

Defining Environmental Stewardship Activities in the Huntsville Lakes Sub-watershed



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Abstract

Environmental stewardship is a necessary activity to protect, enhance, and maintain the environment. If it is taken on we can see positive environmental, economic and social changes as a result. This report focuses in on what constitutes environmental stewardship in the Muskoka Watershed. It will aid the Muskoka Watershed Council, who produces a watershed report card, to further analyze stewardship activities in the region. This was accomplished by interviewing stewardship organizations and lake associations in the region and using supporting material from the literature. This report found that stewardship is a broad concept that is being applied in Muskoka. It ranges from broader concepts of sustainability to monitoring environmental contaminants to undertaking environmental restoration.

This report analyzes the motivations, goals (both short- and long-term), and how these goals are integrated into the organization's framework, the activities currently being undertaken, how they have been able to set up stewardship activities, how these activities have contributed to the organization and the overall watershed, the challenges and benefits of implementing stewardship activities, and the perceived economic value of these activities. This report found that organizations and associations are having difficulties with gathering funding for projects, sustaining volunteers, and raising awareness about watershed scale issues. Furthermore, it is recommended that an economic valuation of the watershed could go a long way in encouraging volunteers to take part in stewardship activities, further studies should be conducted on attitudes towards environmental stewardship, and education should be increased to encourage watershed scale environmental protection.

Introduction

Environmental stewardship is a necessary activity that improves the environmental services and features in a region and encourages residents to take responsibility for improving the health of the land and water (Muskoka Watershed Council, 2010a). Stewardship activities in the region provide opportunities for community members to get involved with the enhancement of environmental features in the Watershed. The Watershed report cards, produced by the Muskoka Watershed Council (MWC), encourage people to “become an environmental steward” and provides guidance on activities but criteria for reporting on these stewardship activities and evaluating their effectiveness has never been developed (Muskoka Watershed Council, 2010b).

The purpose of this report is to evaluate what constitutes environmental stewardship in the Muskoka Watershed. This will be accomplished by assessing the current literature regarding environmental stewardship and conducting interviews with stewardship organizations in Muskoka. The objective of this report is to create criteria for evaluating what constitutes environmental stewardship. This will aid the MWC to evaluate environmental stewardship across the Muskoka Watershed. Considering the potential impacts and changes that will occur in the future with regards to climate change, environmental stewardship is becoming an important aspect for the region.

The MWC's missions are “to sustain and enhance the air, water and terrestrial ecosystems of the watersheds of Muskoka for the environmental, health, economic, spiritual and intrinsic values they provide” (Muskoka Heritage Foundation, 2012b). In order to make this possible, the council evaluates the watersheds through programs that research, assess, monitor and evaluate the health of the watershed. In discussing my project, we first scoped this mission down to an assessment of stewardship activities across the MWC client area. A further narrowing of scope was needed simply because of the large size of the Muskoka Watershed. Therefore, I selected one sub-watershed and focused on participants therein. I chose the Huntsville Lakes Sub-Watershed. This was chosen based on information given by the MWC. Huntsville was chosen for this study as it is a highly populated region, with known stewardship organizations and contacts, as provided by the MWC.

Readers should be aware that future studies can use my project as a baseline and comparative study for addressing questions about variation in stewardship and its approaches across any large watershed that have yet to be answered. My project is the first step in a linked series of studies that should address the MWC's agenda and mission in 3-5 years (or earlier if more concurrent studies of other sub-watersheds are conducted in 2012-2013).

The Muskoka Watershed

The District Municipality of Muskoka encompasses three watersheds: the Muskoka River Watershed and portions of the Black River Watershed and the Severn River Watershed; these areas are known collectively as the Muskoka Watershed (Muskoka Heritage Foundation, 2012c). The Muskoka River covers an area of approximately 466,000 hectares on the eastern side of Georgian Bay. The head waters start in the western end of Algonquin Park, flowing south to eventually discharge into Georgian Bay. The Black and Severn River Watersheds cover an additional area of 2,538 square kilometers. The head waters of the Black River start in the Township of Algonquin Highlands and flow south-west through the District Municipality of Muskoka, where it enters the Severn Watershed and discharges into Georgian Bay (Muskoka Heritage Foundation, 2012d).

The regions watersheds are split into 20 sub-watersheds by the Muskoka Watershed Council (MWC). Every four years (previously every three years) this council develops a Watershed Report Card, for the Muskoka Watershed and its twenty sub-watersheds, to monitor indicators of watershed health. To date, the 2010 report card indicates that overall the region is above standard with regards to land, water, and wetland health (Muskoka Watershed Council, 2010).

The mission of the District Municipality of Muskoka's planning and economic development is to plan "for a healthy, vibrant and resilient Muskoka with responsible growth and conservation of our natural and cultural heritage through a community process that builds relationships, demonstrates professionalism and provides excellence in service" (District Municipality of Muskoka, 2007). Muskoka's main appeal is its natural beauty for cottagers, residents, and tourists. The municipality focuses on creating a balance between economic developments and protecting the natural environment (District Municipality of Muskoka, 2011).

The Importance of Watersheds

A watershed, also referred to as a catchment, is an area of land that drains into a common water body such as a river, lake or stream (Wilder and Kiviat, 2008). The boundaries of a watershed are called the drainage divide or catchment boundary (Charlton, 2008, p. 3). This divide could be a ridge or mountain, but can be less obvious in level landscapes. A watershed can include any mixture of land and water habitats such as wetlands, rivers, lakes, prairies, forests, and human activities (e.g. agriculture and cities) (Muskoka Heritage Foundation, 2012a). The water originates as precipitation which moves through the landscape to drain into a stream, river, or lake (Charlton, 2008, p. 3). Watersheds are significant for a variety of ecological, economic, and social reasons.

Ecological Importance

Healthy landscapes are those that provide adequate function for the preservation of biodiversity, ecosystem productivity, biogeochemical cycles, and larger evolutionary processes (Naiman et al., 1992). In watersheds, this is accomplished by protecting the lateral, longitudinal, vertical, and temporal connections with the environment and its components (Naiman et al., 1992). Watersheds allow water to be drained out of the landscape; the drainage of water allows for the energy transfer of material from terrestrial landscape to freshwater systems (Palmer et al., 2002). The connections between terrestrial and aquatic landscapes are susceptible to considerable ecological change when the environment is impacted from land use change from human activities.

The land, water, and wetlands encompassing watersheds provide a variety of aquatic, wildlife, and plant species with habitat which is important in the conservation of species (Wilder and Kiviat, 2008) and the protection of biodiversity (Naiman et al., 1992). Furthermore, this type of landscape provides essential ecological services such as water purification, ground water and surface flow regulation, erosion control, stream bank stabilization, flood abatement, and carbon sequestration (Brauman et al., 2007). The value of these ecological services contributes significantly to the environment, the economy, and society.

