

Shared Waters Create a Shared Future for the Squam Lakes Watershed

February 2014

A product of the Land Use Planning Seminar course in the Environmental Science & Policy
Graduate Program, Winter Term 2014.



Authors:

Chelsea Berg
Greg DiSanto
Jonathon Loos

Contributor:

Rebecca Hanson, Squam Lakes Association

Instructor:

June Hammond Rowan

Plymouth State University
Center for the Environment
17 High Street, Plymouth, NH 03264

Photo: View of Squam Lake from West Rattlesnake Mountain. Photo credit: Chelsea Berg, September 22, 2013.

Introduction

Exit the interstate and head towards the tranquil beauty of the Squam Lakes. The sunlight shimmers off the lake, evoking joy from longtime residents and visitors alike as Route 3 leads to the winding back roads of Squam. These lakes and surrounding landscapes embody an endless range of personal and community values for those who spend time here.

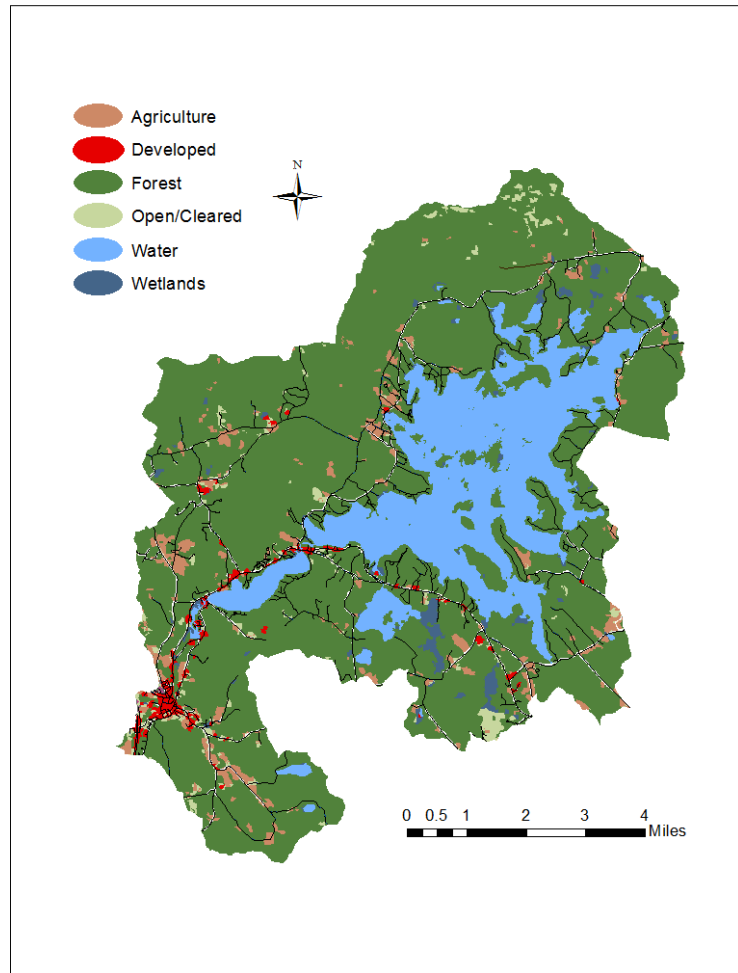


Figure 1. Land use map of the Squam Lakes Watershed. Map courtesy of the Squam Lakes Conservation Society.

Delineated by topography and the flow of water through drainage basins, watersheds supersede political boundaries to include all land that contributes runoff through a single outflow. The Squam Lakes Watershed is primarily composed of five towns that have shoreline on Big Squam and Little Squam Lakes - Ashland, Center Harbor, Holderness, Moultonborough, and Sandwich - with Campton, Meredith, and New Hampton making up a relatively small portion of the watershed. Precipitation events cause runoff to flow over farms, roads, and backyards before entering Squam Lake, the main basin of this watershed.

Thus, land use practices in each town effect the total water quality of the Squam Lakes, a

shared resource. Since the watershed connects multiple towns, planning for its protection must likewise be a joined effort. In the late 1980s, the New Hampshire Office of State Planning, now the New Hampshire Office of Energy and Planning, recognized the need for watershed planning and provided assistance to the Squam towns. With this assistance, the Squam Lakes Watershed plan was successfully completed in August 1991, but the plan has yet to be updated. Ideally, plans should be updated every five to ten years (US EPA, 2008).

The purpose of this report is to provide a preliminary review of the status of the Squam Lakes Watershed Plan and a summary of findings from a Squam Watershed Town Meeting held in January 2014. The provided charts and analysis may be useful to area towns and organizations as they address the issue of updating the watershed plan.

Watershed Planning

The Clean Water Act of 1970 recognized the importance of working to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” In order to uphold these goals, the source of pollutants must be identified and monitored. Some pollutants come directly from “point sources” like a discharge pipe, while others end up in the water from various “nonpoint sources,” such as overland runoff. A watershed plan can be an effective management tool for reducing pollution and sustaining resources by informing town policies that affect water quality. Taking a broader picture of a shared resource will allow for a balancing of development and conservation while promoting shared goals such as preserving aesthetics and protecting water quality.

The United States Environmental Protection Agency (EPA) promotes planning holistically through the Healthy Watershed Initiative. “Developing a watershed plan will help you better manage your water resources. A watershed plan is a document that describes the water resource assessments, management strategies and restoration and protection actions—and expected outcomes of those actions—for a particular drainage basin or watershed. A plan will guide you in your efforts to protect and restore water quality” (EPA, 2011). As emphasized by Trish Garrigan, EPA Region 1 Coordinator and representative of the Healthy Watershed Initiative, we should “protect the best, then restore the rest” (personal correspondence).

