V. Natural Resources

Table of Contents

A. Executive Summary

Efforts to protect Moultonborough's natural resources have been ongoing for many years, with varying degrees of success. This 2019 update to Chapter V of the master plan is a refreshed look at the priorities and goals of previous versions and outlines a strategic plan for the conservation and protection of Moultonborough's natural resources. The chapter complements a detailed presentation of the specific natural resources of the town reported in the 2016 Natural Resource Inventory.[1]

The natural resource focal areas remain unchanged from the 2008 Master Plan. The key natural resources addressed are as follows:

1. Surface water in all forms, including lakes, ponds, streams, and wetlands
2. Groundwater in all forms, from aquifers to drilled and dug wells
3. Wildlife in all forms, not just rare, threatened or endangered species, but also common wildlife, their habitats, and corridors
4. Undeveloped spaces and views that support wildlife, water quality, dark skies and the rural character of the town

While protection of natural resources is in the town's best interest, these efforts must balance with the cost of protection and restoration, economic growth, and landowner rights. Federal, state, and local governments have laws that protect natural resources, but the only way protection can be adequate at the local level is with the cooperation of residents and visitors. While it is essential to embrace and enforce environmental laws, local government employees, property owners, visitors, and developers must receive education about how they can help protect natural resources to be effective.

Since 2008, the town has sponsored published research on the Center Harbor and Moultonborough Bay Inlet sub-watersheds. Additionally, the Conservation Commission updated the Moultonborough Natural Resource Inventory, and the state updated the Wildlife Action Plan. The results of these studies provide new information about the town's natural resources, including risks and specific recommendations to protect important resources.

One new aspect to the 2019 master plan chapter update is recommendations for greater use of Geographic Information System (GIS) mapping data when making planning, zoning, and conservation decisions. In addition to many standard GIS planning layers, the town has additional GIS data assets, showing the location of over a dozen natural and human-made

[1] Conservation Commission, 2016 Natural Resources Inventory https://www.moultonboroughnh.gov/sites/moultonboroughnh/files/uploads/moultonborough_nri_final_19december16-1.pdf, (accessed October 11, 2018)

resources. Planners can now see on a map where wetlands, aquifers, steep slopes, floodplains, conserved land, high priority habitats for wildlife, and property line boundaries are located. Encouraging town employees, officials and volunteers, along with developers and the public to access the GIS system promotes improved awareness and development planning in a way that minimizes the negative impact on critical natural resources.

Another new aspect of this plan acknowledges the relationships among the town's Conservation Commission and other land use boards and town departments. Improved collaboration with these boards and departments supports the town goals to balance growth with the protection of critical natural resources. For example, a subdivision applicant that proposes to cross a wildlife corridor could be encouraged to adjust the plan, so it maintains the corridor.

This chapter expands on six goals for the conservation and protection of Moultonborough's natural resources.

Goal #1: Use GIS data for land use planning and decision making, to better know the environmental impacts of development during the planning and approval process.

Goal #2: Protect and restore surface water quality through the implementation of improved storm water management practices and remediation of failed septic systems to reduce nutrient loading of surface waters.

Goal #3: Protect and Maintain Ground Water to ensure well water remains potable.

Goal #4: Protect wildlife habitat and wildlife corridors to prevent the loss of wildlife species and populations.

Goal #5: Preserve Rural Character. Maintain open space and protect prime views from development and preserve dark night-time skies.

Goal #6: Foster partnerships and collaboration among internal town boards and with external organizations to enhance the effectiveness of natural resource conservation and protection activities

B. Master Plan Strategy

The strategy for Natural Resource management is based on three high-level initiatives: **education, prevention, and restoration**. These represent the measurable activities that will most effectively meet the goals.

Education initiatives can change the behavior of many people. Greater conservation happens when landowners, residents, visitors, developers, and contractors learn about preservation and restoration best practices and the regulations surrounding development and alterations. Town board members and employees should be aware of the problems to solve and the available resources to help them do so. Those involved in managing natural resources benefit when people who are educated on the issues become involved by contributing money, expertise, or time.

Prevention initiatives identify and protect sensitive natural resources prior to experiencing damage. Benjamin Franklin's saying that "An ounce of prevention is worth a pound of cure" applies. Natural resources can experience damage to the point at which it is impossible or impractical to repair. Prevention initiatives aim to increase the acreage of permanently conserved land and add an element of conservation consideration to every land use decision, including road construction and maintenance. The strategy is to add constraints to development that inhibit deterioration of surface water, drinking water, animal habitats, and corridors and the rural character of the town. Through the process of regulations, laws, and ordinances, Federal, state and local governments require developers, private, and commercial, to adhere to the best practices that protect natural resources. The role of the local government is to adjust local regulations as required, review land-use plans and variance applications with an eye toward conservation and ensure compliance with stipulations in granted permits. The town GIS map data plays a role in prevention, by providing the information needed by planners and those taking actions. The expectation is that people will identify and locate natural resources, so they can consider them while making decisions or taking action on appropriate land uses.

Restoration initiatives are necessary when prevention initiatives are lacking or fail to address environmental issues. Restoration is an ongoing responsibility of the town and its landowners. Repairing the impact of storm-water runoff and erosion requires the most attention. The town needs to keep its roads and culverts in adequate condition to minimize erosion, maintenance of drainage features, and removal of winter sand in the spring. Private roads, driveways, and shorelands require maintenance by those who own them, according to best practice standards. The harvesting of milfoil is another example of restoration. The approach toward restoration by the local government and the public is important. Resolution is most effective through proactive problem identification, diagnosis, and repair advice, rather than enforcement actions and recrimination, unless the problem is egregious and there is no alternative.

C. Why Conservation Is Important

Conservation is vital to protect the natural assets that the town values. There is a broad public appreciation for the rural character of Moultonborough and the importance of protecting the quality of the town's surface waters. At the same time, there is pressure to develop and grow housing and the population, which, in some cases, threatens natural resources.

A conservation plan provides a balance of protection and development that:

1. **Maintains the rural character** and protects the quality of surface and subsurface waters. These attributes not only give people what they want but also helps to protect property values and the low tax rate that the town enjoys.

