increased number of environmentally related events, and also a widened breath of the scope of events. In April 2011 Skidmore heard Mistinguette Smith speak in a lecture titled *Black/Land: A different American History*. She provided a different American history contextualizing the African American relationship to land and place in the U.S. The next evening, Skidmore heard Gavin McIntyre speak in a lecture titled *Inspired by Nature: Biological Materials*. The chief scientist and cofounder of Evocative Design, McIntyre discussed new principles for material design that

consider the social and environmental impact rather than just the financial bottom line. These two lectures were quite different in topic, but both worked to increase education of various environmental issues on campus.

Many initiatives that aimed to spread awareness beyond the academically devoted students established a significant presence, such as in 2003 with the completion of the North Woods GIS mapping projects, by Bob Jones (CEC 2003-2004). Mapping projects, like this one, increase the visibility of Skidmore's very unique natural resource. Making the North Woods more accessible and easier to monitor spreads an awareness of imminent environmental concerns, thus bringing prevalent issues to the backyard of every student. Environmental consciousness was also brought into the dwellings of every student in 2005 when a script was written for RA's to give incoming freshman regarding energy usage in their dorm (CEC 2005-2006). While the script was not written with the green attitude embedded in mind, energy conservation nonetheless pervaded student thought and brought concepts regarding energy out of their hypothetical discussion and into their actual embodiment.

More recent steps towards outreach have been based around Skidmore's current physical conditions. The Greenhouse Gas Inventory, completed in the 2008-09 school year, shed a lot of light on Skidmore's current carbon footprint. The GHG Inventory offered a quantifiable response for the environmental impact of Skidmore College. Additionally, this knowledge gave Skidmore's students, faculty, and staff a dosage of reality and comprehension that links their individual actions to a much larger picture.

Many view the recent addition of the Sustainability Coordinator position as a solution to the lack of unity between all corners of the campus. In an interview with Mike Hall, the Director of Financial Planning and Budgeting he stated that addition to create a Sustainability Coordinator position was a pivotal moment in Skidmore's history of Sustainability, because the position gives a vehicle to make things more public, and allows for much more interchange between interested parties on campus. Riley Neugebauer, the current Sustainability Coordinator has had a hand in the recent increase in number of environmental events and learning experiences on campus (Kellogg).

In an interview with Riley, she discussed a recent event, the Big Green Scream, as an instance of increased unity between departments based around environmental issues. This event formed a connection between the Athletic center and sustainability efforts on campus, however those in charge of the event did not display a proactive attitude, and much of the planning burden was placed on the Sustainability Coordinator (Neugebauer). Riley describes this as a common phenomenon, one in which people are supportive of “green” initiatives, and

for the most part want to be involved in these types of events, however they do not want to make it their job description, and the brunt of the responsibility falls on the shoulders of the Sustainability Coordinator. The expectation for one person to singlehandedly plan and coordinate all "green" events on campus (especially with the hope of growing campus-wide interest) is unrealistic, and is bound to result in inefficient spread of awareness and education. The campus-wide interest will only truly increase when all interested parties are truly dedicated to the idea of a "green" event or activity, and will take on the responsibility of making it happen.

Another example of the burden placed on the Sustainability Coordinator is the Sustainable Skidmore website. Riley stated that the website is outdated, but because it is not a direct action, it is not a first priority and gets pushed aside. This website is an important tool for widespread environmental education. One person cannot be expected to maintain all educational tools on campus, influence all planning decisions on campus, and organize all environmental events on campus.

Another instance where lack of effective communication across the campus is apparent is recycling. We do recycle, but our numbers are not impressive in relation to the amount of waste we produce (Figure 9). Riley Neugebauer (2011) also discussed the failure of our current recycling awareness efforts. The existing signage is not noticeable, and the actual recycling guidelines are not made clear in any place that is easily accessible to the general student body. Riley suggests that we need to increase the intensity of recycling education to incoming freshman.

The lacking visibility of environmental efforts fails to publicize the potential effects our infrastructure alterations have on reducing the campus' carbon footprint. There have been two drastic changes in the infrastructure of our campus in the last few years, the use of geothermal heating and cooling, and a switch from a central boiler system to a point-of-use system. Although both of these changes work to significantly reduce Skidmore's natural gas consumption, neither of these projects has been adequately publicized to the general campus population (Kellogg 2011). We need to increase the learning and living aspect of our campus environment; currently, it is not occurring at all.

A common struggle encountered by administration, facilities and active students is lack of student engagement, and even an outright resistance to "green" change. Sue Van Hook (2011) observes a lack of attendance to all events on campus, especially events tied to environmental issues. She believes that "life is too good in the Skidmore bubble" and since the general campus community does not see direct effects of environmental issues on their personal lives, they do not attach any emotion or personal conviction to these issues. Karen Kellogg gave an example of

this mentality at play, stating that students made strong and steadfast arguments for double beds in the North Woods. This is a clear display of the high standard of luxury we have established here at Skidmore, and does not speak well for the awareness of the need, and cooperation for resource reduction in general. She also discussed that it is difficult to encourage lifestyle changes in students without offending. Often, reactions to these efforts are defensive, as students don't want to be told how to live their lives. There is a fine balance between preaching and encouraging sustainable behaviors, and Skidmore has not yet achieved this balance successfully.