The New Hampshire Department of Environmental Services (DES) also values watershed planning, as indicated in their mission statement. Like the EPA, they also distinguish between areas with impaired water quality and those with normal or high water quality. Unlike the EPA, their focus is mainly on watersheds that have already had significant water quality degradation. Although their work of regional cooperation and integration of permits in poor quality watersheds is necessary, the Squam Lakes Watershed has not yet reached a level of degradation that causes it to receive a lot of attention from the DES. For lakes with relatively high water quality such as the Squam Lakes, DES recommends modeling future growth and using zoning ordinances to promote healthy land uses and regulate pollution sources, such as malfunctioning septic systems, to prevent future water quality decline.

Not far from Squam, a watershed master plan was recently developed by the Newfound

Lake Region Association (NLRA) for the Newfound Watershed. The goal was to create “a Newfound watershed where quality of life and economic vitality continue to be fostered...land uses and development are balanced with conservation...current water quantity and quality have been maintained” (2009). Initiated by a town hall style meeting, the NLRA brought watershed communities together to discuss the need for a watershed level plan. By working closely with landowners, they were able to produce this regionally relevant example.

The Newfound Watershed Master Plan is an extensive resource, with research and discussion on many aspects of the Newfound Lake watershed. There are three components included that are core to a watershed plan - an inventory of mutually valued resources within the watershed, an identification of the threats to those resources, and a proposal of strategies for addressing threats and maintaining a healthy and productive watershed that meets the vision and need of all the communities within it (Newfound Watershed Management Plan, 2009). Contact with Boyd Smith, director of the NLRA, provided valuable insight and direction for defining a watershed plan, and understanding the efforts required for such a project. Critically important to the watershed planning process is local landowner investment. Smith emphasized that; “Landowners need to see how a watershed plan will serve their needs, and the well-being of their community” (Personal communication). The watershed planning process is extensive, but it begins with inter-municipality discussion and an identification of issues. This is where our project aims to contribute to the Squam planning process.

Similarities and Differences between the Master Plans of Five Squam Watershed Towns

All five towns around the Squam Lakes have updated their master plans within the past five years. There are many similarities and differences between the plans. The vision section of a master plan, one of two sections required in New Hampshire for master plans, presents a framework for what a community wants to look like. All five towns’ visions include preserving rural character and protecting natural resources as priorities. Each town has additional elements in their vision that are not shared by all five towns (Appendix A-1). These vision statements are intended to guide the goals and actions of the towns’ land use.

While all five towns are rural in character, there are some geographical differences between the towns that lead to each town having different planning goals. For example, Holderness and Sandwich have less development and more forests than the other towns, Center Harbor and Moultonborough border Lake Winnepesaukee, and Holderness and Ashland border the Pemigewasset River and have I-93 running through their towns. These differences lead to each town having different planning needs, which are reflected by differences in each town's zoning districts and ordinances.

Water Quality

Water quality of the lakes and watershed is a resource that is important to all the towns, and this is reflected in the vision section of each town's master plan. Water quality is a resource that all five towns share, and they also all share the responsibility of maintaining high water

quality. Determining the actual water quality status of the lake and identifying potential threats to water quality are essential to maintaining water quality, but not all towns address this in their master plans. Nevertheless, each town has zoning regulations in place which are intended to protect water quality, such as wetland buffers, minimum shore frontage, building and septic setbacks, and shoreline vegetation buffers (Appendix A-2).

Land and Soil Conservation

Land and soil conservation within the watershed indirectly influence water quality, and each town has its own zoning ordinance with elements designed to conserve land and prevent soil loss (Appendix A-4). Most towns have low-density zoning districts and all towns encourage clustering residential areas and preservation of open space through their zoning and subdivision regulations. All towns have steep slope regulations intended to control soil loss within the watershed.

Shoreline

Many of the towns' shoreline regulations reflect the state's minimum requirements as outlined in the Shoreland Water Quality Protection Act (SWQPA) (RSA 483-B). Some towns have requirements that are stricter than the state's minimum requirements, but there are no uniform minimum regulations specific to the Squam Lakes Watershed. The individual towns' master plans do not reflect any coordination between the towns evaluating whether the SWQPA minimum regulations are sufficient for the Squam Lakes or coordination in setting minimum shoreline regulations that are uniform throughout the Squam Watershed.

Each town's Master Plan also contains a land use section, the second of two required sections in a master plan. This section lists a set of actionable goals which towns seek to accomplish in order to implement their visions (Appendix A-1). All towns in the Squam Watershed include as one of their goals creating an inventory of natural resources or improving their mapping and information systems. All towns also identify include managing growth and/or increasing residential density in order to conserve land. Some of these goals are more specific or simpler to implement than others.

Past Squam Lakes Watershed Planning and Outcomes

The logical first step in considering a watershed plan for the Squam Lakes Watershed, is to examine what work has already been done. When completed in 1991, the *Squam Lakes Watershed Plan* was considered an innovative document, intended to be a model watershed management plan for similar efforts throughout New Hampshire. In response to then Governor Sununu's request, the watershed planning process was initiated as an investigation into how lakes were being impacted by the region's growth related problems. The Boards of Selectmen from all five Squam towns collaboratively requested assistance from the Governor's office to establish a pilot watershed planning project for the Squam Lakes Watershed. That request was accepted, and the watershed planning project was developed with the following purpose:

To develop in collaboration with the municipalities affected, with conservation organizations and with State agencies, a lake management plan for the Squam Lakes watershed, whose purpose is to assure that activities permitted on and around the lakes will not exceed the capacity of the waterbodies to accommodate them.