Economic Importance

It is very difficult to place a monetary value on ecosystem services provided by the environment when it is not directly sold in the market (Hanemann, 1994), thus intangible and indirect environmental services are ignored or perceived as worthless (Kennedy and Wilson, 2009). The perceived cost of cleaning up the environment in the short-term is immense when longer-term calculations of these services are not adequately represented. The valuation of ecological services and resources is an important task in order to implement policies that adequately protect the environment (Haneman, 1994).

The economic value of environmental services has been implemented for many watersheds around the world (Kosoy et al., 2007) and it has resulted in the clean-up of the environment by citizens, governments, and corporations (Chichilnisky and Heal, 1998). Protecting the environment services in watersheds creates many economic returns from which the economy and society can benefit. For example, the protection of forest, natural stream channels and wetlands aids in flood abatement (Environmental Protection Agency, 2006). The cost of providing flood abatement by man-made means and flood damage far exceeds the cost of allowing the environment to control water flow naturally through the watershed (Criss and Kusky, 2009). Kennedy and Wilson (2009) estimate that the Credit Valley Watershed in Ontario

provides \$371 million in ecological services which saves residents \$100 million in water supply costs.

In a report on the economic valuation of Delaware Watersheds, Narvaez and Kauffman (2012) indicate that the cost of natural resources for the economy by the regions watershed are \$6.7 billion per year and contributes to approximately 70,000 jobs and \$2 billion in wages. Degrading natural resources through development and extraction is not sustainable in the long term for the economic industries that rely on natural resources as a source of income.

Furthermore, this cost can increase when you factor in tourism and recreational benefits (Dixon and Sherman, 1991; Narvaez and Kauffman, 2012). Apart from the natural resources of Muskoka, tourism and recreation are important factors for the economy of Muskoka (Muskoka Watershed Council, 2010a). These activities benefit significantly when the environment is protected. This protection maintains the natural beauty of the landscape which is what attracts cottagers and tourists to the region.

Social Importance

When the environment is not functioning properly or is degraded, human well-being suffers as a result. We rely on the environment for our survival. We use the environment for medicine, food, shelter, and water. When the environment has reduced biodiversity it affects ecosystem function which in turn impacts society. The environment can no longer provide adequate ecosystem functions that maintain clean air and water, and regulate climate and other basic resources we require for our survival (Díaz et al., 2006). In Muskoka, when the environment is protected and maintained in the natural state, residents, cottagers and tourists benefit from increased health and well-being.

Watershed Protection and Muskoka

Watershed management in Ontario typically occurs via cooperation between stakeholders, conservation authorities, municipalities, and government agencies. Ecosystem protection, as defined by Davenport et al (2006), is the “application of ecological and social information, options, and constraints to achieve desired social benefits within a defined geographic area and over a specific period”. Agencies need to come together to protect our watersheds at the watershed scale and in an integrated manner (Heathcote, 2009; Conservation Ontario, 2010). Integrated watershed management is when several stakeholders come together to protect ecosystem resources and functions sustainably by managing human activities and natural resources within a watershed. Successful integrated watershed management takes into consideration the sustainable use of water, maintenance of good water quality, protection of

ecological functions, and sustainable development (Heathcote, 2009). Management must take into account water issues surrounding its quality, management, availability, requirements, and use.

Conservation Authorities in particular are organized at a watershed scale to protect and manage the natural resources of the watershed (Conservation Ontario, 2009a). Conservation authorities implement environmental stewardship programs to monitor and assess the watersheds, provide assistance, promote community involvement, build partnerships, and provide educational resources (Conservation Ontario, 2009b). In Muskoka, environmental stewardship must take place in the absence of a central conservation authority. The Muskoka Watershed relies on environmental stewardship to be undertaken by other stakeholders in the region including residents, organizations, the government, and municipalities.

Environmental Stewardship

Human activities have altered and changed the environment significantly without regard to the subsequent negative consequences. Consequences of our alterations include the impacts from pollution (e.g. health of the land, air, and water to ourselves and nature), land use changes (e.g. flooding, drought, desertification), and climate change, (Muskoka Watershed Council, 2010a) to name a few. The human population is exploiting the environment to a point in which we are consuming natural resources faster than the earth can replenish those sources. At this point in human history there are some who believe we have pushed the environment too far (Peachy, 2008). In order to reverse the damages from human alterations it is necessary for the human population to take part in environmental stewardship. An activity, according to Svendsen (2011) that is necessary as it applies to everyone physically, socially, and economically.

Defining Environmental Stewardship

Broadly the MWC defines stewardship as “the act of taking responsibility for the well-being of the environment and taking action to restore or protect that well-being” (Muskoka Watershed Council, 2010a). This can be achieved by anyone (e.g. individuals, government organizations or public organizations) at any scale. People can take part in restoring whole tracks of habitat to monitoring birds on their own property. Beyond this, the MWC promotes stewardship activities and for people to take part in becoming a steward of the land. Peachy (2008) has also mentioned broad definitions of environmental stewardship as anyone focusing on major environmental issues at any scale. The goals for stewardship focuses on balancing both development and the environment; determining the full extent of our impacts and how far we should limit or increase these impacts; creating criteria for goals that, at the very least, minimize human impacts; determining how to measure stewardship activities; and developing

processes that ensure responsibility for reversing environmental damage where possible (Peachy, 2008). It is important for humans to address the impacts from alterations to the environment; most importantly stewardship must be taken on as a responsibility of society.

Others suggest an even broader view, one of planetary stewardship (Steffen et al., 2011). Those who take part in planetary stewardship recognize the negative consequences humans have on the environment globally and call for the need to live sustainably with the environment, physically and mentally, and the systems on which we depend for our survival (Folke et al., 2011). It requires altering society's relationship with the environment by envisioning ourselves as part of the system on which we rely rather than separate. There are many approaches that can be used to promote planetary stewardship including becoming an active stewards of the land and taking responsibility for our actions (Steffen et al., 2011).

Stewardship Volunteers

Alberini and Segerson (2002) explain environmental stewardship as participation in a voluntary program where personal satisfaction or utility is gained from implementing activities to protect the environment. Bramston et al (2011) determined that the commitment of volunteers in organizations continue to protect the environment because of several motivation factors including health, lifestyle, engagement with the community, being with other people, and taking care of plants and animals. This author concludes that environmental stewardship organizations need to ensure their stewardship projects provide social and learning experiences and meaningful outcomes. Moreover, engagement in environment stewardship increases in people who were experiencing environmental losses (Hunter, 2011). This author determined that those who were closer to the environmental disturbance were more likely to be engaged with environmental stewardship.