Riley Neugebauer discussed a recent event Recyclemania as an example of weak student engagement. She noted a lack of appropriate enthusiasm, and this coupled with the difficulty to manage all of the waste/recycling material in an organized matter did not allow the event to reach its full potential. As for interest among active students, there are peaks and valleys, and waves of popularity for certain projects which generally reflect the trends in the broader environmental movement. This makes it difficult to sustain one project over a long period of time (Marsella 2011). For instance, the garden project is currently flourishing, as is the local food movement throughout the country, but there is potential for failure if people lose interest. This loss of interest is demonstrated in the current lack of enthusiasm for North Woods stewardship, a project that has been very popular in previous years. Overall, it is difficult to maintain a strong interest in certain projects, and to prevent frustration of active students who are not seeing a realization of their wants for the campus. Students need to be better trained in organizing to maintain this interest, and be effective in their actions (Neugebauer 2011).

However, there are a number of current initiatives that are being undertaken, and with all of the above knowledge there is a good chance they will be extremely successful. The Eco Rep position aims increase awareness about sustainability and inspire behavioral change through programming and educational initiatives in the residence halls. In the past, this program has been somewhat successful, but there is room for improvement (Marsella 2011). It would be more effective if the Eco Reps had a stronger relationship with the Resident Assistants. Additionally, some current initiatives that have potential to succeed greatly are the elimination of bottled water, and shuttling students to the farmers market. Campus and community outreach is an integral component of campus sustainability, and while it is clear that outreach efforts have increased in both number and magnitude, it is important to assess the actual changes that these initiatives lead to, and whether or not they are significant.

Physical Operations

Methods

We interviewed a number of staff members to gain the perspective of those who have had a direct hand in Skidmore's physical operations, via decision-making, management, implementation, and finance. These interviews included Riley Neugebauer, Sustainability Coordinator; Dan Rodecker, Assistant Director of Operations; Mike Hall, Director of Financial Planning and Budgeting; and Mike West, Chief Financial Officer.

In order to assess the physical effects of Skidmore campus, we gathered data pertaining to total annual waste, recycling, water consumption, energy use, and pesticide use. Dan Rodecker and Riley Neugebauer supplied us with this information via Facilities. Our goal in doing so was to analyze Skidmore's environmental impact over time. There was also a significant amount of information found in the Campus Environmental Committee Annual Reports, as well as pages on the Skidmore website for Facilities Services, Sustainability, and the North Woods.

Results

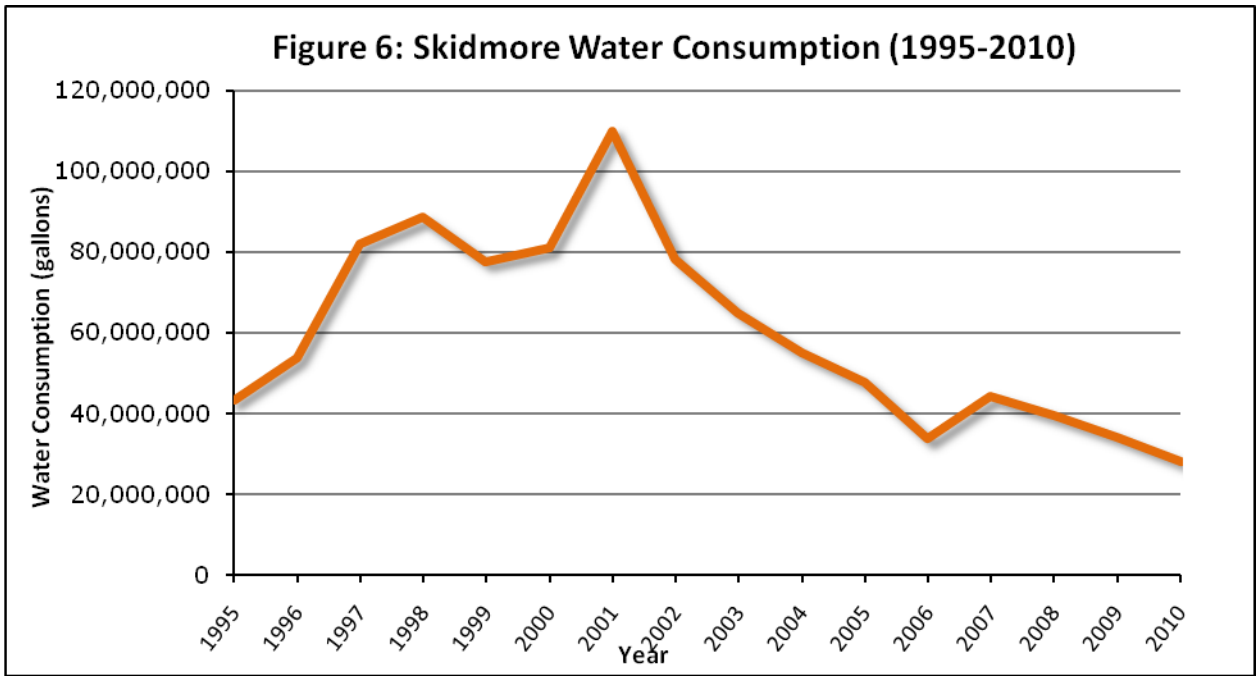


Figure 6 shows campus water consumption in gallons from 1999-2010. There is a steep increase between 1999 and 2001, with an obvious peak in 2001. In the subsequent years, there is a steady decrease and at the present time the total water usage is almost 10 million gallons less than usage in 1999.