2. **Sustains wildlife**. Poorly managed development can disrupt wildlife movement by disrupting corridors or habitats. Loss of wildlife corridors and habitat ultimately not only reduces the wildlife population and diversity but also poses a potential public safety risk from wildlife that appear in developed areas and cross traveled roads.

3. **Prevents irreversible damage to natural resources**. There are tipping points for water quality, wildlife habitat, and scenic beauty that, once past, are difficult or impractical to reverse. It is usually easier and less expensive to protect natural resources than it is to restore them.

Conservation requires continuous effort because the threats never end and the methods for protection continue to evolve. Because of variations of weather from year to year, limited budgets and the large area to be restored, efforts can take 5-10 years to have a noticeable impact, making a long-term view necessary before positive change becomes evident. The land use boards and other town departments have a responsibility to balance growth and town operations with the best management practices for protecting natural resources. The decisions and actions made now will make a difference in the quality of natural resources in 2100, when many of the youth of today will still be living.

An additional factor to consider is the ongoing damage from the changing climate. The region is already experiencing rainstorms of increased intensity, causing increased erosion and shorter winters, letting weeks more light into the lake, which encourages algae growth. To keep up with the impact of these changes requires stronger efforts at education, prevention, and repair.

D. Observations of Existing Conditions

This section contains peer-reviewed observations of existing conditions of the town's natural resources and conservation initiatives as of April 2019.

Surface Water Quality

Current and future development continues to accelerate lake aging and threaten surface water quality due to the increasing amounts of nutrient loading in surface waters, primarily the result of poorly managed stormwater run-off.

Education, protection, and restoration efforts over the past few decades appear to be having a positive impact. Conversely, development in and near wetlands continues, using water runoff management techniques that, in some cases, do not work as well as expected. Additionally, land use boards normally treat each sub-division, development or variance application in the context of a localized impact, rather than as part of a wider ecosystem. The cumulative effect of individual actions is not evaluated. There is concern that interconnected wetlands will not work as effectively as natural systems are replaced with runoff mitigation systems. If this concern is valid, the result is more silt and nutrients passed downstream and into the lake. Over decades of development, the lost wetland area is significant. Figure 1 is of a map from the early 1900s and shows better-connected wetlands than those in existence today. Wetlands ordinances and granted variances will determine how much beneficial wetland will remain in the future.

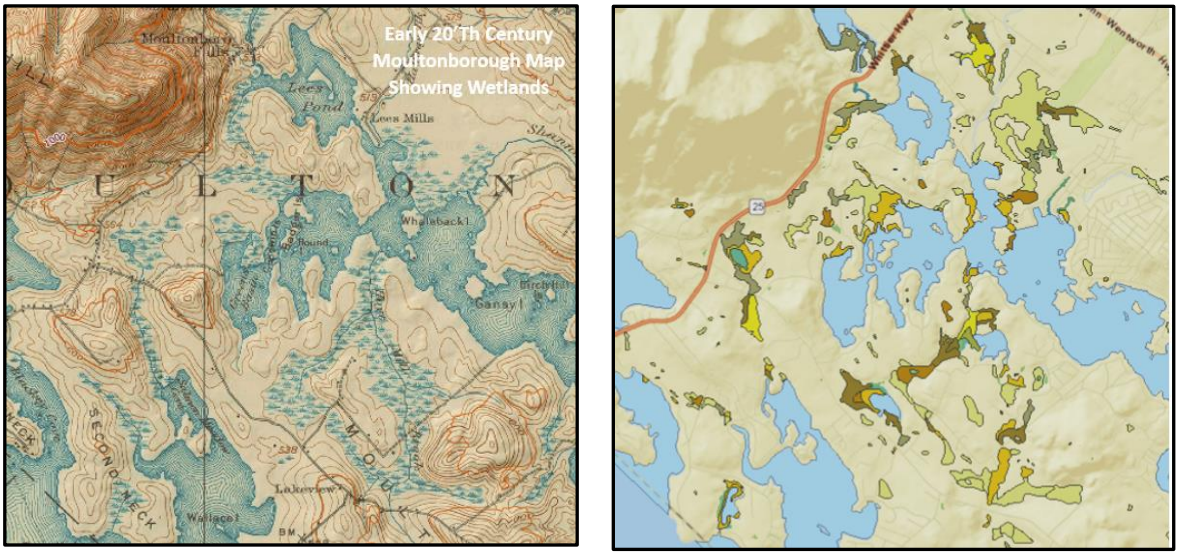

Figure 1: Moultonborough wetlands circa early 1900s and 2019. Note that the wetlands are less interconnected in the 2019 map, especially around Lees Pond, Greens basin, Moultonborough neck and boarding Shannon Brook.

Groundwater Quality

Following reports, the state is now managing cases of wells contaminated by (a) chloride from road salt storage and use, (b) contamination associated with known spill events, and (c) naturally occurring contaminants such as radon. The state is also monitoring public water supplies, a small number of problematic wells, and monitoring wells installed to monitor environmental events, in Moultonborough. Aside from these examples, there are no major groundwater issues known. However, currently, there is neither an ongoing town-sponsored surveillance program to monitor groundwater quality (2008 Natural Resource Chapter Goal 1 Action Item 3), nor is there an effort to develop additional protection protocols. There is concern that if a systemic problem arises, it will not be possible to address it during the early stages. Many homes depend on wells for potable water, so the impact of a wide spread water problem would be great.

Wildlife

Large tracts of protected upland (Red Hill and Ossipee Mountains) provide excellent wildlife habitats, but existing and future development in the lower elevations of the town (see "Priority Areas for Conservation and Protection Focus") threaten wildlife corridors, habitats, and their populations, as well as the overall ecology. Parcel-specific data for the types of wildlife present is not available. Wildlife species and locations listed in the town's Natural Resource Inventory document provide a guideline based on expected wildlife in various habitats, rather than in-the-field verification. The town's GIS wildlife layer comes from correlating typical habitat characteristics with aerial observations.