To develop a model lake watershed management plan for use as a guide for other watershed planning efforts in New Hampshire.

To explore innovative land use planning and management approaches...at both State and local levels.

To demonstrate applications of...the GRANIT data base to the watershed planning process.”(Squam Lakes Watershed Plan, 1991, p.1-2)

It is important to note that the concept of sustainability, or balancing lake resource demands with actual lake resource availability, is clearly identified first. Also evident is the call for collaboration among Squam municipalities and organization, and the wish for these early efforts to be exemplary throughout New Hampshire. These concerns are timeless, and should remain present in future initiatives.

The 1991 Squam Lakes Watershed Plan, which took over five years to complete, compiled extensive information regarding the state of Squam communities in subjects of land use, housing transportation, public utilities, community facilities, recreation, and resource conservation and preservation. The report also presented scientifically collected data reflecting Squam soils, hydrology, groundwater availability, geology, topography, wildlife habitat, water quality, and identified threats to water resources. A major component of the 1991 Watershed Plan are the recommendations put forth following discussion of the status of Squam development and resources. While a summary of those recommendations could be extensive, a highlighting of key concepts is presented here.

1991 Squam Lakes Watershed Plan Key Recommendations

| | |
|------------------|---|
| Land use | Develop within natural capability of the watershed, control development in sensitive areas (wetlands, floodplain, slopes, and shorelands) that make up 39% of the watershed. |
| Water Quality | Consistently monitor for changes, continual inventory of potential sources of pollution in land use, identification of point and nonpoint source pollution sources, consider implementing a water budget. |
| Wildlife Habitat | Identification of “critical”, “significant”, and “general” habitat within the watershed to inform protection and preservation efforts. Prepare zoning ordinances that account for habitat areas. |

| | |
|--------------------------------------|---|
| Access | Call for updating of legislation that defines public access to a water source [occurred in 2004]. Recommends that boat census continue, and boat activity zones be established for use of lake surface water. |
| Land Management and Local Governance | Municipalities are encouraged to cooperate in regional water plans and addressing water needs that reach beyond municipal boundaries. Establishing best management practices for protecting watershed at the land-owner level. |
| Intermunicipal cooperation | Enforcement of State and local regulatory controls shared among municipalities at a watershed level. Joined local enforcement responsibilities for site review and subdivision regulations. |
| Land Protection | Comprehensive and collaborative conservation strategy for Squam Watershed. Strategy to include; habitat preservation, water quality protection, viewshed protection, recreation access, and preservation of resources for future watershed residents. |
| Education | Provide science education opportunities within watershed, provide education on recreational access for stakeholders, and provide technical information needed for land users to make sound decisions. |

The recommendations included in the 1991 plan reflect issues that were identified during the research and planning process at that time. While some of those needs were unique to the period, many are still relevant today. An assessment of the outcomes from the 1991 plan recommendations is needed to determine what of those might still be relevant to a new Squam Watershed plan. Using current planning and land use documents from each Squam town, we began that assessment. A more in-depth analysis will be needed, but the findings from our initial work is discussed here.

State legislation coupled with actions by Squam town planning boards have produced regulations that address some of the issues identified in the 1991 Squam Lakes Watershed Plan. Most notable of those is the Shoreland Water Quality Protection Act (SWQPA) (RSA 483-B). Modified in 2008 and 2011 to the current form, the act was originally formed in 1994 as the Comprehensive Shoreland Protection Act. This act implements protections and requires permits for actions within 250 feet of all New Hampshire public water shorelines. Public water bodies are defined as any lake, pond, or impoundment with a surface area greater than 10 acres, or any river and stream that is 4th order or higher (<http://des.nh.gov/>). The SWQPA imposed equal protections on Squam Watershed shorelands, meeting some of the recommendations for development limits, water quality and habitat conservation outlined in the 1991 plan’s recommendations. Each of the Squam towns have adopted a varying range of zoning ordinances

and subdivision regulations that address issues such as steep slope development, erosion or runoff, wetlands conservation, and preservation of open space or habitat. However, the presence and stringency of many of these regulations vary among Squam communities. The specifics of those regulations are shown in Appendix A.

Water quality monitoring was a recommendation of the 1991 Squam Lakes Watershed Plan. The current Master Plans of three towns describe the need for monitoring, and some even include informal goals for establishing monitoring programs (see table A-2). Absent from the planning documents, however, are actual provisions or parameters for water quality monitoring beyond the vaguely defined Master Plan goals. Monitoring programs by the towns may exist, but we were unable to find evidence of them in town documents. Efforts are being taken by organizations outside of town planning, as was suggested in Ashland's Master Plan. Water quality monitoring has been carried out for 35 years primarily by the Squam Lakes Association (SLA) in conjunction with the University of New Hampshire and NH Department of Fish and Game. The SLA also conducted a bioinventory in 2001. This data provides a valuable way of tracking changes in the watershed through time, some of which could be matched with changes in land use regulations. An expansion of monitoring programs to each town that includes both streams and lakes would provide localized data on each town's water quality, such data could then inform regulations and activities that impact water resources.