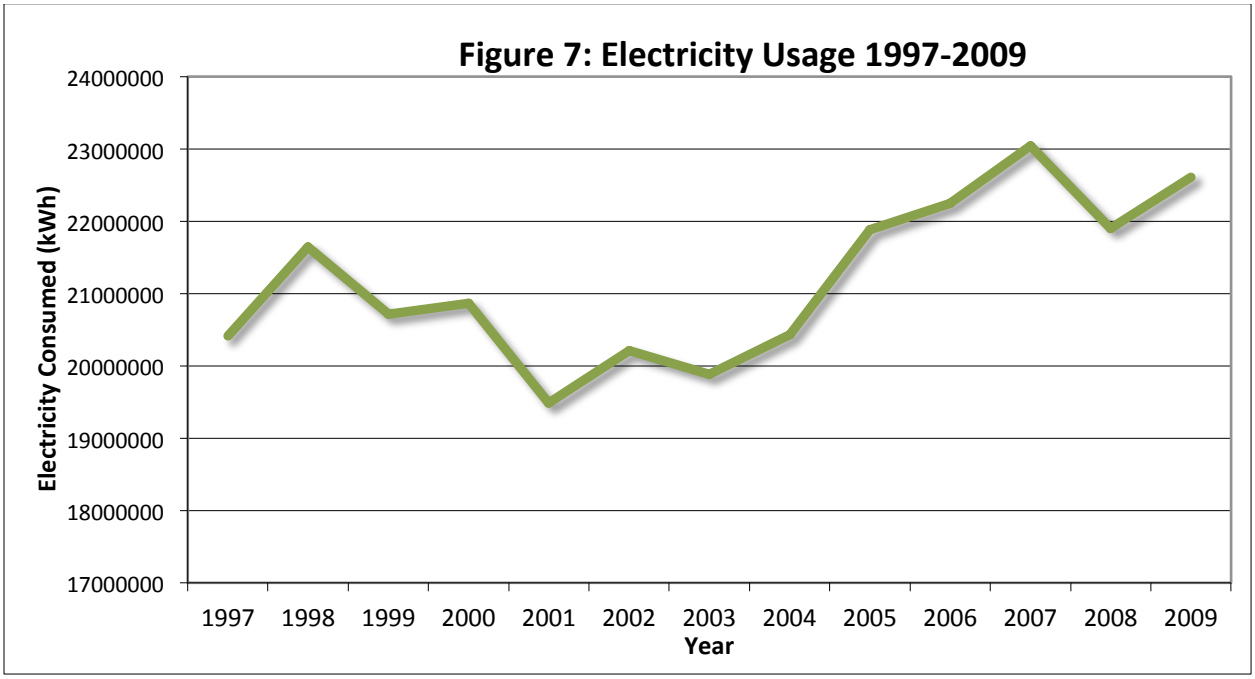


Figure 7 shows electricity usage from 1997 to 2009 on Skidmore campus. Overall electricity usage has increased over the 12-year period, with a low in 2001 and a peak in 2007.

Figure 8: Geothermal Buildings on Skidmore College Campus

Figure 8 highlights the buildings that utilize geothermal heating and cooling on campus as of April 2011. Skidmore's installation of geothermal heating/cooling systems began with the construction of the North Woods Apartments in 2006. Next came the Murray-Aikins Dining Hall, constructed in 2007, followed by the Zankel Music Center, 2010 (Hall). Currently Skidmore is renovating the Filene Music Hall by installing better insulation, installing new windows, roofing, and lighting, and retrofitting the building with geothermal heating/cooling (Rodecker). Further geothermal retrofitting projects include the Saisselin Art Center and the Dance Center in 2012, Wiecking Hall in 2013, and eventually the JKB Theater Building, though no date is specified (Hall). Mike Hall speculates that in 3-5 years, 35% of Skidmore's buildings will be heated and cooled with geothermal systems.