Rural Character

Scenic views are at risk as lots are cleared for development. Scenic views of waterfront shoreland and mountain sides becoming cluttered. The shoreland water quality protection rules about cutting trees remain poorly understood, have changed too frequently, and have limited enforcement. There are no elevation-restricted skyline development ordinances to protect views of the mountains. There are no scenic roads protected by a scenic highway designation. While the town has only a small amount of agricultural land, there are no town initiatives to encourage farming. There is no inventory of prime views, or viewsheds, so there is no way to know what to protect or how quickly they are disappearing. There is pressure from national store chains to build along visible byways. The dark sky at night is being polluted with commercial lighting, as seen in figure 2. Scenery changes in small increments, so a big-picture view is necessary to understand what needs to be protected and how to go about it.

Figure 2: Winter night-time sky showing over-the horizon light pollution

Education

Many residents are aware of local environmental issues, and increasing the use of best management conservation practices. Education has improved via workshops and presentations to the public and town officials. Topics covered include water quality, stormwater management best practices, natural, and historic resources. The town periodically updates its Geographical Information System (GIS), which is open for public use. Town officials expect that increased usage of the town GIS map data by the public, town staff, and land use boards will provide a broader reach and update GIS users with current natural resource information. The increased use of GIS map data needs to be encouraged with GIS training and development of a user guide for the public, town staff and boards.

Protection

Since the last update of this master plan chapter, the town added to the legal protection of natural resources with a steep slope ordinance, stronger shoreland zoning, an ordinance on stormwater management and a Groundwater Protection Overlay District. The town also contributed to the purchase of the Moultonborough Falls Conservation Area, protecting 37 acres of undeveloped shoreline. While there is much permanently protected land in Moultonborough there is also land temporarily protected by current use designation, which is at risk for future development. Additional efforts will be necessary to encourage developers to use best practices for development and construction to protect surface water quality, protect wildlife habitat and wildlife corridors, and protect Moultonborough's natural scenic beauty. An ongoing collaboration with the Lake Winnipesaukee Association aims to create and implement a watershed management plan that, if implemented, would reduce nutrient loading of surface waters. Additionally, there is a need to increase the awareness of the location of the most sensitive areas of town that need special attention, identified in the 2016 Moultonborough Natural Resource Inventory. The section titled, "Priority Areas for Protection and Conservation Focus," describe these efforts.

Restoration

Removal of milfoil from surface waters is an extensive and long-standing town effort at restoration. The highway department is instrumental in correcting run-off and erosion issues on public roads, but problems remain on private roads. The Lake Winnipesaukee Association sponsored "Moultonborough Bay Inlet Watershed Restoration Plan"[2] lists over 20 high and medium impact remediation sites that, when repaired, will reduce silt and nutrients entering surface water. The list, partially shown in Figure 3, includes sites that are the responsibility of the town and private parties.

While the town has repaired a number of these sites, and is in the planning stages to reduce stormwater runoff and restore the States Landing Beach area, a formal program is necessary to oversee remediation of all sites identified in the Moultonborough Bay Inlet Restoration Plan.

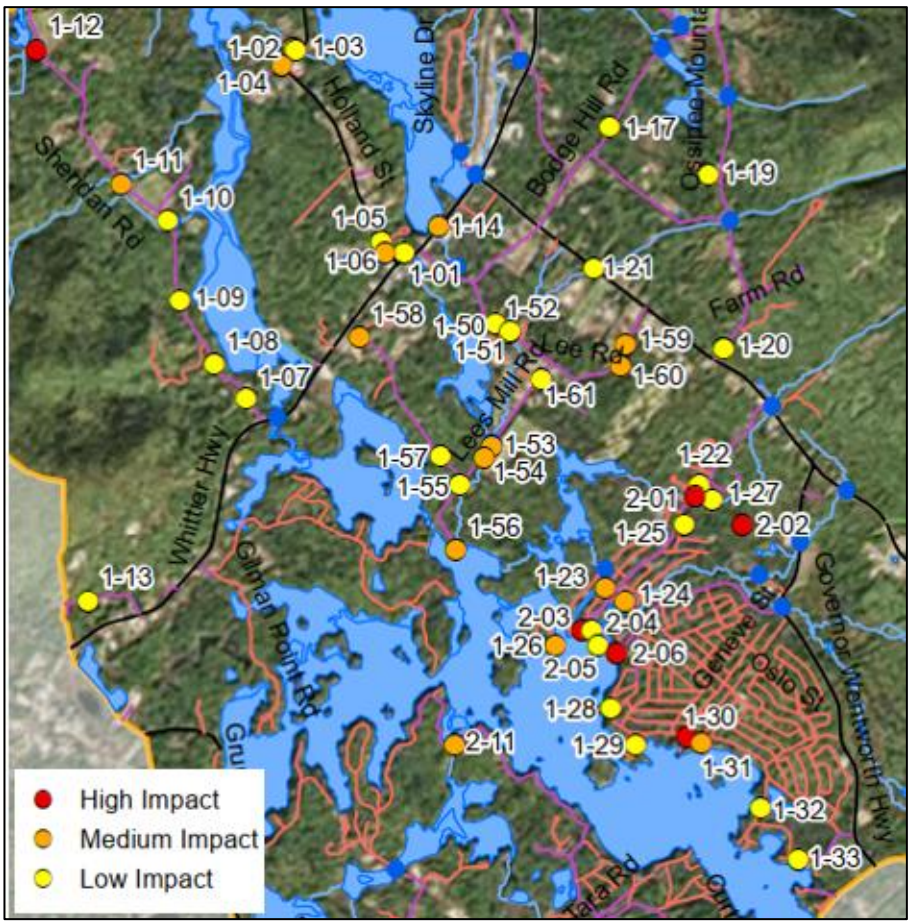

Figure 3: Identified Sources of Water Quality Problems

[2] Lake Winnipesaukee Associate Winnipesauke gateway, Moultonborough Bay Inlet Watershed Restoration Plan, website: http://winnipesaukeegateway.org/lake-management/plan-3/mbi-executive-summary/, accessed October 11, 2018

E. A Legal Basis for Environmental Zoning

The state defines a town's legal rights and limitations for managing its natural resources through zoning. Special rules for development near shore land, wetlands, and on steep slopes are examples. The master plan, including this chapter, does not establish the rules but does provide guidance and the legal justification for those who make them.