Others stress the importance of maintaining objectives, funding, and accurate data collection in stewardships in order to keep volunteers interested in the group (Sharpe and Conrad, 2006). When people feel that their work is contributing to a larger objective, goal, or aim, more support is given year after year from volunteers. Nassauer (2011) insists that stewardship groups flourish when people care about the issues within the community. When problems are noticed people care about correcting the issue (Nassauer, 2011). If community members take notice about an environmental issue this could be an opportunity to promote stewardship activities and involvement. In this sense, stewardship is not just about fixing the problem presented in the community but rather a process of engaging people to take responsibility about the land around them (Nassauer, 2011) and to connect with nature (Bourdeau, 2004).

Stewardship and the Economy

As explained previously, the protection of the environment is linked directly to social well-being and the economy. However, environmental protection goes against the progress-driven economy that relies on the ever increasing consumption of natural resources. According to Levine (2011) environmental stewardship and the economy are compatible. The consumption of resources is unsustainable in the long-term as over-consumption will lead to the depletion of resources and over-time, destroy the economy.

Stewardship and Climate Change

The MWC has specifically mentioned climate change as a threat to negatively impacting the Muskoka Region in the future (Muskoka Watershed Council, 2010a). There is already pressure from development, pollution, logging, and wetland loss and climate change would increase the pressure on the natural environment. Considering the importance of maintaining Muskoka's natural beauty and heritage which attracts tourists to the region, it is necessary to reduce the pressures from human activities on the environment. Watersheds not only provide value intrinsically but economically in terms of hydrological benefits to society (Postel and Thompson, 2005). Muskoka's Watersheds and other watersheds across Ontario are protected at the Watershed level. It is important to provide the human population with adequate resources such as drinking water without destroying the earth's resources in the process (Richter, 2008). Maintaining areas at the watershed level ensures increased protection of the quantity and quality of drinking water. In the context of the changes foreseeable in the future by climate change, it is important to engage the community in stewardship activities (Chapin et al., 2009) especially at the Watershed scale. In the face of expected changes to our environment, stewardship activities need to reduce vulnerability of ecosystems, enhance resilience of ecosystems to promote desirable ecosystem trajectories, and interrupt undesirable trajectories (Chapin et al., 2009).

Community-Based Monitoring

In some cases, stewardship activities could be synonymous with community based monitoring. Sharpe and Conrad (2006) define this term as citizens, government organizations, industries, academics, community groups, or institutions that come together to track and respond to issues within a community. Other terms for community-based monitoring include citizen science or voluntary biological monitoring (Conrad and Hilchey, 2011). Environmental monitoring by communities focus mainly on issues impacting the economy but recently environmental and social issues have been included in community-based monitoring. The goal of the monitoring is to collect relevant, consistent data across an area of interest on a particular

issue and to use this data to inform policy and research. Environmental Stewardship is similar in that a community is involved with monitoring and responding to environmental concerns within a community. However, organizations involved with environmental stewardship do not have to include scientific monitoring as part of its goals like community-based monitoring initiatives. Whitelaw et al (2003) explain that community-based monitoring initiatives are increasing due to the need for information on environmental change, limited information available to the government and decision makers on environmental issues, decreased government funding, the need to incorporate all stakeholders into issues surrounding the environment, and the desire of citizens to undertake environmental protection programs. The approach is usually one of advocacy monitoring or bottom up monitoring (Conrad and Daoust, 2007). That is individuals in a community take on monitoring based on issues and concerns of the community in order to track the issue and implement measures to resolve the issue of concern. This can be seen as a way to better focus environmental stewardship initiatives in order to improve the effectiveness of the organization.

By analyzing the literature presented here, one can further understanding the complexities of environmental stewardship. This report will apply these criteria towards stewardship in the Huntsville Region of Muskoka, in order to determine what constitutes environmental stewardship.

Methods

As is usual, the comparative literature cited in the Introduction was used to clarify the concept of stewardship and then to guide the development of the set of questions to be used for the interviews. The literature review, interviews, and documents from the MWC would aid in the triangulation of the data analysis to validate the answer to the question, what constitutes environmental stewardship in the Muskoka Watershed (Mathison, 1988).

Nine environmental stewardship organizations and associations (i.e. lake associations and non-governmental organizations) were interviewed, for a total of eight participants in this study. Snowball sampling approach was used to gather a number of contacts in the Huntsville region; the number of total stewardship organizations and associations are unknown. The participants were selected based on their knowledge of current environmental stewardship activities being undertaken by these associations and organizations. A variety of organizations and lake associations were selected to be interviewed to aid in understanding the extent to which stewardship activities are being implemented. To keep the interviewees and their represented associations or organizations anonymous they will be referred to as Associations A, B, and C and Organizations A, B, C, D, E, and F in this report.

The interview questions were designed to be open-ended questions in a semi-structured format. The questions gave an indication of the organization’s motivations, goals (both short- and long-term), and how these goals are integrated into the organization’s framework. Furthermore, to gain an understanding of the activities currently being undertaken by these associations and organizations it was necessary to ask how they have been able to set up stewardship activities, how these activities have contributed to the organization and the overall watershed, the challenges and benefits of implementing stewardship activities, and the perceived economic value of these activities. This research has been reviewed and accepted by the Office of Research Ethics from the University of Waterloo.

The following tables list the questions that were asked to the interviewees. Table 1 indicates the series of questions that were given to participants involved with stewardship organizations and associations within the Huntsville Lakes Sub-watershed. Table 2 indicates the series of questions that were given to the key informants who are involved with stewardship organizations for the Watershed. Questions regarding the motivations of the program and demographics of volunteers were asked only the stewardship organizations and associations within the Huntsville Lakes Sub-Watershed. Key informants were asked broader questions regarding the whole watershed because these participants were part of larger organizations involved with stewardship across the Muskoka Watershed.

Table 1. Interview Questions for Stewardship Organizations and Associations in the Huntsville Lakes Sub-Watershed
What motivated you to start/be involved in this program?
What aims were in mind when developing the goals of this organization?
What are the short-term and long-term goals?
How integrated are these goals?
What are the demographics of the Volunteers involved with this organization?
How have you been able to set up activities to facilitate the goals of this organization?
How do you think the activities contribute to your organization and the Watershed?
What are the challenges and benefits involved in implementing activities within the Muskoka Watershed?
From you perspective, what is the economic value of the activities implemented within the Muskoka Watershed?

Table 2. Interview Questions for Key Informants involved with stewardship across the Muskoka Watershed
What aims and goals are in mind for the Muskoka Watershed?
What are the short-term and long-term goals for the Watershed?

How Integrated are these goals?
How do you think environmental stewardship activities within the region contribute to the watershed?
Have you been able to set up activities to facilitate the goals of the watershed?
What are the challenges and benefits involved with managing this watershed?
From your perspective, what is the economic value of the stewardship activities implemented within the Muskoka Watershed?

Results

The following is a summary of the results gained from the interviews. Each sub-section is followed by a table that clearly outlines

Motivations of the Stewardship Organizations and Associations

Six of the participants interviewed indicated that the primary motivation for starting the organization is tied directly to rising concerns about environmental conditions and the need to protect the lakes and the surrounding environment in its natural state. For example, Organization B ensures the protection of watershed health and keeping the intrinsic value of the region intact by evaluating the health of the region and educating and communicating with people about the importance of watershed health.