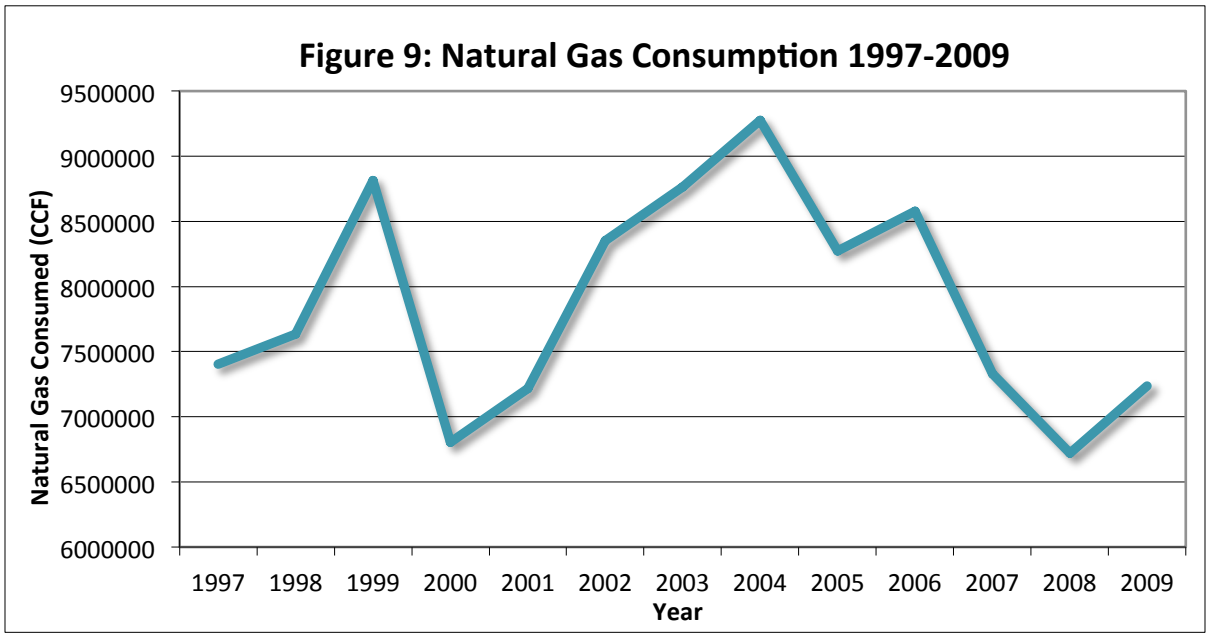


Figure 9 shows natural gas consumption from 1997 to 2009. Consumption in 2009 is lower than it was in 1997, but with large variations. 2000 reached a low comparable with 2008, and the most consumptive year was in 2004.

Figure 10 shows project amounts of waste at Skidmore over the course of a year. Municipal solid waste is the largest with 670.74 tons per year, and recycling and paper products are at the bottom with 8.29 and 4.48 tons per year respectively. Bars highlighted in purple represent food waste, green represents recycling, and orange covers the rest of Skidmore's documented waste. The food waste data was based on a weeklong food audit performed during the Spring Semester of 2011. We multiplied the results by 52 in order to estimate annual waste totals.

Discussion

Improvements have been slow and steady, developing as issues arise. As Dan Rodecker explained, Skidmore always take environmental issues into consideration, and sometimes even chooses the environmentally friendly route even when there isn't 100% fiscal compensation (Rodecker 2011). Very first on our time line of physical operations initiatives, however, was both environmentally friendly and fiscally beneficial. In 1997 facilities changed 90% of the lighting fixtures in buildings from 4-bulb T12 fixtures to 2-bulb T-8 fixtures (Hall 2011). While the jargon may be technical and specific, the general gist is that Facilities was able to supply the same amount of light with less energy. Mike Hall estimated that these installations cut the lighting-based energy usage in half. After this, the first few initiatives within Physical Operations were focused around landscape. Decreased mowing around native species and construction of low-erosion/low-runoff pathways begins on our time line in 2000 (CEC 2000-2001). The completion of a meditation path and a raid on invasive species followed next in 2001 (CEC 2001-2000). These land-based initiatives may imply that comprehension of environmental issues was limited to visible natural impacts.

We don't see any significant change in physical operations again until 2005, where the Environmental Action Club (EAC) successfully negotiated turning off hot water for dormitory washing machines (CEC 2005-2006). This shows a significant change in comprehension of environmental issues, shifting the scope of environmental responsibility from the outdoors to daily life. The significance of environmentally minded decision-making emerges at this point, and quickly moves beyond the limitations of "the outdoors".

Water consumption has gone through peculiar fluctuations (Figure 6). The peak in 2001 has yet to be figured out. Mike Hall explained that they thought the cause might have been a severe water leak, but that even to this day no leak has been found. While we don't know what caused the excess water use, we do know that some of the reduction was due to the campus conversion to low-flow showerheads and faucets in 2006, and the installation of 1-1.6 gallon flush toilets in 2008.

In 2006, recycling and paper usage were the most touched upon. Installation of new recycling containers educated students on proper recycling, but also made the process of recycling physically easier. Improved access to bins and distinguished bins for each kind of recycling made the process more efficient, and cut down on bulk waste (CEC 2006-2007). New cardboard compactors behind the Dining Hall and Case Center have also made cardboard recycling more efficient (Hall 2011). Kim Marsella (2011) has noticed great improvements

within recycling, mentioning that the process has expanded to include computer parts and furniture. Currently, Hall explains, Skidmore is looking for a location to recycle Styrofoam but have not had any luck finding one in the Capital Region, though the search continues. Additionally, 2006 was the year that Skidmore made the switch to campus-wide double sided printing. This year showed a developing responsibility for resources and materials, again bringing sustainability into daily lives.

Recently, Skidmore has begun cutting down on its larger environmental impacts, such as water and energy usage. Low-hanging fruits, like motion sensor lights and compact fluorescent lamps (CFLs), have played a small role in decreasing campus electricity usage. The graphic representation of Skidmore's electricity consumption does not look very promising, though further analysis proves intriguing. From 1997-2010, consumption has increased by about 112%, but student enrollment has increased by 125% in the same amount of time (Fact Book). Considering the addition of four new buildings, evolving electronic technology, and electricity powered geothermal pumps, this parallel increase in electricity is expected, if not impressive. Unfortunately, however, this shows that the small improvements made have not been sufficient in curbing progressively energy-dependent lifestyles.