Specifically, Title LXIV, section 674 of the NH RSA lays out local land use planning and regulatory powers, along with the purpose and definition of the master plan. Section 674:18 states that the local legislative body may adopt a zoning ordinance under section 674:16 only after the planning board has adopted the mandatory sections of a master plan which are the chapters on Vision and Land Use. Moultonborough adopted its first master plan in the late 1990s.

The purpose of the master plan is to guide the planning board and other local government departments in the performance of its duties that include wise resource protection. The master plan gives legal standing to ordinances.

- RSA 676: 15, 17 Penalties and Remedies
- RSA 674:21 (j) Environment Characteristics Zoning
- RSA 483-B Shoreland Water Quality Protection Act

Towns are granted the ability to implement local ordinances and codes that exceed state requirements. Moultonborough already employs ordinances and codes that provide stronger natural resource protection than state requirements.

Effective enforcement of existing regulations and ordinances and granting appropriate variances are challenges with regard to protecting natural resources. The laws are often vague or too burdensome to comply with, and as a result conservation best practices are not always followed. After the fact, enforcement actions tend to be less effective in preventing degradation to natural resources because the actions are reactive to damage already done. Punitive enforcement may encourage people to hide problems from those qualified to give advice on how to make things better. Identification of natural resource issues and their remediation, along with using best environmental practices during project approvals, design and construction can result in better natural resource conservation outcomes. In addition to the education, protection, and restoration initiatives described above, the implementation of this natural resource master plan relies heavily on diligence to conservation best practices during the land-use board approvals, construction, and occupancy permit stages for development projects presented for town approval.

F. GIS (Geographic Information System) Maps

GIS maps offer a tool to identify the location of important natural resources. The town's Geographic Information System (GIS) combines data about the town with maps to provide visual information about town features and natural resources, overlaid on parcel boundaries. The GIS map tool is a reference information tool to help people make land use decisions. The system is accessible from the town website[3] under the "Tax and GIS Maps[4]. Access to the specific maps from this web address is achieved by clicking on the "Layers" tab found at the left side margin of the screen. Clicking on the "+" indicated to the left of each map "layer" provides a listing of subtabs and a map key information, appropriate to the map displayed.

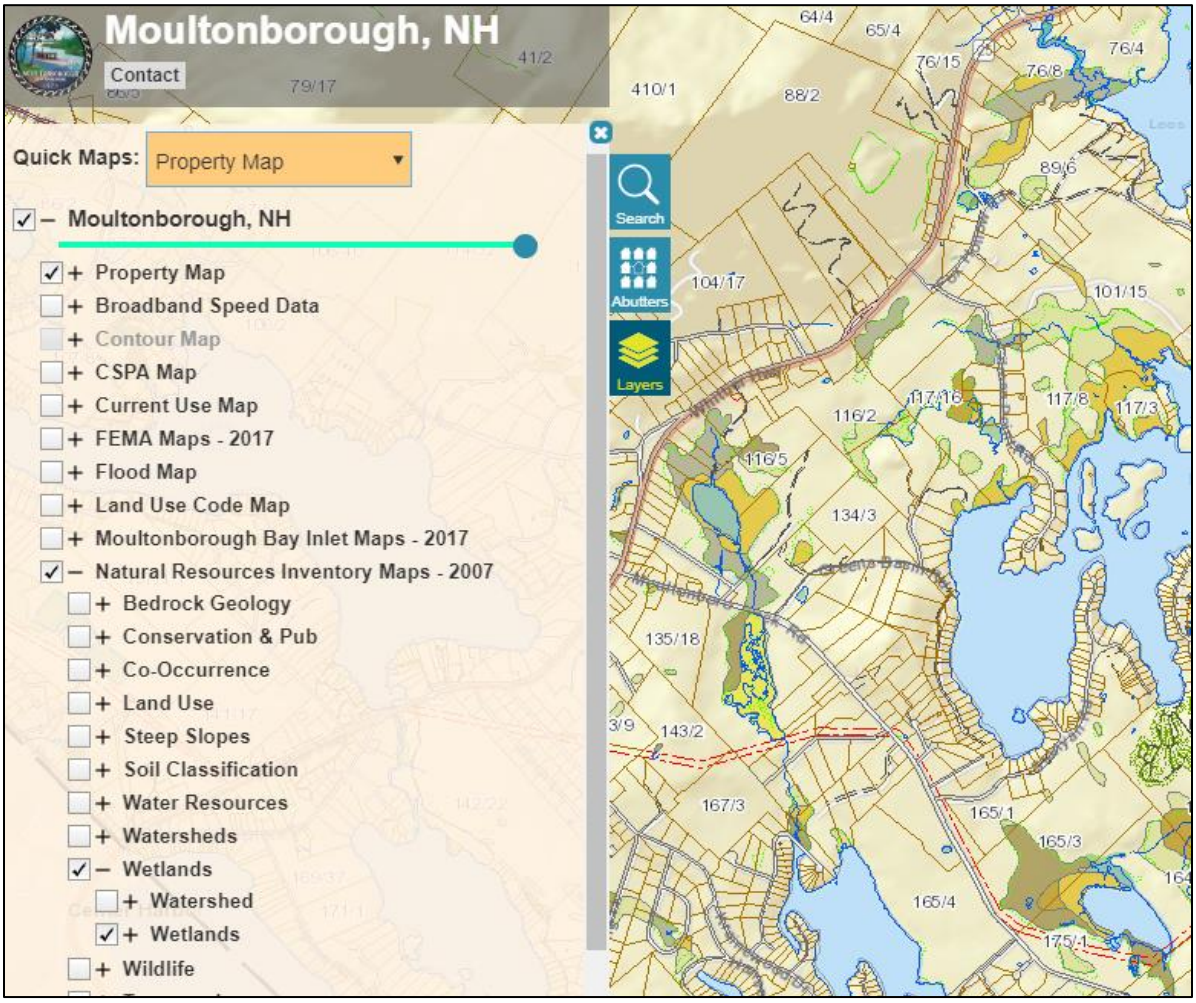

Figure 4: Publicly Accessible GIS Maps of Moultonborough

[3] Town of Moultonborough website: https://www.moultonboroughnh.gov/ (accessed October 11, 2018)
[4] Moultonborough Tax and GIS Map website: https://www.axisgis.com/moultonboroughNH/ (accessed October 11, 2018)

The GIS system is an asset that increases in value with each additional layer of new information. The value is retained by updating existing layers as the data changes. The GIS viewing tools let anyone, from the public to developers to town officials, work from the same data. This goal is to prevent surprises when development and sub-division permits are sought. Appendix 1: Natural Resource Chapter Goals and Objective Implementation Matrix Goal #1 includes recommended actions to ensure that training, updating of GIS maps with current information and the integration of GIS data into planning, review and decision-making.