On the other hand, organizations C and D focus on more broad goals related to the environment. For example organization C is attempting to prepare the region to adapt to changes caused by global climate change through educating residents and encouraging individuals to make environmentally-friendly choices such as learning to grow their own food. Organization D has very similar motivations, in that this organization wants to educate residents to become more aware about environmental issues in the region and come together as a community to bring about positive environmental change. Organization A gave information involving the implementation of the Unity Plan, a document created by the community of Huntsville, Ontario. The Utility Plan identifies the importance of setting environmental stewardship as a priority. Part of the vision statement for this plan is to foster environmental stewardship activities in the region.

Association B pointed out that monitoring and other stewardship activities started as a result of water contamination that occurred several decades ago. This incident showed the vulnerabilities of the lake to environmental degradation and the need for an association to monitor the lake and undertake activities to keep the health of the lake intact. Association C indicated that their motivations are twofold: to ensure (1) the health of the lake and (2) the

enjoyment of the lake by residents and visitors. The following table (table 3) summarizes the results presented regarding the motivations of stewardship organizations and associations.

Table 3. Summary of Results: Motivations	
Organization A	<ul style="list-style-type: none"> • Part of vision statements for the Unity Plan is to foster environmental stewardship in Huntsville, Ontario
Organization B	<ul style="list-style-type: none"> • Protect watershed health • Protect intrinsic values
Organization C	<ul style="list-style-type: none"> • Concerned about a lack of environmental awareness
Organization D	<ul style="list-style-type: none"> • Grew out of love for nature, enjoyment of the country • Concerns about negative changes from climate change
Association A	<ul style="list-style-type: none"> • Advocating for land use to attract bigger values of the lake • Represents the needs of the members
Association B	<ul style="list-style-type: none"> • Started as a result of concern regarding the vulnerability of the lake to contaminants
Association C	<ul style="list-style-type: none"> • Ensure health of the lake • Ensure the environment is enjoyable to residents and visitors

Aims of the Organizations, Associations, and the Watershed

The aims are the objectives that were kept in mind when developing the short- and long-term goals of the organizations and associations. Association B is a lake association that started as a result of acknowledging the environmental vulnerabilities of the lake. As such, the association aims to preserve, protect, restore, and improve the natural resources of their lake by obtaining funds to implement activities and educate residents. The remaining lake associations interviewed (Association A and C) were originally a cottagers' association that aimed to represent the views of the cottagers. Over time, both of these associations grew into environmental lake associations where protection of the lake, its cleanliness and safety, is paramount along with representing views of the cottagers.

For the larger environmental stewardship organizations interviewed, their main aims when developing the organizations include evaluating the watershed, protecting environmentally significant areas, advocating and raising awareness about environmental issues, communicating with other organizations and associations, learning to adapt to new environments and climate, and working together as a community. The following table (table 4) summarizes the results presented regarding the aims and goals of the stewardship organizations and associations.

Table 4. Summary of Results: Aims and Goals	
Organization A	<ul style="list-style-type: none"> • Incorporate large natural areas into the region • Make sure development considers and protect natural corridors

	<ul style="list-style-type: none"> • Impact how people perceive the watershed
Organization B	<ul style="list-style-type: none"> • Protect watershed health • Evaluate the watershed • Research and advocate for resources • Communicate with other organizations involved with stewardship
Organization C	<ul style="list-style-type: none"> • Educate • Raise awareness • Learn to adapt to a new environment and climate • Work together as a community
Organization D	<ul style="list-style-type: none"> • Educate • Raise awareness • Work together as a community
Organization E	<ul style="list-style-type: none"> • Protect ecological significant land in the Muskoka Region
Organization F	<ul style="list-style-type: none"> • Act strategically on environmental issues • Protect characteristics of the local ecosystem/watershed
Association A	<ul style="list-style-type: none"> • Represents the needs of the members • Large part of the needs of the members is environmental stewardship • Stewardship is represented through the Lake Plan • Advocate for land uses that attract the value of the lake
Association B	<ul style="list-style-type: none"> • Preserve, protect, restore, and improve the natural resources of the lake • Educate residents about environmental issues through seminars, conferences, and forums • Received and obtain funds for stewardship activities
Association C	<ul style="list-style-type: none"> • Represents a cottagers association • Grew into a environmental lake association • Protect of the lake is important (e.g. cleanliness and safety)

Short- and Long-Term Goals of the Organizations, Associations, and the Watershed

For the larger environmental stewardship organizations, long-term goals are to obtain more funding, value the ecosystem services in the region and conduct cumulative effects monitoring. Another organization is aiming to increase the number of volunteers and eventually establish an urban garden where this organization is established (Organization C). For the lake associations the long-term goals are similar to their aims discussed previously. That is, the associations want to protect the lake from environmental degradation by maintaining its health, cleanliness and safety (Association B and C). These associations' long term goals are to continuously monitor the water quality and educate residents about the importance of a healthy lake.

Short-term goals include water testing such as dissolved oxygen, pH, temperature and bacterial measurements; benthic monitoring; recording how long the lake stays frozen; and fostering a social environment around the lake (Association B and C). Short-term goals for the larger environmental stewardship organizations interviewed include improving their ability to assist with local organizations and associations and continuing education initiatives for the community about watershed protection (Organization B and E). The following table (table 5) summarizes the results presented regarding the short- and long-term goals of the stewardship organizations and associations.

Organization A	<ul style="list-style-type: none"> • Long-Term: Protect, preserve, restore, and enhance the environment and biodiversity of the region, reduce energy consumption and greenhouse gas emissions, encourage training on sustainability issues
Organization B	<ul style="list-style-type: none"> • Short-term: Improve ability to assist with organizations • Long-term: Find funding for ecological services evaluation, conduct cumulative effects monitoring
Organization C	<ul style="list-style-type: none"> • Short-Term: Develop core values of organization • Long-Term: Raise awareness about the environmental destruction of human activities
Organization D	<ul style="list-style-type: none"> • Short-Term: Establish an urban garden • Long-Term: Teach and raise awareness about urban gardens, recruit more volunteers, keep a close eye on development projects (i.e. watchdog)
Organization E	<ul style="list-style-type: none"> • Short-Term: Educate about what this organization does • Long-Term: get more funding
Organization F	<ul style="list-style-type: none"> • Work with other agencies and associations • Educate residents about responsible stewardship • Initiate and support stewardship projects • Recognize stewardship activities • Ensure residents have access to information regarding environmental management
Association A	<ul style="list-style-type: none"> • Maintain the environmental health of the lake – protect water quality, shorelines, natural beauty, wildlife, landscape, and habitat • Monitor developments that influence the lake • Represent the needs of its members – ensure lake safety, tranquility, peace, recreational opportunities, sense of community, low development, and boating • Interact with all levels of government and non-government agencies
Association B	<ul style="list-style-type: none"> • Short-Term: Conduct lake monitoring on bacterial measurement, benthic species, dissolved oxygen, pH, temperature, and how long