Initiatives such as improving residence hall insulation, expanding the geothermal system, renovating Filene Music Hall, and upgrading the boiler plant to point-of-use boilers in all of the buildings have made a noticeably larger impact on the Skidmore carbon footprint (Rodecker 2011). The new point-of-use boiler system, for instance, reduces the distance that the heat must travel from its main source. Before, when there was a central system, all of the heat had to move from one single location. This extra distance meant significant losses of energy to buildings farther away. In order to heat buildings farther from the source sufficiently, the heat had to be turned up centrally. This unfortunate scenario made buildings near the source unbearably sweltering; generating heat for far buildings meant wasting loads of energy in the process. Individual boilers can now utilize as much energy as they need, while simultaneously supplying livable conditions for the inhabitants. This switch has been a notable improvement among faculty and staff, though the installation has not been made visible to many students.

Geothermal heating and cooling has had a huge impact on Skidmore's natural gas usage (Figure 9). Since its first use in the North Woods Apartments in 2006, this form of heating has become a staple of Skidmore construction (Hall 2011).The decision to utilize geothermal heating/cooling was due more to geographic and geological obstacles than with the consideration of environmental impacts. Michael West, CFO and Vice President of Finance and Administration, explained to us that the location of the North Woods Apartments was high and

away from the rest of Skidmore's campus, atop rocky terrain. Because of distance and geological impediments, connecting the North Woods Apartments to the school's central heating and cooling loop was not a viable option. Some alternatives included the construction of a small power plant that would supply the North Woods Apartments with heat/cooling, or the utilization of a renewable energy. Heating, cooling, and water heating need a more reliable source than energies such as wind or solar can provide. With this set of complications and options in mind, Skidmore made the first decision to install geothermal heating/cooling systems. This system was location specific, effective, didn't require significant infrastructure, and reduced consumption of natural gas.

After the construction of North Woods, between 2006 and 2007, Skidmore's natural gas consumption was cut by 14.5% (Figure 9). There was a large decrease in natural gas consumption, seen on Figure X in 2000, but we did not receive this data until after all of our interviews. We lacked the time to research this decrease further, but have speculated on its cause. One theory is that the dip is not a dip at all, but rather at the projected level of natural gas consumption, and that the peak in 1999 was the anomaly. The Tang's construction in 2001 may have then been the culprit that increased consumption levels again before the installation of the first geothermal system, where consumption again decreased. The Tang was a heavy load for Skidmore's heating system because of its distance from the old central boiler system, so its construction had to have had a notable impact on gas usage.

New buildings on campus, the Murray-Aikins Dining Hall in 2007 and the Zankel Music Center in 2010, have maintained the geothermal standard. The new Scribner Village will also feature geothermal heating/cooling, in addition to other building advances such as improved insulation. Skidmore is now in the midst of retrofitting older buildings with geothermal systems. Geothermal systems only cost twice as much as the usual system, so installations in new buildings have made economic sense. Replacing current systems costs a bit more, so retrofitting is stalled until the older equipment begins losing its efficiency (Hall 2011). Despite having to wait before 100% retrofitting is available, every individual we interviewed agreed that the switch to geothermal heating/cooling has been a significant step for Skidmore's sustainability. For future planning, Mike Hall explained that, when determining what aspects of the building plan must be sacrificed to fit a previously allocated budget, geothermal is unmovable. Based on the data available, overall gas consumption since 1997 has only gone down by about 2%. This underwhelming number could be due to many factors. For one, the reduction in natural gas consumption from Skidmore's peak, in 2004, is much more significant at 20%. Additionally, while there was an increase in geothermal heating/cooling as an option,

Skidmore still had to support a large amount of construction and new buildings in this time, as well as an ever-growing student body. For these reasons, demand increased simultaneously with geothermal availability. Finally, the data available does not go beyond 2009 and at this point Skidmore was still operating with a centrally location boiler system. This boiler system, as discussed above, contributed significantly to heating efficiencies throughout the campus.

Dan Rodecker mentioned that emerging incentives from the National Grid and the New York State Energy Research and Development Authority (NYSERDA) has increased efforts towards sustainability, but the details are unclear.

Although many successes pepper the history of physical operations, there have been setbacks and pitfalls as well. A major disappointment in Skidmore's building plans was the design of the Tang Museum. Aside from being extremely far away from the central heating system, the Tang lacked any progressive environmental design (Sue Van Hook 2011). The Tang's south-facing slanted roof offers an ideal surface for a solar panel, and the physics of the roof created excess runoff, requiring the construction of a water holding pond. Even the more progressive buildings, such as Zankel, are believed to lack sufficient environmental standards. Kim Marsella expands on this problem, stating that Skidmore should use the existing spaces more efficiently. While the new buildings are the "sexy sustainable" alternatives, she explains, they use more resources to construct and are generally less efficient at reducing the carbon footprint than retrofitting.

Lack of metering is also a setback in physical operations. Dormitories have recently been fitted with metering devices, which are admittedly expensive at the price of $5,000-10,000 per unit (Hall). Without proper metering, it's extremely difficult to obtain a solid metric and understand where Skidmore is using the most energy, or where changes have been effective.

There are constant efforts to make further advancements, though many of these are only in their beginning stages. Investments in large-scale off-site renewable energy are circulating through conversation (Neugebauer 2011). Facilities is in the midst of a pilot project to test the efficacy of LED lights in parking lots and the perimeter road, which would reduce individual wattage from 250W to 50W. Concerns within this project are primarily issues of safety, and Skidmore, as a college campus, must prioritize the safety of students above environmental efficiency (Rodecker, Hall, Neugebauer 2011). Mike Hall also mentioned that there is growing consideration for a cogeneration plant. He explains that the updated boiler system and geothermal systems have markedly reduced usage of natural gas, but that electricity has yet to be significantly affected. The cogeneration plant would utilize a bit more natural gas but leave a

big dent in electricity usage; ideally this process would balance the two and result in an overall reduction in both over Skidmore's history.