Squam Lakes Watershed Town Meeting

Using the 1991 plan's recommendations alongside our compilation of current Squam Lakes Watershed regulations, a town hall meeting was held on January 23, 2014 at the SLA Resource Center in Holderness. The purpose of the meeting was to provide an introduction to watershed planning, reexamine the original 1991 Squam Lakes Watershed Plan, identify current land use issues and priorities in the watershed and area towns, and determine how a new watershed plan might be cooperatively developed. Thirty-one people were in attendance, including individuals from each of the Squam towns and several from nearby communities. To identify existing values inherent to Squam, a World Café method of discussion was used. We called this the "Squam Café" and participants sat at three tables, each with a different question to guide the discussion at each table. Discussion periods were 20 minutes long, and participants were instructed to move to a new table with different members after each discussion period. By the end of the exercise, all participants had taken part in discussion at all three table topics. In addition to open dialogue, participants were encouraged to record their thoughts on the paper table cloths at each station. This method creates a record of the discussion, and, since the record remains on the table for the next group, it also contributes to discussions of each new group at the table.



Photo credit: June Hammond Rowan. Photograph taken January 23, 2014 at Squam Lakes Association.

The following three questions were used in the World Café themed exercise. Provided below each question is a box containing a representative selection of some topics discussed by community members. A full record of those comments can be found in Appendix B.

1. What are the current land use priorities and issues in your town? What are the current land use priorities and issues in the Squam Watershed?

- Regulatory conflicts: zoning, setbacks, development
- Protecting viewsheds: light ordinances, raised docks, lake levels
- Water quality: dug-in boathouses, faulty septic systems, stormwater runoff
- Wildlife Habitat: land protection
- Alternative Energy Sources

2. How can we cooperatively develop a new Squam Watershed plan in the next two years?

- Examine past work and update: reexamine past plans, what has been done and what is needed?
- Actions: find money, look at interests of landowners/taxpayers vs. visitors, let each town know what others do, find common ground,
- Leading the way: stakeholder organizations, collaborative town meeting, SLA involvement
- Current obstacles: balance, development, “live free or die”

3. What are the resources in the watershed that we all share and what are the concerns about these resources?

- Land: protected land, open land, air quality, setbacks, wildlife habitats, loons,
- Water: stormwater, water quality changes, fishing
- Culture: Squam culture, sense of place, passion for the lake, tax rates, ownership, economic resources, views, recreation, technology, education, spiritual quality

It was apparent to us throughout the meeting that there was a lack of awareness of the 1991 Squam Watershed Plan among a majority of attendees. This confirmed the observations made during our research, that the 1991 document is not guiding planning and policy within the five Squam towns. The reasons for this are various, but are likely a result of the town orientated level of organization among rural regions of New Hampshire. Independence and regulatory self-rule are highly valued by small communities, especially those in the Squam Watershed. As a result, implementing a regional strategy such as the 1991 Squam Watershed Plan is not done without buy-in from each individual town. This is not to say that the 1991 Plan did not warrant watershed wide attention, it simply was underutilized without a formal line of communication for implementing the Plan's goals. As was noted consistently during the Squam Café exercise, stakeholders recognize the need for, and also wish for, more effective communication between towns. Similarly, participants often noted the benefits that could come from a watershed plan despite the hurdles it might pose. While implementing a new Squam Watershed Plan will be a large task, the remarks gathered clearly indicate that there is both an interest and a willingness among current Squam stakeholders to begin working on this project.

Common discussion themes were land conservation, runoff, septic systems, water quality degradation, Squam culture and quality of life, recreation, obstacles to updating the watershed plan, and unifying ordinances in the five Squam towns. These are all topics requiring discussion in drafting a new Watershed plan, and their inclusion here can be directly useful in framing that discussion. For instance, while there was no consensus on who should lead the way in updating the 1991 Squam Lakes Watershed Plan, a whole range of potential leaders and contributors was listed (Appendix B). Similarly, there was no specific agreement on what needs updating in the 1991 Plan, but a list of topics to consider was recorded. Utilizing the commentary in this manner offers a good starting point for future discussion.

The commentary from the Squam Café exercise indicates that the lake communities hold similar values and view many of the same topics as important within the watershed. The comments also reveal that there is a diverse view on why certain issues are important, and especially on how to address those issues through a Squam Lakes Watershed Plan. Fleshing out

those congruencies while highlighting the differences was the intent of the Squam Café exercise. By understanding where the points of agreement and conflict lie, the Squam Watershed planning process can be initiated.

Where to Go From Here?

The assessment of outcomes of the 1991 Squam Lakes Watershed Plan as well as comments from the January 2014 Squam Watershed meeting provide the basis for our report's recommendations for the Squam Watershed planning process. Our recommendations could be considered as the "low hanging fruit", or actions that are easily identified as being essential next steps to updating and creating a new Squam Lakes Watershed Plan.

Recommendations:

1. A formal line of communication should be established among towns in the Squam Lakes Watershed dedicated to watershed level planning.

A watershed plan is organized at the watershed level. To inform a watershed plan, communication must also occur at the watershed level. Currently there seems to be disconnection in communication among the five Squam towns. Opening a formal line of communication among Squam towns will better allow identification of shared objectives and planning activities occurring in each municipality. This could be as formal as a regularly occurring meeting, or as informal as conference calls through phone or video chat platforms. Utilizing current information technology such as shared document sites, and online group forum discussions would also be helpful for maintaining lines of communication. A number of Squam Café comments referred to the need for a watershed planning leader in each town. Towns need to determine who those leaders will be; members of the town planning board, board of selectmen, zoning board of adjustment members, or specially designated watershed planning members. Much commentary also suggested that the SLA play a coordinating role in such an effort. Towns should consider how the SLA might be able to coordinate with the watershed planning process.