	<ul style="list-style-type: none"> the lake stay frozen during the winter Long-Term: Maintain and protect the quality of the lake, educate residents about environmental issues
Association C	<ul style="list-style-type: none"> Short-Term & Long-Term: conduct water testing, foster a social environment around the lake, ensure lake safety, ensure lake planning and development is environmentally responsible

Integration of Goals within the Organizations and Associations

All of the three lake associations interviewed have developed a lake plan. A lake plan is a plan that identifies the physical, environmental, and social values of the lake (Muskoka Water Web, 2012). It outlines the direction of stewardship and land use policies for the future. It provides education, policies, the current environmental condition of the lake, guidance for development, and special qualities of the lake. For these associations the short- and long-term goals described previously are integrated into these lake plans. Association C indicated that the views of their members drive policies for their region and that their members are a group of citizens concerned about the quality and development of their lake.

Organization D is an environmental organization that has recently been formed. As such, the members are currently taking the steps necessary to develop their core values and goals. For organization C, the participant mentioned that this organization has been focused and is accomplishing its goals. For the larger environmental organizations, the members feed other organizations and associations information that they have gathered from evaluating, protecting, and monitoring the watershed as stated in their short- and long-term goals (Organization B). Organization F indicated that each over-arching long term goal has short-term goals in mind. The annual work plan made by this organization highlights the short-term goals. The following table (table 6) summarizes the results presented regarding the integration of goals into the stewardship organizations and associations.

Organization A	<ul style="list-style-type: none"> Goals were created into the Unity Plan document for the town of Huntsville
Organization B	<ul style="list-style-type: none"> Goals are the very basis of this organization
Organization C	<ul style="list-style-type: none"> Integrated – goals that were set out by this organization are being accomplished
Organization D	<ul style="list-style-type: none"> Currently taking steps to get everything sorted out (e.g. mission statement) and integrate the goals into the organization
Organization E	<ul style="list-style-type: none"> Partner with other organizations for information (e.g. monitoring datasets and maps) to complete their goals

Organization F	<ul style="list-style-type: none"> • Aims of this organizations have both short- and long-term goals associated with it • Organization develops an annual work plan to highlight the most pressing issues and work towards completing that issues annually
Association A	<ul style="list-style-type: none"> • Stewardship goals are integrated into the lake plan document
Association B	<ul style="list-style-type: none"> • Stewardship goals are integrated into the lake plan document
Association C	<ul style="list-style-type: none"> • Members are aware the role this association has with forming policies • Views of organization drives the policy (landowners, politicians, district politicians, etc) • Association is a professional organization lead by concerned citizens

Demographics of Volunteers within the Organizations and Associations

There was a mix of answers related to this question regarding the typical demographic of volunteers in their organization or association. Two participants indicated that their members are generally older individuals who are retired and live in the region as cottagers (Association B and Organization D). Two other participants indicated that the age demographics varied in range from their 20s to 50s (Organization C and D). Families tended to bring their children out to workshops or activities (Organization C and F).

In terms of volunteers who remain active in participating in environmental stewardship activities, many participants indicated that these people were generally already environmentally minded and older (Organization C and D; Association A and B). Local residents are able to provide more time year round to participate in stewardship activities and cottagers/seasonal residents are only available for a limited time during the summer months (Association A). Moreover, both Association A and Organization F indicated that their most active members are also members of their committees or boards for their stewardship programs. The following table (table 7) summarizes the results presented regarding the demographics of volunteers within the stewardship organizations and associations

Organization C	<ul style="list-style-type: none"> • Some younger (As young as 10 years old) • All the way up to senior citizens • Every age in between (20s, 30s, 40s, 50s, etc)
Organization D	<ul style="list-style-type: none"> • Older demographic of volunteers (Youngest volunteer in approximately 40 years of old, oldest is 75)
Organization F	<ul style="list-style-type: none"> • 10 volunteers, mostly male, over the age of 50 • Workshops in the summer attract volunteers that are families with children

	<ul style="list-style-type: none"> • Workshops in the fall and spring attract adult volunteers
Association A	<ul style="list-style-type: none"> • Ranges from students to retired people • Mixture of male and female • Members of the committee are very active in the projects and can devote a long of time to volunteering (as they live near the lake, as part-time workers, or are consultants)
Association B	<ul style="list-style-type: none"> • Generally older, retired members of the associations that live on the lake • Volunteers are mostly the cottagers
Association C	<ul style="list-style-type: none"> • 45 volunteers associated with the lake activities • Groups undertake water testing and share information with other organizations and groups

Environmental Stewardship Activities: Setting up Activities

Members of the associations form committees to go through the action plans set out by their lake plan (Association A and B). The committee members determine the most pressing issues to be completed and go about implementing actions for those issues. Association C indicated that a big part of the process to set up activities happens through the association’s website, newsletters, and through communication with their membership.

The environmental stewardship organizations tend to set up activities through public education, news releases, word of mouth, conferences (Organization B and E), and through partnerships with other organizations (Organization F). Organization C, being a smaller newly formed organization, conducts its stewardship business mainly through setting up film showings about environmental issues and fundraising. Organization D sets up activities via a mailing list and website. The following table (table 8) summarizes the results presented regarding the setup of environmental stewardship activities within the stewardship organizations and associations.

Organization A	<ul style="list-style-type: none"> • Educating people about carbon foot printing, waste diversion, and recycling through a working group • Strategic technical plans are bi-laws to implement goals
Organization B	<ul style="list-style-type: none"> • Set up a conferences that provide resources about environmental stewardship • Hopes that people will take those resources/information back with them to their lake and implement stewardship activities • Tries to involve the public with stewardship activities
Organization C	<ul style="list-style-type: none"> • Projects are implemented in the community

	<ul style="list-style-type: none"> • Been able to set up these projects through mailing lists, phone calls, and the internet
Organization D	<ul style="list-style-type: none"> • Show films to the community • Set up fundraisers that enable the setup of more activities such as showing films and planting urban gardens
Organization E	<ul style="list-style-type: none"> • Public education • New releases • Word of mouth • Landowners advocate to other landowners
Organization F	<ul style="list-style-type: none"> • Develop partnerships with other organizations • Conduct activities with funding such as tree planting • Committee decides on what activities will attract the most number of volunteers and conduct advertising to attract people to the organization and its activities
Association A	<ul style="list-style-type: none"> • Environmental committee goes through the action items stated in their lake plan • Committee members determine what is the most pressing issue • Environmental activities are conducted during the late spring, summer, and early fall as that is when people are usually involved with volunteering for the association
Association B	<ul style="list-style-type: none"> • Association sets up a committee for each stewardship activity
Association C	<ul style="list-style-type: none"> • Website • Newsletter • Frequent communication with members • Annual member discusses environmental stewardship initiatives and other concerns • Create 1 or 2 social gatherings throughout the year for residents and members of the association

Environmental Stewardship Activities: Contribution to the Program and Watershed

According to Association B the number of bodies active in stewardship activities across the watershed is why the region is in such good shape ecologically. Association C indicated that this region would become like Lake Ontario if there wasn't so much advocacy and concern for the environment. The citizens in the region do not allow pollution of the lakes to happen. The participants have seen a marked improvement in the environment since monitoring had started. For example, Association B has noticed a trend of lower phosphorus levels in their lake, no major algae bloom, and the bacteria count is very good. Through stewardship activities, the associations and organizations ensure that monitoring is ongoing and that they keep an eye on the lakes' water quality and clarity.