Other pilot projects have been deemed unsuccessful. For example, biomass and wind energy have been investigated but don't fit Skidmore's physical features well enough to be effective. Administration is waiting on technological improvements, improved incentives and reduced pricing before investing in solar energy (Hall 2011). However, there is talk of initiating a solar energy pilot project at Skidmore's boat house. Because of the low electricity, water, and gas demands of the boat house, it is an ideal location to test the efficacy of solar energy, though the final decision on this project is still pending (West 2011). Green roofing has also been considered in the past, but was ultimately pushed aside (Hall 2011). Currently, Administration is very weary of green roofing. Green roofs require fairly flat rooftops, and Saratoga Springs' snow-heavy winters require pitched roofs to avoid any cave-ins. There is also an issue of safety, and Skidmore is justifiably uncomfortable requiring frequent and regular rooftop maintenance from their staff.

Facilities and Administration have generally been extremely responsive to environmentally based suggestions and changes, with many interviewees attributing this positive and receptive reaction to Mike West, Mike Hall and Dan Rodecker (Kellogg, Rodecker, Hall 2011). Many environmental considerations have also become increasingly affordable over the years, and projects are becoming more and more viable (Hall 2011). While it's easy and accurate to say that Skidmore could always do more, considering resource constraints and balanced priorities, the physical operations have actually been well advanced. There is general consensus among our interviewees that Skidmore has reduced its carbon footprint from the original projected footprint, which did not account for infrastructural changes such as geothermal heating and cooling.

Governance and Policy

Methods

We interviewed a number of faculty and staff regarding issues of governance and policy. The faculty included Sue Van Hook, Karen Kellogg, and Kim Marsella. Staff members included Carol Schnitzer, Daniel Rodecker, Riley Neugebauer, Michael Hall, and Michael West.

In order to compile a comprehensive list of prior and present governance and policy decisions pertaining to sustainability, we utilized Campus Environmental Committee Annual Reports and current policy documents.

Results/Discussion

A significant step Skidmore has made in terms of governance is the recent addition of the position of Sustainability Coordinator to the staff, as mentioned in the Outreach section; she is spread very thin, and has many responsibilities. However, the sheer fact that we have this position is making good progress. In 2007- 08 and 2008-09 academic years, the position was funded by a grant from the Educational Foundation of America. In the 2009-10 academic year, the position was funded by the President's Discretionary Fund. The 2010-2011 academic year is the first year the position has been made a permanent fixture of the operating budget cycle (West 2011).

The Sustainability coordinator has numerous responsibilities, and as mentioned before, some of these fall by the wayside. However one huge success that the position played a role in was the creation of a Skidmore Student Garden. This was mainly a student led initiative, and was taken well by the administration, mainly due to a well-crafted and confident proposal (West 2011). While there were some concerns of a lack of labor for the garden, the school subsidized help in the Summer North Woods Intern positions. This successful initiative still stands functioning and growing today, and has been institutionalized in Skidmore's budget system. This is a model for success in a student initiative, and how the Sustainability Coordinator position can help connect students and the administration. What is even more impressive about this success is that the effort was institutionalized, despite the fact that it was a zero-payback project.

Currently, many of the people who play large roles in decision-making at Skidmore sit on the Campus Environmental Committee (CEC). The role of the CEC is to review and recommend

environmental policies and procedures in such areas as land management, construction, waste management, purchasing, recycling, energy use and air quality. The CEC has undergone some significant changes in terms of the strength of its role in policy deliberations. In 2001 the CEC was declared a subcommittee of the Institutional Policy and Planning Committee (IPPC). In 2005 at the CEC's request, the CEC chair was invited to attend IPPC meeting as a guest. In 2006 the CEC chair became an official member of the IPPC. Because of the current structure of the CEC, influential people within the environmental realm have direct contact with influential people in administration. The CEC is the theoretical connector between the environmental concerns of students, faculty, facilities, administration and financing. Riley Neugebauer, a current member of CEC and current Sustainability Coordinator, describes their current activity as somewhat useful, but also recognizes that it could be better used to established necessary policy regarding sustainability.

There currently exist a number of active sustainability-related policies passed by the CEC. In 2001 a policy was enacted requiring the recycling of building materials. There is also a paper reduction policy enacted in 2006, and a Tray-less Dining Policy enacted in 2008. Additionally there are policies enacted intending to reduce energy use such as the Lights Out Policy which has been active over the last 6 years and the Temperature Set Back Policy, coupled with a 3-4 year project to replace outdated building controls to more accurately control building temperature. Currently there is a policy in the works to ban the use of space heaters in residential halls, for both safety and energy use implications.