2. Collaboratively, towns in the Squam Lakes Watershed should identify shared watershed resources. Individually, each town should understand the ways their town's regulations and ordinances affect those shared resources.

The goal of a watershed plan is to provide a framework for conserving shared resources, for the benefit of all watershed stakeholders. Before assembling a framework, those shared resources need to be identified. Commentary on shared resources gathered from the Squam Café provide a start to this, and participants identified clean water, sense of place, limited land development, beautiful views, loons, spiritual quality, and many others (Appendix B-3). Once identified, Squam communities can begin to examine the role each town plays in influencing those resources through regulations, zoning, ordinances, and overall community values. We have begun that process here, and it is our hope that the matrices outlining the current state of

watershed related regulations will be useful in further synthesis.

3. Begin establishing watershed-wide standards for land use regulations that impact shared Squam resources.

Squam watershed resources are equally vital among communities, and watershed regulations should reflect this. Once variances in setbacks, overlay districts, slope regulations, etc. are understood, the next step of the planning process will involve streamlining those standards throughout the watershed. This process might begin with an evaluation of the SWQPA administered regulations, and a determination of their adequacy for Squam specific resource goals. Given the exceptional quality of the Squam watershed and local communities' visions, it might be necessary to implement shoreland regulations that are more stringent than statewide SWQPA levels. This step will require significant discussion and consensus. As noted by stakeholders themselves through the Squam Café commentary, this will require addressing an array of obstacles such as differences in town septic programs, conflicting regulations for Squam and Winnepesaukee shorefronts, differing views of development, differing land acreages in trusts, and others (see Appendix B). Furthermore, having a watershed based perspective reminds stakeholders that most land use practices in the watershed can affect the lakes, not just those within a small shoreland buffer.

4. Create a framework and criteria for continual 'checking in' on the status of the Squam Watershed with all communities.

Considered an exemplary effort and a guide for watershed planning throughout the state, the 1991 Squam Lakes Watershed Plan was a noteworthy accomplishment. In the more than two decades since its completion, the plan has shifted from serving as a tool for planning to instead providing a snapshot of past Squam initiatives. We found no evidence that towns in the watershed are using the 1991 Squam Lakes Watershed Plan in assembling their plans and regulations even though it does contain valuable information. This fate must be avoided for future Squam plans. By providing a means for the continual assessment of watershed regulations, and allowing for updates that reflect changing issues and needs, the next Squam Watershed Plan will be a "living document." Criteria for measuring the state of the watershed should be established and monitored overtime. This will provide feedback that can assess long-term effectiveness of a watershed plan, and identify areas of needed attention. Ideally criteria will be selected for each category of Squam shared resources and values including; water quality, habitat and wildlife, recreation, viewshed, economic vitality, and human well-being.

Conclusion

Updating the Squam Lakes Watershed Plan is a needed task that will involve significant investment of time and effort. This is a unique task in that it sets a stage for Squam towns to come together to protect shared resources and uphold common values. The end product will be a document that can inform planning processes at the Squam level, and also at the EPA, NH DES,

and similar watersheds across the state. Squam towns have a range of regulations and ordinances that directly affect watershed resources and a watershed plan will help inform the use of these regulations and ordinances. While the 1991 Squam Watershed Plan has informed some actions over the past 20 years, the plan is no longer being effectively used in today's Squam communities. There are new land use planning techniques that could be helpful in protecting shared watershed resources and, if appropriate for adoption in the Squam Lakes watershed, such techniques could be articulated in a new plan.

We recommend that the Squam towns begin collaborating to identify resources that need long-term management objectives and actions. Once identified, towns should craft unified regulations for effective management of those resources. A set of indicators should then be identified to monitor the plan's effectiveness at meeting the needs of the watershed and its shared resources. Reaching these objectives depends upon the state of communication, leadership, and commitment from watershed towns, organizations, and citizens.

While implementing a new Squam Watershed Plan will be a large task, our findings clearly indicate that there is both an interest and a willingness among current Squam stakeholders to begin working on this project.

References

New Hampshire Office of State Planning. (1991) *Squam Lakes Watershed Plan*. New Hampshire Office of State Planning, Concord.

Newfound Lake Region Association. 2009. Watershed Master Plan. Accessed at <http://www.newfoundlake.org/watershedmasterplan.html>

United States Environmental Protection Agency. 2008. Handbook for Developing Watershed Plans to Restore and Protect Our Waters. Office of Water: Nonpoint Source Control Branch. Washington, DC. Accessed at http://water.epa.gov/polwaste/nps/upload/2008_04_18_NPS_watershed_handbook_handbook.pdf

United States Environmental Protection Agency. 2011. Watershed Management Resources at EPA Factsheet. EPA Office of Oceans, Wetlands, and Watersheds: Nonpoint Source Control Branch. Washington, DC. Accessed at http://water.epa.gov/type/watersheds/datait/watershedcentral/upload/WMR_factsheet_508.pdf