All of the associations and organizations interviewed agree that stewardship activities are necessary for protecting and enhancing the ecological features of the region. Organization B indicated that positive changes to the environment are visible and vary with the extent of the activities implemented. Protecting the natural property of the environment will assist with water quality and protect valuable ecosystems and species. Associations and organizations that take on more of the strategic aspect of environmental protection focus projects on municipal planning and development that is beneficial for the environment and economy. Organizations that focus on environmental change through community projects indicated that the projects contribute in terms of community spirit because the organization is thinking about the future of the community. The following table (table 9) summarizes the results presented regarding the contribution of environmental stewardship activities to the stewardship organizations and associations and the watershed.

Table 9. Summary of Results: Contribution of Environmental Stewardship Activities	
Association A	<ul style="list-style-type: none"> • Most projects deal with municipal planning and development • Strategic look and on the ground activities
Association B	<ul style="list-style-type: none"> • Sometimes there is significant change from activities, other times very little noticeable change • Works with the ministry to accomplish goals and activities • Goals are integrated with the District of Muskoka planning program • Works closely with other organizations to educate residents about environmental concerns
Organization C	<ul style="list-style-type: none"> • Projects monitor water quality • Other projects include being a watchdog for water quality and advocating for the health of the lakes
Organization D	<ul style="list-style-type: none"> • Activities contribute significantly to the community and community spirit • Urban gardens help feed the community • Awareness aids residents in thinking about the future of their community • Projects make the community and the town a better place to live
Organization E	<ul style="list-style-type: none"> • Protecting natural property means assisting with the water quality of the watershed and the protection of native plants
Organization F	<ul style="list-style-type: none"> • Stewardship projects contribute significantly to the watershed • Stewardship organizations fill the gap in the absence of a central conservation authority
Association A	<ul style="list-style-type: none"> • Provides ongoing monitoring to ensure the lake water remains at a good quality • Project monitor and survey on behalf of the district • Keeping an eye on issues via environmental monitoring helps the watershed and the lake association

Association B	<ul style="list-style-type: none"> • The number of bodies that are active in environmental stewardship provide significant benefit to the watershed and research • Monitoring data has shown a trend towards the improvement of the phosphorus levels in the lake • There are no major algae blooms and the bacteria count is very good
Association C	<ul style="list-style-type: none"> • Environmental stewardship projects are conducted in conjunction with local politicians and governments • Issues and concerns are coming from the associations and volunteers • Projects have improved the lake over a period of years and decades due to advocacy from members and volunteers • Citizens of this association do not allow the lake to become degraded and take actions to reverse degradation when it occurs • Improvement of the lake is due to the number of stewardship activities implemented

Challenges and Benefits of Implementing Stewardship Activities

The benefits indicated in the interviews were the positive feelings towards taking care of the environment, passing it down to our children in a healthy state, and creating a more sustainable community. Association A stated that activities help them to monitor the health of the lake, which makes it easier for the association to respond to issues, causing the degradation of the lake and increases the members' peace of mind. Organizations and associations were able to increase opportunities for community engagement and development partnerships with other organizations and associations. Moreover, individuals acting as one within an organization were better able to act effectively to bring about change and achieve goals. The number of people acting together across the watershed, as explained by organization B, can aid in improving the health of the watershed, act at a strategic level to bring about change, and talk about the issues concerning the watershed more easily. For the Unity Plan in Huntsville, the benefit to come out of this plan was the incorporation, by the community, of environmental protection as the region develops.

The challenges indicated by most of the organizations and associations interviewed were related to the difficulty in getting volunteers to take part in environmental stewardship activities. The result of this is that the group is unable to undertake all the stewardship activities they wish to accomplish. Furthermore, one association indicated that those who volunteer every year are a core group of people making up of about 20% of their membership (Association B). However, organization B indicated that this core group of members are

amazing individuals who are strongly dedicated to improving the health of their lake and reducing their impact on the environment.

The other participants indicated funding, enforcement, and education as other challenges associated with implementing environmental stewardship activities and protecting the health of the lakes. Limited funding limits the ability of organizations to undertake all of the environmental stewardship activities they would like to accomplish. Enforcement is an issue for some of the associations because while some by-laws are implemented to protect degradation of the lakes, there is no enforcement to ensure that these by-laws are followed. Finally, education is a challenge because it is difficult (1) to teach people about ways to keep their property in a natural state and (2) to get people focusing more broadly on environment issues upstream or downstream from them. The following table (table 10) summarizes the results presented regarding the challenges and benefits of the stewardship organizations and associations.

Organization A	<ul style="list-style-type: none"> • Challenges: Groups not think at the watershed scale, unity plan is focused to the Huntsville Region • Benefits: People advocated for environmental stewardship to be part of the unity plan
Organization B	<ul style="list-style-type: none"> • Challenges: People tend to be lake focused, do not want to participate in stewardship activities, difficult to get people to understand why certain activities are not appropriate • Benefits: there is an amazing number of people involved with stewardship across the watershed, made up of a core group a dedicate people, makes it easier for this organization to discuss regional features and discuss broader issues
Organization C	<ul style="list-style-type: none"> • Challenges: Difficult to get volunteers, hard to get people aware and to understand issues • Benefits: Activities support the community and environmental sustainability
Organization D	<ul style="list-style-type: none"> • Challenges: Hard to get people to take them seriously as this organization has just been created, difficult to get volunteers, members are not tech-savvy • Benefits: Activities create a more sustainable community
Organization E	<ul style="list-style-type: none"> • Challenges: funding, limited staff, and hard to educate people to take action to do the right thing for the environment • Benefits: Developing partnerships with other towns, municipalities, organizations, and associations, able to work together to achieve the goals set out by their mandate
Organization F	<ul style="list-style-type: none"> • Challenges: Seasonal land base (hard to get volunteers engaged 12