The above policies focus on small-scale and behavioral changes, however there is a demand for more formal, large-scale policy that will result in actual changes in resource consumption, greenhouse gas emissions and environmental education and awareness on campus. There have been some student-led attempts to pass policy of this nature, such as the American College and University President's Climate Commitment. In 2007, members of EAC petitioned to, and held a meeting with President Glotzbach urging him to become a signatory of this national commitment. He did not sign the Commitment, but said that they would take similar initiatives as required of those who did sign (Greene). These initiatives include 1) The development of a comprehensive plan to achieve climate neutrality as soon as possible, 2) The initiation of two or more significant, tangible actions to reduce greenhouse gasses while the comprehensive plan is under development and 3) Make these plans, inventories and progress reports publicly available by providing them to the Association for the Advancement of Sustainability in Higher Education (President's Climate Commitment). Skidmore has completed a GHG inventory, and is in the process of creating a Climate Action Plan, but

accessible information only states the climate actions plan will “set a percent carbon reduction by a target date” (Sustainable Skidmore). If the lack of a definitive description in this text is an indicator of the commitment Skidmore will take, it is not likely that the word “neutrality” will be present in the Plan. Additionally in the second part of the President's Climate Commitment, the possible tangible actions listed include:

1. Establishing a policy for all new campus construction to be built at least to the U.S. Green Building Council's LEED Silver standard or equivalent; at Skidmore, we don't officially comply with LEED standards in our building, but aspects of the requirements are used in each project. The theory behind this is to save the money it takes to get certified, and put it towards creating a more efficient building (Hall).
2. Adopting an energy-efficient appliance purchasing policy requiring the purchase of ENERGY STAR certified products in all areas for which such ratings exist; at Skidmore, we do not have an official purchasing policy, and Karen Kellogg identified this as a major gap in current policy.
3. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by the institution; in our most recent GHG report, Scope 3 emissions (including faculty air travel) are a large portion of the total emissions, and as of now we have no such policy.
4. Encourage the use and provide access to public transportation for all college community members; we do employ the CDTA bus system to provide free rides for all Skidmore community members. However, it is worth mentioning that our bike share program is underutilized, and there is very little infrastructure to provide safe and effective walking and biking on campus.
5. Within one year of signing this document, begin purchasing or producing at least 15% of our institution’s electricity consumption from renewable sources; The Sustainability Coordinator stated that the purchasing of renewable energy is a short-term goal, however it has not happened on campus yet.
6. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution’s endowment is invested.
7. Participate in the Waste Minimization component of the national RecycleMania competition, and adopt 3 or more associated measures to reduce waste; this past year (2010) we did hold our own RecycleMania, but the success was underwhelming (Neugebauer).

In terms of policy, we have not made a great deal of progress towards any of the goals outlined in the national Commitment. We do have policy but there are holes, efforts are not always placed towards the most important initiatives, the policy is not always effective and missed opportunities often occur (Marsella 2011). For instance, Jonathan Greene '07 pushed for a "D-Hall Revolution" in which the dining hall would purchase more foods from local sources. There was overall success in the proposal with a good student interest and an anticipated positive local economic impact, however the next year the dining hall administration that had agreed to this plan had all left, and the project disbanded. The initiative was not institutionalized soon enough to become a functioning part of college policy. In addition, when the new dining hall was under construction, the Student Government Association passed funding for a composting system behind the new building. The administration delayed in the decision-making, claiming they lacked money for employing the manpower to maintain the system (Greene 2011). A new dining hall is built but once every 70 years or so, and in this case; there was student demand yet no community conversation. In this tradeoff between fiscal restrictions and sustainability, sustainability did not come out on top.

More widespread and generally more successful than formal policy, Skidmore currently practices some informal sustainable actions. Michael Hall and Michael West (2011) both stressed that environmental considerations are taken in every building project. Hall (2011) also states that a part of this is due to the fact that "going green" used to be expensive, and now it saves money. The way these considerations have evolved can be seen in the differences in the construction of the Tang and the Zankel Music center. They were built under very different Chief Financial Officers, and while there were virtually no environmental considerations taken in the construction of the Tang, every aspect of the Zankel construction included an environmental evaluation; and it was built almost to LEED Silver Standard (Hall, West 2011). Mr. Hall stated that geothermal is a priority in building, and that it is never one of the cut costs they make. He also states that an ideal project will have less than a 6 year payback period, but exceptions are often made for really good sustainable projects. A geothermal systems installation in Zankel had an estimated payback period of 12-18 years, but this aspect was not cut (Neugebauer 2011). This speaks well for the strength of informal policy on campus, but because of the lack of formal policy, sustainability is not yet being considered in every decision. For example the recent installation of Lucy's Cafe, in the Library, was done without sustainable considerations. Their brewing practices utilize Keurig single-cup coffee brewing methods, which are significantly more wasteful and less sustainable than standard brewing processes. Additionally, the Sustainability Coordinator was never consulted during the planning and

construction of the cafe. This begs the question: Why hire a Sustainability Coordinator and then not seek their opinion for major campus changes? While there is a clear improvement in the consideration of sustainability in campus planning and construction, they are happening due mainly to informal policies, and until these policies are made formal, the college runs the risk of losing these necessary informal practices with a change in administration.

CONCLUSION

Based on ES Department Annual Reports, Skidmore Course Catalogs, and interviews with faculty we have found an increase in ES majors, ES faculty, ES-100 enrollment, and available ES courses. This shows that the institution is taking the environmental studies program seriously, and that student interest is supporting the growing program. The ES Program is growing horizontally as well, spreading across 15 different departments and programs. However, there is still a demand to integrate environmental issues into more humanitarian subjects, such as diversity and justice. Additionally, the ES Program is currently only reaching students that are intentionally and actively involved with the study, while students who are uninvolved with this program remain unaffected by environmental education. For this reason, we recommend the integration of either a foundational Environmental Studies course that would be required of all students, or an environmental component in the campus-wide First Year Experience that discusses the ecological and social implications of current environmental issues. This would bring environmental discussion outside of the classroom, and would provide students with baseline knowledge of environmental issues that would follow them through college and beyond.