G. Protecting Surface Water Quality

Protecting the quality of surface water is a top priority for the town. Lakes and ponds naturally age and with that comes lower quality surface water. Human activity accelerates aging by adding increased levels of silt and nutrients, especially phosphorus, to surface water. Protection actions target reduction or reversal of the rate that water basins are aging. Developed land is the largest contributor to phosphorus nutrient loading of surface waters and is the focus of the town's protection strategies. Figure 5, from the Moultonborough Bay Inlet (MBI) watershed report shows that while only 11% of the area of the watershed is developed, developed land contributes 88% of the phosphorus nutrients to the watershed basin.

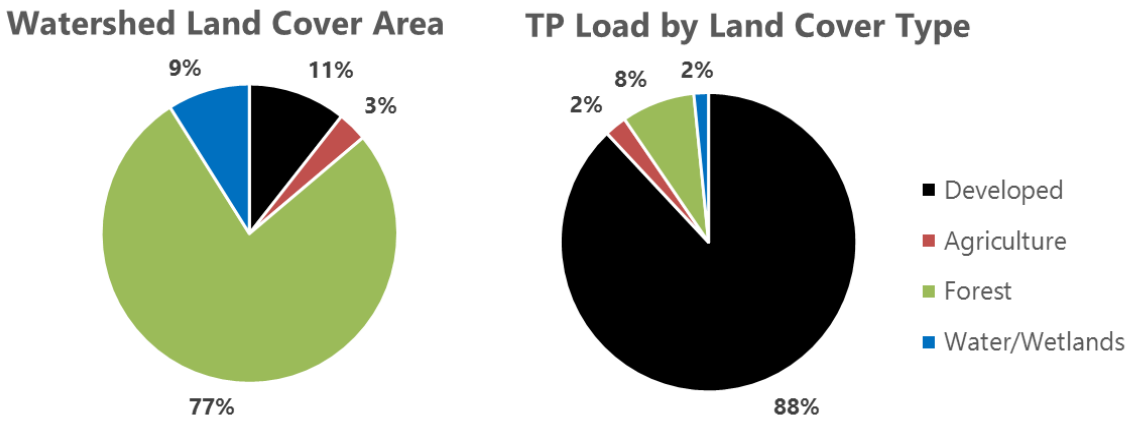

Figure 5: Moultonborough Bay Inlet Watershed Total Phosphorus (TP) Loading Analysis

The MBI watershed report used aerial photography to locate wetlands and hydric soils indicated on the GIS maps, however that technique misses much of the forested wetlands and vernal pools. Therefore, it is still important to explore land-use approvals in person to be sure wetlands of all types are considered. With the identification of new wetlands and areas of hydric soils through the development application process, it is important to add them to the town's GIS layers for wetlands and hydric soils (See Appendix 1: Natural Resource Chapter Goals and Objectives Implementation Task Matrix Goal #1B).

The protection and restoration of surface water quality have extensive public support as indicated by multiple surveys of the local residents. The town government responded with protection ordinances and effort to understand and mitigate issues that degrade water quality. Zoning Ordinance Article XII "Storm Water Management Ordinance," enacted in 2010 (2008 Natural Resource Chapter Goal 2 Action Item 1), mandates a stormwater runoff plan for projects affecting 20,000 sq. ft. and greater[5]. The town should consider revising this ordinance to include roads, new projects on existing lots, and disturbed areas less than 20,000 sq. ft. The Lake Winnipesaukee Association sponsored Moultonborough Bay Inlet Watershed Restoration Plan [6]revealed that phosphorous loading due to stormwater runoff is the primary threat to surface water quality. Lesser threats include failed septic systems and improper use of fertilizers.

Reducing stormwater runoff into surface waters is the most useful effort the town and the public can take to protect surface water quality. The goal of stormwater management is to increase the amount of stormwater runoff that is absorbed into the ground before it enters surface water. Stormwater runoff carries silt, salt, and nutrients, most notably, phosphorous. These contaminants can come from roads, driveways, culverts, and construction sites. Problem areas are best observed during heavy rainstorms, where more than several inches have fallen. Turbid runoff and erosion indicate potential stormwater issues to be addressed.

This plan encourages more rigid use of stormwater runoff best management practices in project design and construction. Stronger town oversight of stormwater runoff management plans should be part of the town project approval and permitting processes. It is also important to assess compliance with the approved plan at appropriate stages during construction, followed by certification that all elements of the stormwater management plan were complete prior to granting a certificate of occupancy.

When it is not possible to avoid all drainage into surface waters, such as the case with a stream or seasonal runoff path, settling areas or holding pools should be encouraged. For development on sites with 20,000 sq. ft. or more, Moultonborough Zoning Ordinance Article XII, Section V, Storm Water Management Requirements states, "There shall be no negative impact to water quality post-development from predevelopment conditions." The ordinance requires that qualifying subdivisions or site development need to have a stormwater runoff review. While the ordinance is somewhat effective, better conservation would occur with increased enforcement of the existing standards and continual update of ordinances to relevant contemporary standards, as they evolve. Increasing minimum lot size for housing in priority conservation areas would add constraints to development beneficial to surface water quality.