	<ul style="list-style-type: none"> months of the year), obtaining funding Benefits: there is no duplication of effect as activities are well-received and there is a high demand, residents can take information back to their property and implement stewardship activities
Association A	<ul style="list-style-type: none"> Challenges: difficulties in getting volunteers, lack of enforcement around the lake to curb environmentally destructive activities Benefits: residents and members feel better that they are taking care of the lake, monitoring aids in members being able to respond to issues quickly
Association B	<ul style="list-style-type: none"> Challenges: Members are not going out of their way to implement stewardship activities, only a core group of members (approximately 20%) involved with stewardship activities, maintaining involvement and enthusiasm of volunteers Benefits: waterfront properties go up in value when lake is pure and beautiful
Association C	<ul style="list-style-type: none"> Challenges: Difficulties in obtaining funding/donators and getting volunteers Benefits: Able to pass the lake onto our children in a healthy state, stewardship activities are more effective when a whole community is improving and protecting the health of the lake

Economic Value of Stewardship Activities

Organization B pointed out that it is very difficult to place a value on environmental services or a healthy environment. Association C indicated that this value is “priceless”. However, many of the participants interviewed gave a monetary value of the cost of implementing activities, which varied significantly in range from \$10,000 to \$700,000; based on the amount of funding received. Many of the associations indicated lower values; this could have been related to the size of the association, as the scope of these lake associations are concentrated to one lake, while the organization that indicated the higher value of \$700,000 had a larger scope and is involved with implementing stewardship activities across the watershed.

According to organization B the relationship between the input of money to stewardship activities and the benefits back to the land is difficult to determine. However, the increase in mental and physical health from environmental services that provide clean air and water and healthy environments with high biodiversity was mentioned by a variety of organizations and associations.

Many other organizations and associations indicated the importance of the link between the economy and the environment. It was stated that “environmental health is woven into the

economic viability of the watershed” (Organization E) and the “environment is the economy and the economy is the environment” (Organization A). Improving the watershed by protecting the shoreline and increasing biodiversity will have significant long-term economic benefit for the region (organization B). One participant indicated that this is accomplished because people come to Muskoka for its intrinsic benefits which can be a boost to the economy from increased tourism and jobs (Organization C). The following table (table 11) summarizes the results presented regarding the perceived economic value of stewardship activities in the Muskoka Watershed.

Organization A	<ul style="list-style-type: none"> • Environment is the economy, and the economy is the environment • All groups collaborate with environmental working groups • Strong link in the region between economy and the environment
Organization B	<ul style="list-style-type: none"> • Cannot put a value on the environment • People come to Muskoka for the water quality • Funding – approximately \$700,000 • Long-term environmental stewardship would provide significant economic benefit
Organization D	<ul style="list-style-type: none"> • Projects potentially have a lot of value • Providing a cohesive community makes people want to come to this region which boosts the economy
Organization E	<ul style="list-style-type: none"> • Muskoka economy is tourism based • Environmental health is woven into the economic viability of the watershed • Healthy environment also means better physical and mental health
Organization F	<ul style="list-style-type: none"> • Difficult to measure the value of stewardship activities • Huge value economically from tourists who are attracted to the beauty of the region • This organization does not look at economic value but seeks to promote sound stewardship
Association A	<ul style="list-style-type: none"> • \$10,000 to \$15,000 to implement stewardship activities annually • Broader environmental value costs much more
Association B	<ul style="list-style-type: none"> • Environment provides many services that is difficult to place an economic value to
Association C	<ul style="list-style-type: none"> • Difficult to place a value on a lake that remains healthy • Cost is implementing activities is between \$125,000 to \$200,000

Discussion

Stewardship in Muskoka

There are two common similarities amongst all the definitions of environmental stewardship stated in the literature: (1) sustainability, or the need for balance between economic development and the environment (Steffen et al., 2011; Muskoka Watershed Council, 2010a) and (2) responsibility to take care of the land (Peachy, 2008; Folke et al., 2011). Indeed, many of the organizations and associations interviewed expressed either or both of these as a motivation or goal within their mandate. Within these definitions, the ethics and approaches to environmental stewardship are broad. It can encompass social, environmental, policy, or development work.

Socially, for example, one organization interviewed aims to develop an urban garden to supply more locally grown food. This is environmental stewardship because the overall aim is broad in nature (i.e. it could be conceived as planetary stewardship). Locally grown food reduces the need for the transportation of food from elsewhere which reduces carbon emissions into the atmosphere, aiding in the abatement, however little, to climate change (Organization C). This organization and its members take part in this and other initiatives because they want to make a change in their community that will benefit the environment. Although, it is important to note that this is not the only factor that motivates this organization. Its broad goals are to adapt to a new and changing environment due to climate change, raising awareness about environmental issues as well as working together as a community.

Environmentally, all the associations and many of the organizations take part in monitoring multiple environmental contaminants. This ensures that actions can be taken to reduce contaminants when trends indicate a rise in concentrations. In other words they are taking part in stewardship to ensure contaminants from human actions do not disrupt the natural beauty of the lake. Other proactive activities include tree plantings, shoreline rehabilitation, and monitoring of invasive species. Furthermore, many of the associations and organizations take part in educating residents, cottagers, and tourists about what they can do to maintain and protect the natural beauty of Muskoka by putting on festivals and workshops.

The Unity Plan, in particular, takes a more strategic look at protecting the environment by influencing municipal planning and development to become more sustainable and educate people about environmental issues affecting the watershed and what they can do about it, among many others. As discussed by Bramston et al (2011) these broad motivations and goals (i.e. health, lifestyle, engagement with the community, being with other people, and taking care

of plants and animals) is what continues the pursuit, by individuals, organizations, and governments to protect the environment and live sustainably.

Environmental and Economic Contributions of Stewardship

All representatives interviewed agreed that environmental stewardship projects contribute environmentally to the health of the watershed. While it is hard to calculate the impact each project has to the overall watershed, one of the respondents indicated that the collective impact of all projects implemented within a community carry greater impact than one person acting alone. Considering that the 2010 Muskoka Watershed Report Card states that the health of the watershed is above standard and has improved other the years; stewardship activities are essentially for protecting, enhancing, and maintaining the regions watershed. On a more local example, Association B noticed the vulnerabilities of the lake and took actions to monitoring environmental contaminates, implemented environmental stewardship activities, and set up an association to carry out long-term stewardship programs.

It is difficult to judge how the activities contribute to the watershed and even more difficult to judge the economic value of the activities implemented. In fact, each of the participants indicated how much they put into projects to enhance and protect the watershed each year and all agreed that it is having a positive impact to the watershed.

Stewardship Volunteers

As indicated by the participants the volunteers in their association and organizations that stay year after year are those who are generally older and are already environmentally-minded people. They are very dedicated to being stewards of the land and taking responsibility to ensure the health of the watershed. Even so, many of the respondents indicated that it is difficult to get volunteers. Furthermore, one association estimated that the group of dedicate stewards consisted of approximately 20% of its members. Another participant indicated that its volunteers were generally between 30 years of age and older with a few exceptions of other younger volunteers (as young as 10 years of age). To continue the protection of this watershed decades into the future, I think it is necessary to engage as many younger generations as possible about the importance of this watershed, what it provides when it's healthy, and why it needs continual protection. Finally, it is difficult for the associations to get its members to think of watershed stewardship (upstream and downstream of them) and not just stewardship of their lake. Despite this, Organization B indicated that the core group of people involved in stewardship have done much to ensure the protection and enhancement of the watershed.