Discussions with faculty, staff, and students have shown that people who are not directly involved with environmental issues on campus are unaware of the steps Skidmore has taken towards sustainability. It is necessary that this issue be addressed. If the Skidmore community is unaware of environmental initiatives, they cannot connect with the efforts and cannot fully understand the cause and effect of these initiatives. Based on comparisons of interviews, we have found a disconnect between various interest groups throughout the college. These disconnects exist between students, faculty, staff and administration, and are caused by inefficient communication and insufficient publicity. We believe that Skidmore has the ability to integrate our initiatives, and make them accessible to everyone. For example, while the science behind geothermal may be unapproachable to the majority of the community, we feel that there is a way to frame the issue in a comprehensible manner. For instance, it is easy to understand that geothermal heating and cooling reduces dependence on natural gas. This is

especially applicable due to the local social, health, and economic implications of continued hydraulic fracturing in the area. If Skidmore could highlight its strides to decrease natural gas dependency, and what that means in terms of hydraulic fracturing, they could increase campus awareness and education, and also attract prospective students who value these initiatives. An admissions plan that stresses Skidmore's sustainable efforts would attract students with value systems that support, promote, and act upon environmental issues, both within the campus and the surrounding community.

We found that Skidmore's installation of geothermal heating and cooling systems in the newest buildings, as well as retrofitting efforts in the older buildings, has had a significant impact on Skidmore's natural gas usage. Additionally, the recent move from a central boiler system to an individualized system has prevented significant heat and water loss. These results show initiatives to reduce energy usage, and more importantly, show success in reducing energy usage. However, there have only been reductions in natural gas and water consumption, while electricity remains unchanged. This is due in part to increasing demands from technology-heavy lifestyles. Electricity dependence is growing faster than Skidmore can fix it, and student expectations and standards are still exceeding carbon neutrality and fueling over-consumptive lifestyles. With all of this in mind, Skidmore has to work that much harder in actually reducing electricity usage. Despite legitimate reluctance and concerns in the installation and maintenance of some renewable energies, we feel that Skidmore needs to take a risk and invest in on-site renewable energy, particularly photo-voltaic systems. Not only would this hold the potential to decrease electricity consumption, it would also supply Skidmore with a visible sustainable change, leading inevitably to positive press.

Many interviews discussed the steps that lead to the establishment of a sustainability coordinator and the important role it has played in the recent years. What started out as a grant has now turned into an institutionalized, permanent, paid position. Skidmore is paying an employee to ignite, organize, and maintain environmental initiatives. However her efforts don't reach their ideal potential because she is overwhelmed by numerous responsibilities, and spread entirely too thin. For this reason we recommend a larger sustainability staff, or more work studies in the sustainability office.

Campus Environmental Committee Reports, documents, and interviews have shown an increase in supported initiatives as well as increased budget allotment for environmentally based initiatives. The administration has also been more receptive to well-crafted student inquiries and proposals. We've found that this is due to three reasons: 1) In recent years it has become economically viable to initiate and maintain sustainable measures; 2) The individuals

that currently hold high positions in administration have more personal interest in the issues, thus more informal policies currently exist on campus. 3) There is a general cultural shift towards sustainable development outside of the college's walls, and this has trickled into the college's mentality. However, none of these significant shifts towards sustainability are recognized by the college through formal policy. It exists only as long as the student is interested, or the administrative official is employed. We recommend that the CEC works hard to pass more large scale policy including an official geothermal policy for all new construction that also takes into account applicable LEED standards. The Scribner Village replacement is an opportunity to go forth with this initiative, and could become a real model for sustainable growth on campus. In addition, Skidmore has recently acquired 200 acres of undeveloped land, and is expected to receive another 400 acres in the future. What Skidmore does with this land will be very telling of its dedication to sustainable growth. It is crucial that this land be utilized in a sustainable fashion, and as a environmental teaching tool for students and the community. Furthermore, we have noticed a wide-spread frustration from students who either feel that their efforts to propose ideas to the administration go unheard, or even ignored. We feel that this is due mainly to the lack of transparency of the campus decision-making process, and students' amateurish organizing skills. To address this issue we recommend a policy that outlines procedures for students to effectively propose initiatives on campus.

Campus sustainability is inextricably connected to both a reduction in the campus' carbon footprint and the standards the school sets for environmental consciousness. David Orr (1996) explains this link when he says, "The deeper problem is that we have assumed, wrongly I think, that learning takes place in buildings but that none occurs as a result of how they are designed or by whom, how they are constructed and from what materials, how they fit their location, and how and how well they operate." Skidmore has made strides in both improving its physical functions as well as its community engagement efforts, however these need to be united across departments, programs, students, faculty, and administration. Skidmore's hiring of a Sustainability Coordinator is one way to mediate this disconnect, but there needs be clearer communication throughout campus on all levels. Discord emerges when there is a lack of communication. The true form of success comes when there is a balance between student activism and awareness, and administrative governance and policy.