The extent of the problem of failed septic systems is unknown and hard to quantify. Environmental scientists estimated failed septic systems to contribute 10% the total nutrient loading, but as of this writing, there is concern that this figure may be low and another analysis

[5] Moultonborough Zoning Ordinance Article XII Storm Water Management Ordinance, website: https://www.moultonboroughnh.gov/sites/moultonboroughnh/files/uploads/zoning_ordinance_2017_final_adopted_03-14-17_0.pdf, page 52 (accessed October 11, 2018)

[6] Lake Winnipesaukee Association, Winnipesaukee Gateway website: (http://winnipesaukeegateway.org/lake-management/plan-3/mbi-executive-summary/ (accessed October 11, 2018

is underway. Actual nutrient loading is important to know, because historically, septic systems have degraded water quality. The Winnipesaukee River Basin Project installation of a sewer system on the western shores of Lake Winnipesaukee completed in 1993 resulted in rapidly improved water quality. Expanding public sewer systems would reduce the impact in areas of commercial development or high housing density. For now, greater oversight will help. RSA 485-A:39 requires that a septic inspection take place before the execution of a purchase and sale agreement for any developed waterfront property. The RSA states that septic designers must report to the town's health officer any septic systems discovered discharging on the ground or into surface waters. However, Moultonborough has only limited visibility into the condition of septic problems. This plan encourages the town to seek indications of localized septic problems and, when found, work with the owner to repair the problems. The town should consider a grant program to help property owners with failed systems in proximity to surface waters, similar to the approach taken in Meredith in the Lake Waukewan Watershed Septic System Improvement Initiative Cost Share Program. This program was comprised of two components: A voluntary septic evaluation and certification program, which provided cost sharing grants funded by the Source Water Protection Program, and Septic System Improvement Initiative, funded by NH DES 319 Watershed Assistance Program, which covered one third of the cost to repair or replace failed septic systems up to a maximum cost of $4,000.[7]

Fertilizers and cleaning detergents with phosphates are prohibited in the protected shorelands, so the water quality impact of these products is considered minor, but still worth reducing. The town should encourage hardware stores and landscapers to offer phosphate free/reduced fertilizers. Compliance with application rules for fertilizer, and winter road salt, in the shoreland protection zone would improve by holding commercial vendors accountable for violations.

The NH Shoreland Water Quality Protection Act sets standards and defines restrictions on shoreland alterations. The goals of these state laws align with the town's goals of protecting water quality, wildlife habitat, and scenic beauty. Goals of protecting fish spawning grounds and aquatic life are supported by the town's goal to protect water quality. The town has the authority to set more stringent standards than spelled out by the state. For example, Moultonborough conforms to the NH DES requirements for a 50' development setback from waterbodies and could reduce nutrient loading from new construction by increasing the setback. Recent studies indicate that a deeper setback would be more effective in increasing absorption of runoff into the ground, thereby preventing stormwater runoff into surface waters. Regulations that reduce stormwater runoff provide the largest payoff in reduced nutrients and silt into the surface waters. Limited clearing and use of permeable surfaces will help. Driveways should divert water into swales or water gardens to limit velocity and volume of water flowing into surface waters. The town should continue to keep in contact with NH DES, University of NH, and Plymouth State University and maintain partnerships with NH Lakes Association,

[7] Presentation: "From 'CESS' to 'SUCCESS' The lake Waukewan Watershed Septic System Improvement Initiative cost share program", 27th Annual Nonpoint Source Pollution Conference, April 20, 2016, Stephen Landry NHDES and Patricia Tarpey, Lake Winnipesaukee Association

Winnipesaukee Watershed Association, Association of Conservation Commissions, and others to maintain awareness of evolving scientific data and conservation best management practices

Because water flows downhill and always finds its way, rain events over an inch and especially multi-day events over with 3-5" of precipitation create erosion problems. Large storms flush contaminants into surface water more than gentle showers. After a storm, it is easy to find deposits of silt along the sides of roads and driveways located near ponds and lakes. The eroded dirt, sand, and silt contain nutrients that feed plant life in the surface waters. Excessive nutrients cause more algae to grow, and silt turns into muck on the bottom of water bodies, accelerating aging of the water body. Once a clean sandy lake bottom is covered with muck, it may not ever recover to a pristine state.

Action items recommended to protect and restore surface water quality are found in Appendix 1: Natural Resource Chapter Goals and Objectives Task Implementation Matrix Goal #2.

H. Protecting Ground Water

There is currently no town-owned water utility providing water to town residents. Several small privately-owned water utilities provide approximately 1155 connections. Privately owned wells which number approximately 3800, are the predominant water source for town residents[8]. Article XIII "Ground Water Protection Ordinance" of the Moultonborough Zoning Ordinance [9]establishes a groundwater protection overlay district, performance standards, permitted, and prohibited activities, along with additional requirements for protecting groundwater in the groundwater protection overlay district. Additional groundwater protection efforts by the town are currently not a top priority. Groundwater contamination issues to date have been few, and those reported were the result of isolated known sources. Given the high level of reliance on wells for drinking water, the town should encourage periodic testing of private wells, and accept well water quality reports, so that the town can quickly identify systemic problems regarding the quality of subsurface sourced waters. The primary aquifers are already mapped and publicly available as a GIS layer of the Natural Resource Inventory Map 2007 Water Resources[10]. In the future, it may be necessary to find ways to protect the supply from excessive commercial withdrawal. While there is no authority to do so, the town could interview local well-drilling companies to compile information and get recommendations. The town should continue to consult with NH DES and other experts and consider defining a water quality reporting and crisis process. Action items to improve groundwater protection appear in Appendix 1: Natural Resource Chapter Goals and Objectives Task Implementation Matrix Goal #3.

---

[8] Source Protection Plan for Moultonborough, NH Sept 2016 Granite State Rural Water Association

[9] Moultonborough Zoning Ordinance Article XIII Ground Water Protection Ordinance, website: https://www.moultonboroughnh.gov/sites/moultonboroughnh/files/uploads/zoning_ordinance_2017_final_adopted_03-14-17_0.pdf, page 53 (accessed October 11, 2018)

[10] Moultonborough GIS and Tax map layer Natural Resource Inventory Map 2007, Water Resources, website: https://www.axisgis.com/moultonboroughNH/, (accessed October 11, 2018)

I. Protecting Wildlife Habitats

The town has abundant wildlife from small to large. Location information about wildlife appears in the GIS layer Natural Resource Inventory Maps 2007, "Wildlife" tab. The New Hampshire 2015 Wildlife Action Plan[11] is a blueprint for conserving Species of Greatest Conservation Need (SGCN) and their habitats in New Hampshire. The updated town GIS maps illustrate the location of these habitats. Based heavily on aerial photographs, the locations match ground attributes to typical wildlife habitat areas, so are not precise. As a rural area, we share our habitat with wildlife, at times too intimately. Deer and bear are frequent unwelcome visitors to gardens and bird feeders and porches. Some of the larger wildlife roams over large areas, including surface waters. Their paths or corridors appear along waterways and crossing the town's many hiking trails in protected lands. When undeveloped land along unfragmented habitats is developed, the wildlife is disrupted. Sometimes there are acceptable alternate habitats and corridors around newly developed areas, but other times not, and the wildlife moves elsewhere or dies out. The remaining unfragmented blocks of wildlife habitat are shown in the Natural Resource Inventory 2007 "wildlife" GIS layer. Protecting connected wildlife habitats and corridors is an urgent issue, but challenging.