Shared Waters Create a Shared Future for the Squam Watershed- APPENDICES

Appendix A: Comparative Town Charts

A-1: Squam Master Plans

A-2: Squam Water Quality

A-3: Wetlands and Rivers

A-4: Land Conservation and Habitat Protection

A-5: Visual Resources and Shoreline Regulations

Appendix B: Squam Watershed Town Meeting Data

B-1: Discussion from Table One

B-2: Discussion from Table Two

B-3: Discussion from Table Three

B-4: Group Concluding Thoughts

Appendix A: Comparative Town Charts

A-1: Squam Master Plans

| | Sandwich (2011) | Holderness (2007) | Ashland (2011) | Center Harbor (2012) | Moultonborough (2008) |
|----------------|---|--|--|--|---|
| VISION | <ol style="list-style-type: none"> 1. Retain rural character 2. Protect natural resources & aesthetics 3. Preserve cultural & architectural heritage 4. Promote social, cultural, housing & recreation 5. Provide employment opportunities | <ol style="list-style-type: none"> 1. Protect the natural resources & aesthetics 2. Preserve the rural character of the town 3. Balance tourism and other low impact opportunities | <ol style="list-style-type: none"> 1. Enhance the town’s position as an outdoor recreation destination 2. Improve housing options 3. Foster “low-impact” business opportunities | <ol style="list-style-type: none"> 1. Maintain small-town, rural atmosphere 2. Preserve natural resources, scenic views, historic resources, and working landscapes 3. Encourage small business development in the recreation and tourism sector | <ol style="list-style-type: none"> 1. Protect and preserve historical and environmental resources. 2. Uphold the Town’s rural character. 3. Provide a high quality of life. |
| LAND | 90% undeveloped, 8% agricultural, 2% is developed | 89% undeveloped, 3% is agricultural, and 8% is developed | 79% undeveloped, 2% is agricultural, and 19% is developed | 86% undeveloped, 5% is agricultural, and 9% is developed | 73% is undeveloped, and most of the developed land area (57%) is residential |
| ZONES | Rural/Residential; Historic; Commercial; Shoreland; Skyline | General Residential; Rural Residential; Commercial District; River Corridor Overlay; Flood Hazard; Waukegan Watershed | Commercial 1 & 2; Industrial/Commercial; Village Residential; Rural Residential; Pemi Overlay; Little Squam/ Squam River Overlay | Agricultural/Rural; Residential; Commercial/Light Industry; Commercial/Village Area; Wetlands Conservation | Residential/Agricultural; Commercial 1,2,&3 |
| LAND USE GOALS | <ol style="list-style-type: none"> 1. Digital information system that will link both spatial and community information 2. Manage growth to reflect rural values 3. Maintain and enhance existing unfragmented lands and active farming and forestry activities | <ol style="list-style-type: none"> 1. Map resource values 2. Adopt conservation subdivision regulations 3. Create architectural standards 4. Smart growth audit 5. Regulate steep slope development 6. Conduct a build out analysis 7. Digitize wetlands maps | <ol style="list-style-type: none"> 1. Infill development – use existing buildings and developed land 2. Potentially expand residential development in the Village zoning district | <ol style="list-style-type: none"> 1. Creating a cluster subdivision ordinance: Increase residential density in order to decrease land consumption and lower cost of housing. 2. Scenic resources: Create an inventory and prioritize viewpoints and viewsheds. 3. Create design guidelines for buildings, landscaping, and infrastructure in the town. | <ol style="list-style-type: none"> 1. Coordinate ordinances, regulations, and rules 2. Refine existing land use ordinances, regulations and rules, and create new land use ordinances, regulations and rules 3. Retain town character 4. Create districts of higher residential density where conditions permit, and preserve open space. |

A-2: Squam Lakes Watershed Water Quality

| Community | Master Plan Vision includes Water Quality | Identifies Threats to Water Quality | Provisions for Water Quality Monitoring | Regulates Actions Affecting Water Quality |
|----------------|---|---|---|--|
| Ashland | | X - in Master Plan Natural Resources (Mercury, bacteria, pH, invasive plants) | Local organization efforts. | Site review runoff regulations |
| Center Harbor | X | | | Wetland protection ordinances |
| Holderness | X | X - in Master Plan Natural Resources (Mercury, bacteria, salt piles, junkyard runoff) | Master Plan goal of Water Quality contamination monitoring, local organization efforts. | Groundwater protection ordinances |
| Moultonborough | X | | Master Plan goal of well monitoring | Toxic waste regulations |
| Sandwich | X | | | Site review runoff regulations, Wetland ordinances |

A-3: Wetlands and Rivers

| Town | River Zoning | Wetland Specific Zoning | Flood Zone Regulations |
|----------------|---|--|---|
| Ashland | Pemi: boundary of 500ft or 1000ft in floodplain; Squam: 250ft; No structure on 15% slopes; No septic 125ft. | | All structures must be reasonably safe from flooding by design, as deemed by Inspector. |
| Center Harbor | | No structure within 100ft. | All structures must be reasonably safe from flooding by design, as deemed by Inspector. |
| Holderness | Pemi: 500ft boundary; No structure on >15% slopes; No septic within 125ft; notes root system removal | | All structures must be reasonably safe from flooding by design, as deemed by Inspector. |
| Moultonborough | 50 ft | No structure within 50 ft., vegetation buffer within adjacent 25 ft. | All structures must be reasonably safe from flooding by design, as deemed by Inspector. |
| Sandwich | Within 50 ft, <50% tree basal area felled; stumps/roots must remain | Wetlands > 15,000 sq.ft; no dwelling within 100 ft. and no septic within 125 ft. | All structures must be reasonably safe from flooding by design, as deemed by Inspector. |

A-4: Land Conservation and Habitat Protection

| Community | Master Plan identifies strategies for conservation | Modeling future growth | Low-density zoning districts | Subdivision strategies | Habitat and conservation inventory |
|----------------|--|---|--------------------------------------|---|--|
| Ashland | X | Development constraints | X | clustering, open space, | |
| Center Harbor | X | Development constraints | X | clustering, open space, habitat inventory | Habitat inventory during subdivision process |
| Holderness | X | Development constraints, Build-out model | X | clustering, open space (5%) | Co-occurrence mapping, Rare & Endangered species inventory, Sig. Habitat inventory |
| Moultonborough | X | Development constraints, Smart growth audit Build-out model | Listed as action item in Master Plan | clustering, open space (15%) | |
| Sandwich | X | | X | clustering, open space (15%) | |