Integration of Goals and Setting up Stewardship Activities

The goals of each of the organizations and associations interviewed are fairly integrated into the framework of those groups. For all of the organizations, environmental stewardship and the promotion of activities that aids in enhancing, maintaining, and protecting the watershed, are fully integrated because these are the stated mandates that motivated the organization to form in the first place. Their top priority is to create a Muskoka that is sustainable and environmentally healthy. As for the lake associations interviewed, most were created as a cottagers association, acting to represent the views of the cottagers around the lake. However, all of these associations turned into environmental lake associations as concerns were raised about water quality and other environmental issues. Monitoring the water quality of the lake and maintaining its natural beauty are part of the mandates for these associations. None the less, they still represent the views of the cottagers as they have done before but added to their mandate to focus on environmental issues as well. One association indicated that their council delegated members to become stewards. These stewards took on responsibilities to promote environmental stewardship activities and report on activities that would degrade the state of the lake. Furthermore, many of the associations give out a stewardship award to a member that shown active support to environmental stewardship.

Those who are active in the organizations and associations are taking advantage of every opportunity to get the word out about their organization or association and about the stewardship activities they are conducting. Furthermore, organizations and associations in Muskoka are forming partnerships with one another in order to set up, promote and conduct activities in the region. I believe this is one reasons as to the success Muskoka has seen in relation to its report card as the region is above standard with regards to environmental health.

Challenges and Benefits of Implementing Stewardship Activities

The benefits between all of the organizations and associations interviewed were positive feelings associated with implementing activities that would take care of the environment, let it maintain a healthy state, and creating a more sustainable community. From what has been stated by these organizations and association and supporting evidence from the literature review, many in the Muskoka Watershed want to bring about positive environment change in this watershed. In particular, one participant (Organization D) described their passionate motivations as coming from the love of nature, living out in the country and being concerned about the negative changes that could potentially happen from climate change in this area. This participant wanted to make a change that will maintain and protect the natural beauty of Muskoka and created an organization to bring about this positive change. Despite this, many others are motivated by other factors such as economic or social and not just environmental.

However, these can equally bring about positive change due to the connections between economic, social and environmental factors mentioned previously in this report.

There are two distinct challenges mentioned by many of the participants interviewed: difficulties in getting funding and getting volunteers. I think it is important to focus on these two challenges as funding will aid in the development of new projects and volunteers would aid in completing projects that do have funding. Moreover, organizations indicated that it is difficult to get members to think beyond a single lake and to think on a broader watershed scale.

Insights of this Study

While the definition of stewardship is broad in the literature and amongst the environmental stewardship groups in the Muskoka Region, any activity by residents and others that aims to protect, restores, enhance or maintain the environment could be considered environmental stewardship. This could be expressed in their motivations or part of their goals and are fairly integrated into the groups mandate or policy documents. Future studies can focus their efforts by studying specific activities or groups of organizations or associations (e.g. Lake associations, property owners, or groups undertaking water quality monitoring). Stewardship is fully integrated into the stewardship organizations, even when environmental protection was not the original motivation, and integrated into the development of the region. This indicates that members of the community are on the same page with regards to, at the very least, maintaining the beauty and health of the region.

Without a doubt, participants agreed that stewardship activities enhance the watershed and projects will continue to be implemented to maintain and enhance Muskoka. However, an economic valuation of the watershed's environmental services it provides would go a long way in encouraging residents, cottagers, and tourists to take part in environmental stewardship. It is possible to do an economic valuation of environmental services of an entire watershed as this has been implemented in many watersheds around the world (as indicated previously) (Kosoy et al., 2007). Furthermore, it has been proven that this economic valuation spurs people to take on stewardship activities to protect the economic benefits resulting from the environment (Chichilnisky and Heal, 1998). This could resolve issues regarding the difficulties some groups were having with regards to recruiting stewardship volunteers.

The second challenge that was brought up during this study was the difficulty in getting more funding. An organization that did not indicate funding as an issue, explained their efforts in fundraising to promote and complete projects (Organization D). While this is a smaller organization, fundraising for environmental stewardship could aid in a two-fold manner. For one, fundraising would increase the amount of money available to projects. Secondly, fundraising would be a way to spread the word about the importance of environmental

stewardship and watershed protection. Based on the insights gained from this study, actions regarding potentially next steps are provided in the recommendations section below.

Conclusion

The economic development in the region and its natural environment are extremely important for the region. In order to continue economic development, environmental concerns must be addressed and the protection, maintenance, and enhancement of the environment must be a priority. Many people in the region recognize the importance the environment plays in maintaining the economy and have implemented organizations and associations to protect the environment. The Muskoka Watershed has had people who have done an excellent job in maintaining its natural beauty. Stewardship activities are integral to continue and make positive environmental change in the region.

In the Muskoka region, what constitutes environmental stewardship is broad. While all activities recognize the importance of the environment to the economy and society, each have taken different approaches to go about making that change. Despite this, all organizations are united under the same benefits and challenges they experience and the same overall goals and motivations to promote desirable economic, environmental, and social change.

Recommendations

Based on the discussion presented above, here are three recommendations that should be implemented in the near future.

1. Perform an economic valuation of the Muskoka Watershed

This would be useful as I think it would be an invocation for people to take up the responsibility of environmental stewardship. Environmental services and resources are valuable to the economy, society, and the environment. This could potentially increase the amount of volunteers once people understand, in dollar terms, why this watershed is important to protect. A valuation of these services was indicated as an objective of the one of the organizations interviewed. I believe it would be prudent to conduct this evaluation as soon as possible.

2. Analyse the perceptions of development between cottagers, residents, and tourists.

The District of Muskoka and various organizations in the region are attempting, to varying degrees, to incorporate sustainable development. It would be interesting to gain an

understanding of the perceptions between the cottagers, residents, and tourists in the region. Some of these people have been in this region for an extended period (e.g. year round) or only during the summers. They may have different perceptions as to the development and environmental goals of the region.

3. Education of Watershed Stewardship

Watersheds are a complex system. If watersheds need to be enhanced is it important to act at a watershed scale. Activities that occur upstream have impacts downstream for example. It is therefore, necessary to take on an integrated approach to environmental stewardship to ensure a healthy watershed. While Muskoka's environmental stewardship organizations have done a fine job in developing partnership between one another, it was mentioned that it is difficult to get people to care about what occurs downstream or upstream from themselves (although there is exceptions of some individuals and organizations that take on watershed stewardship). It is important to increase the education about environmental stewardship at a broader scale.

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