Additionally, the GIS layer Natural Resource Inventory 2017 map layer "wildlife" identifies the locations within the town identified in the state of New Hampshire 2015 Wildlife Action Plan as the best for wildlife habitat, and a wildlife coverage map. Land parcels located in these highest ranked areas are of highest conservation interest, (See Section M - Priority Areas for protection and conservation focus below) and merit consideration of environmental impact by land use boards when presented plans for development in these locations. The town should use best practice methods that reduce the environmental impact of development projects located in priority conservation areas. It would also be useful to know the significant plant and wildlife types present in the most sensitive wildlife areas, along with the location of wetlands and vernal pools. Then, identify mitigation measures that will protect valuable natural resources during construction and occupancy. It is imperative that land use boards consider the adoption of land control incentives that maintain wildlife corridor connectivity and protection of the state of NH Wild Life Action Plan locations highest ranked by the state. Since many of the wildlife corridors go across roads, look for ways to reduce road-kill where it is frequent. Collect better data on corridor crossings by modifying police procedures to include the GPS location on incident reports that involve wildlife.

Action items to consider for the protection of wildlife are found as in Appendix 1: Natural Resource Chapter Goals and Objectives Task Implementation Matrix Goal #4.

[11] New Hampshire Fish and Game, NH Wildlife Action Plan, website: https://www.wildlife.state.nh.us/wildlife/wap.html, (accessed October 11, 2018)

J. Protecting Rural Character and Open Spaces

In surveys, Moultonborough residents indicate that the town's rural character is important. Since much of Moultonborough is mountainous or surface water, the rural character is assured to a certain degree. However, rural character changes with development of open fields, along scenic stretches of roads or when clearing mountainous uplands. The same situation applies to skyline views and across water. Nighttime darkness is another bit of rural character that is appreciated by many. When businesses shine lights all night or when municipalities install streetlights, these lights can fill the sky with light and reduce the dark sky asset.

The town should protect the rural nature of the town by offering incentives to protect undeveloped land, views, and light pollution. It should embrace the rural character of the town by guiding land use decisions in a way to protect rural assets. A recent build-out analysis showed that, within the Moultonborough Bay Inlet watershed, it would be possible to build almost twice as many buildings as there are today. The picture below shows yellow dots for existing buildings and red dots where new construction could possibly take place.

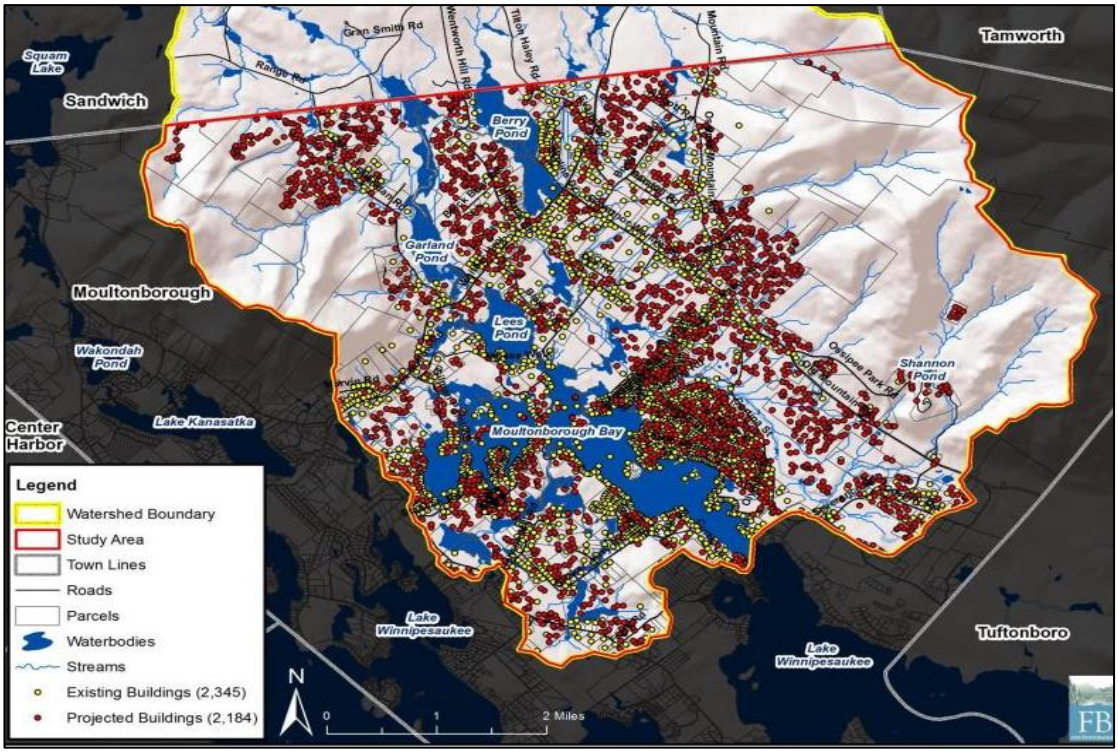

Figure 6: Build-out analysis of Moultonborough Bay Inlet Watershed

Protection of undeveloped land, agricultural land, open spaces, and views is essential to the character of the town but is also challenging to achieve. As the town changes through growing,

shrinking, zoning, easements, variances, etc., it will be possible to use other incentives to shape changes while protecting the views, such as special district overlay rules. The voters in town have a say in how important the rural character is. Undeveloped land and open spaces help address the wildlife corridor, drinking water, and surface water quality problems, so the pressure is on to save it all. However, that is not practical. It is up to the planning board to develop new zoning and development ordinances that reflect a balance between the property owner's rights and conservation best practices.