A-5: Visual Resources and Shoreline Regulations

| Community | Uses slope to calculate minimum lot sizes | Uses slope AND soil type to calculate minimum lot sizes | 15% slopes | 25% slopes |
|----------------|---|---|--|------------------------|
| Ashland | X | X | Conditional Use Permits | Development prohibited |
| Center Harbor | X | X | | Development prohibited |
| Holderness | X | | Conditional Use Permits; Extensive performance standards; Development on 15% slopes prohibited in river corridor overlay zone. | Development prohibited |
| Moultonborough | X | X | | Development prohibited |
| Sandwich | X | | Conditional Use Permits; Extensive performance standards; Limited town liability | Development prohibited |

Appendix B: Squam Watershed Town Meeting Data

B-1: Discussion from Table One

Question: What are the current land use priorities and issues in *your town*? What are the current land use priorities and issues in *the Squam Watershed*?

Comments Organized by Category:

| Regulations/Conflicts | Watershed Issues: Water Quality |
|--|--|
| <ul style="list-style-type: none"> • Unify rules to all towns • Encourage all towns to participate • Cohesive zoning regulations • Enforce zoning regulations • Shoreline regulations: adopted vs tweaked • Planning boards can tweak for special ponds/etc, but towns need the same regulations • Lack of staff to respond to professional land use developers. Too many “exceptions” • Differences in watershed regulations? • Exceptions to regulations (selectboard & professional lawyers finding loopholes) • No enforcement to regulations • Minimize exceptions to the rules • Recommendations/regulations must be adopted! But how do you hold towns to the plan? • Watershed wide enforcement of regulations • State approves thing which the towns do not approve: dug in boat houses • Differing values for Winni & Squam • What can Squam do to leverage? • Set backs: 50’ holderness, 125’ Sandwich • CH.. Does Hawkins Pond have a special designation? • Some towns Need a broader tax base from properties that are commercial • Tax revenue • Funnel development • Citizen run government vs professional “drivers” • Money • Grandfathering on lakeshore properties | <ul style="list-style-type: none"> • Problems don’t come from 4th order streams (usually from 1st or 2nd) *state need to permit • Conflict when one town is in 2 or more different watersheds or on multiple water bodies • CH allows dug-in boathouses on both Winni and Squam • Center Harbor dug in boat docks affects the whole lake (squam vs winni) • Moultonborough does not allow boathouses on Winni |
| Run-off | Water Level |
| <ul style="list-style-type: none"> • Fertilizers • Impervious surfaces | <ul style="list-style-type: none"> • Heavy rainfall events • Increasing storm volumes |

| | |
|---|--|
| <ul style="list-style-type: none"> • Impervious surfaces around lake • Steep slopes • Steep slopes (Holderness) • Road salt | <ul style="list-style-type: none"> • Lake Levels • Lake water levels (all lakes) • Lake level management |
| <p>Protected land</p> | <p>Watershed issue: Wildlife</p> |
| <ul style="list-style-type: none"> • Mt. Prospect • Improve forests • Land in easements • Protect more land • Protect more land-- ridge lines • Put lots of property into easements • Squam lake protection associations | <ul style="list-style-type: none"> • Wildlife plan • Wildlife habitat • NH wildlife action plan • Protection of wildlife in watershed • Lakeshore habitat preservation • Need to match priorities and perceptions with information...e.g. Squam is clean but why are loons in decline? |
| <p>Visual Issues/ Quality of Life</p> | <p>Energy Use</p> |
| <ul style="list-style-type: none"> • Don't raise the docks until Columbus Day • Raise docks • Docks raised too soon • Light ordinance • Dark skies/lighting at night • Ashland has less open land left, and shoreline • Activity vs. Peace and quiet | <ul style="list-style-type: none"> • Alternative energy • Sandwich → solar |

B-2: Discussion from Table Two

Question: *How can we cooperatively develop a new Squam Watershed plan in the next two years?*

Comments Organized by Category:

| | |
|--|---|
| <p>Examining Past Work, and Updating-</p> | <p>Residents and Visitors-</p> |
| <ul style="list-style-type: none"> • What’s been done, what’s needed? • Past, present, future • Awareness of the old plan, attempts to adopt it in the past! • Start today. Continuity? • Does it really need to be done? Perhaps just reexamine past plans to see if there are deficiencies • Look at the threats identified in 1991. Address those that still need to be addressed. New threats?? • Work off existing plan • What is applicable from 1991 plan? • Gather points from each town’s existing master plans • Identify elements in the past plans that need to be addressed • Increase awareness of the 1991 plan • Overview (35 pages-plenty) | <ul style="list-style-type: none"> • Look at interests of landowners/taxpayers vs visitors • Year round vs transient as regards to interests • People with knowledge and power • Landowners are residents or not? • Landowners- some have power (voters) some do not (seasonal) |
| <p>Actions and Directions for Towns to Look Into-</p> | <p>Who Leads the Way? Who’s involved?-</p> |
| <ul style="list-style-type: none"> • Workshops and updating • Knowledge to advise people and protect more properties • Moultonborough - large vs small parcels • 1/3 of sandwich in trust • Tax base as relates to conservation land • Health officers to act as leaders in the process? • Studies to determine the best frontage distance • Steep slope town regulations • Students are cheap • Representatives from all towns • Planning Boards- compare ordinances • Values beyond \$, value of clean water • Subdivisions • Best Management Practices? Permits? • Should setbacks be water dependent? Setback discrepancies are arbitrary? • Invasive control is a shared interest in squam • Water quality- fire retardants, pharmaceuticals, expand beyond nutrients, milfoil, (sharing costs for monitoring) | <ul style="list-style-type: none"> • 1 health officer • Other lake associations (White Oak Pond) • Squam Lakes Association involved • Lakes Region Planning Commission - resources • Stakeholder organizations: Society for the Protection of New Hampshire Forests, Loon Preservation Committee, Lakes Region Conservation Trust, Rockywold- Deephaven camps, Five Finger Point, Squam Lakes Natural Science Center, White Oak Pond Association, Squam Lakes Conservation Society, NH Lakes, NH DES, NH Marine Control, NH Department of Fish and Game, EPA., UNH Cooperative Extension. • You need someone to champion the next plan • Squam Lakes Association should lead the effort • Who should be leading the change? • SLA would be a logical coordinator • Need reps from each town at the table, led by the SLA • Collaborative meeting, all towns participating • Involve other watershed organizations |

| | |
|--|---|
| <ul style="list-style-type: none"> • Archeological sites • Let each town know what the others are doing • Science • Focus on water quality • Look for models • Shoreline protection act • Compare town ordinances- common ground? | <ul style="list-style-type: none"> • SLA leads the way • Identify who in each town deals with enforcement |
| <p>Current Obstacles</p> | |
| <ul style="list-style-type: none"> • Large parcels vs connector parcels • Is there tension about trust lands? • Get landowners involved in supporting their shared resources • Allow development • Balance! • Where is the \$\$\$? • Towns with multiple lakes • Zoning a blessing and a curse • <u>Money</u> • Find common ground • Live free or die • Obstacles: \$= priority, different and conflicting interests (real estate v. Conservation) | |

B-3: Discussion from Table Three

Question: What are the resources in the watershed that we all share and what are the concerns about these resources?

Comments Organized by Category:

| People/Culture | Other |
|---|--|
| <ul style="list-style-type: none"> • Squam culture, ethos not ostentacious • Each town has its own sense of place • Sense of place – are we changing it with newcomers building different homes • More residents – bad for lake, but more involvement • Unique and different experiences • People really care about Squam Lakes • Passion for lake • Human resources • Culture • Passion for lake by people with knowledge base • Aging population • Older “Squam” generation will soon be gone • Age – “silver tsunami” • Sense of place • People want “rural,” but do they act to keep it that way? • Tax rates -> impact who stays • Greater ownership • Sense of place | <ul style="list-style-type: none"> • Spiritual quality • Setbacks • Carrying capacity • Air • Air quality • Blend into natural landscape with development • Values all agreed on among towns, but call for action and you lose agreeability • Keep things as they are has its downsides. |
| Land | Water |
| <ul style="list-style-type: none"> • Protected land • Limited land development maintains lake quality • % protected lands • Open land (undeveloped) | <ul style="list-style-type: none"> • Since it still looks good (shore front) – assume water doesn’t change – longtime residents notice degradation. • Clean (?) Water • Storm water/salt-sand runoff • H₂O • Do watershed land owners know of the water quality in Squam? • Water, water, everywhere, but is it fit to drink? – Arsenic and Radon in groundwater wells. • Phosphorus – shared responsibility for the problem • Runoff -> water quality |
| Economic | Views |
| <ul style="list-style-type: none"> • Economic resources • Economic resources | <ul style="list-style-type: none"> • Mountain views • Beautiful views • Photographic opportunities |

| | |
|--|---|
| <p>Recreation</p> | <p>Education/Information</p> |
| <ul style="list-style-type: none"> • Bass fishing tournaments access at boat launch. • Marinas, public launch • Ice fishing • Ice boating venue • Bass fishing tournament – too many boats • Recreation • Fishing | <ul style="list-style-type: none"> • JSLA and youth camp programs • Science center • Technology • Internet access • Education • Technology • Technology. Internet for all! |
| <p>Wildlife</p> | <p>Organizations</p> |
| <ul style="list-style-type: none"> • Is Squam just a “beautiful façade?” What’s beneath the surface? – See it in loons • Wildlife habitats • Loons • Eagles | <ul style="list-style-type: none"> • Rockywold-Deephaven Camps • Squam Lakes Association • Loon Preservation Committee • Squam Lakes Association! Squam Lakes Conservation Society |

B-4: Group Concluding Thoughts

- Zoning ordinances only as good as Zoning Board of Adjustment (buy in) → training (by whom? Local government center?) And enforcement
- Shoreline protection act- How do town regulations match state regulations?
- Continuity on boards- volunteers serve many years vs. Turnover (to anti-government folks?)
- Matrix- Goals of '91 report and what things have been addressed and not addressed to determine what to focus on (town by town).
- Science has improved-better data- with which to base updates to the watershed plan.
- Matrix gives baseline to start-helps w/ comparison homework for local groups
- Part of the experience of Squam is outside watershed-starts when getting off I-93.
- A lot of commonality between watersheds but each town thinks it is unique-need to share language/information.
- Visit local towns and inform about what others are doing (one person)
 - Watershed wide Planning Board, Conservation Committee, and Zoning Board of Adjustment meeting updates, issues. (*joint* board meetings)
 - Generate awareness