Undeveloped public and some private properties are a recreational asset to the town, especially where a conservation easement allows public access. There are extensive networks of trail systems for hiking, cross-country skiing, snowshoeing, and snowmobiling. Examples include Red Hill, the Ossipee Mountains, Kona Wildlife Management Area, and the Moultonborough Falls Conservation Area. The town should evaluate potential public access for the undeveloped parcels it owns. In collaboration with land trusts and the landowners in priority conservation areas, the town should seek conservation easements that protect recreational use land from development and provide public access where appropriate and agreeable to landowners.

It is important to consider action items for protection of the town's rural character and open spaces; these actions appear in Appendix 1: Natural Resource Chapter Goal and Objectives Task Implementation Matrix Goal #5.

K. Internal Partnerships

Conservation of the town's natural resources is, at some level, the responsibility of every town official, employee, and volunteer.

Below is a partial list of organizations that have specific responsibilities.

- **Code Enforcement Officer**: In collaboration with the Select Board, enforces applicant compliance with town building ordinances and issued permits. For smaller projects, environmental steps should be included in code enforcement approvals and inspections. This office has the most direct contact with the public on environmental matters.

- **Conservation Commission**: Offers consultations on conservation issues and can act as a liaison between town departments and subject experts.

- **Heritage Commission**: Promotes the proper recognition, use, and protection of significant historical and cultural resources in the Town of Moultonborough. Locations of these assets can align with those critical to natural resource protection.

- **Highway Department**: Ideally, road construction and maintenance—including culvert installation and winter treatments—will keep conservation best practices in mind, while also mitigating identified conservation threats relating to highways.

- **Recreation Department**: The recreation department should take the opportunity to educate the public, especially the town's youth, on local conservation threats, opportunities, and best practices. It also can contribute to the establishment and maintenance of trail networks.

- **Planning Board**: Develops ordinances, reviews and approves development applications. The planning board should ensure that its processes include a conservation component.

- **Select Board**: Enforces compliance to town ordinance and permit requirements. The select board's decisions should reflect conservation aspects where relevant.

- **Zoning Board**: Grants variances to zoning ordinances. Diligence to conservation issues while evaluating variance applications will help to protect environmentally sensitive areas.

L. External Partnerships

Moultonborough does not have professional environmentalists on staff, so must look outside the town to learn best practices and collaborate on projects that conserve natural resources. Fortunately, many organizations at the local, regional, and state levels, already engage heavily in conservation efforts and with much expertise. The town has already worked with many of these external groups and should continue to deepen the relationships.

A partial list includes:

- Carroll County Conservation District
- Lake Winnipesaukee Association
- Lakes Region Conservation Trust
- Lakes Region Planning Commission
- NH Association of Conservation Commissions
- NH Bureau of Trails
- NH Department of Environmental Services
- NH Fish and Game
- NH Lakes Association
- Plymouth State University
- Society for the Protection of NH Forests
- Squam Lakes Association
- Squam Lakes Conservation Society
- The Nature Conservancy
- University of New Hampshire

In addition to these organizations, the town has an opportunity to work with surrounding towns. Some of the natural resources of Moultonborough are shared with neighboring towns of Sandwich, Center Harbor, and Tuftonboro. The plan is to maintain relationships across land use boards of neighboring towns, sharing best practices and cooperating in projects where relevant. Here are the most important issues to discuss with each neighboring town.

- **Sandwich** is in the upland part of Moultonborough's watershed, and as such is a potential contributor to nutrient loading of the Red Hill River complex.
- **Center Harbor** shares a sub-watershed on the west side of Moultonborough Neck and should be part of any watershed management plans for that area.
- **Tuftonboro** receives almost 4 million gallons of water flowing out of the Moultonborough Bay Inlet, containing an estimated 2644 pounds of phosphorus nutrient each year[12].

M. Priority Areas for Protection and Conservation

Moultonborough has experienced steady population growth and development since the 1960s. While population growth appears to have slowed since 2000, there is an increase in second home construction or renovation. Some of the land protected by current use designation is at risk of development as it is sold or passed on to heirs. Given limited resources for conservation, priorities must focus on the most environmentally sensitive areas. There are currently 14,100 acres of conserved land within the town. The 2016 Moultonborough NRI[13] examination of existing conserved lands found that low-lying areas of Moultonborough lack protection compared to higher-elevation areas. The NRI identified nine locations as "Priority Conservation Areas."

The Primary Conservation Areas are located predominantly in the central part of the town. These are low-lying areas and contain overlapping ecological features. These areas encompass much of the town's mapped wetlands and streams, and are areas mapped in part of the Wildlife Action Plan as valuable habitat not already protected. In total, the identified areas cover approximately 5,174 acres (47%) of buildable land out of total 10,908 acres identified by the build-out analysis (FBE, 2015[14]).

The 2016 NRI and town GIS maps indicate that there are presently 460 acres of land in Moultonborough classified as "prime agricultural" soils. Consideration to protect agricultural

[12] FB Environmental. 2/8/2015 Lake Loading Response Model Update, page 17

[13] Moultonborough Natural Resources Inventory, page 33 website: https://www.moultonboroughnh.gov/sites/moultonboroughnh/files/uploads/moultonborough_nri_final_19december16-1.pdf, (accessed October 11, 2018)

[14] FB Environmental. 2015. Town of Moultonborough Build-Out Analysis. Memo to Bruce Woodruff, Moultonborough Town Planner from Kevin Ryan and Forrest Bell, FB Environmental.

acreage from further development to reserve their use for future agricultural purposes and protection of the town's rural character by conservation easement or other means is encouraged.

In the future, an expanded look at priority conservation areas should adopt the sub-watershed basin approach from the Moultonborough Bay Inlet study. Moreover, future efforts should map the watershed of each major stream entering Winnipesaukee, making it easier to identify and prioritize the upland sources of surface water pollution.

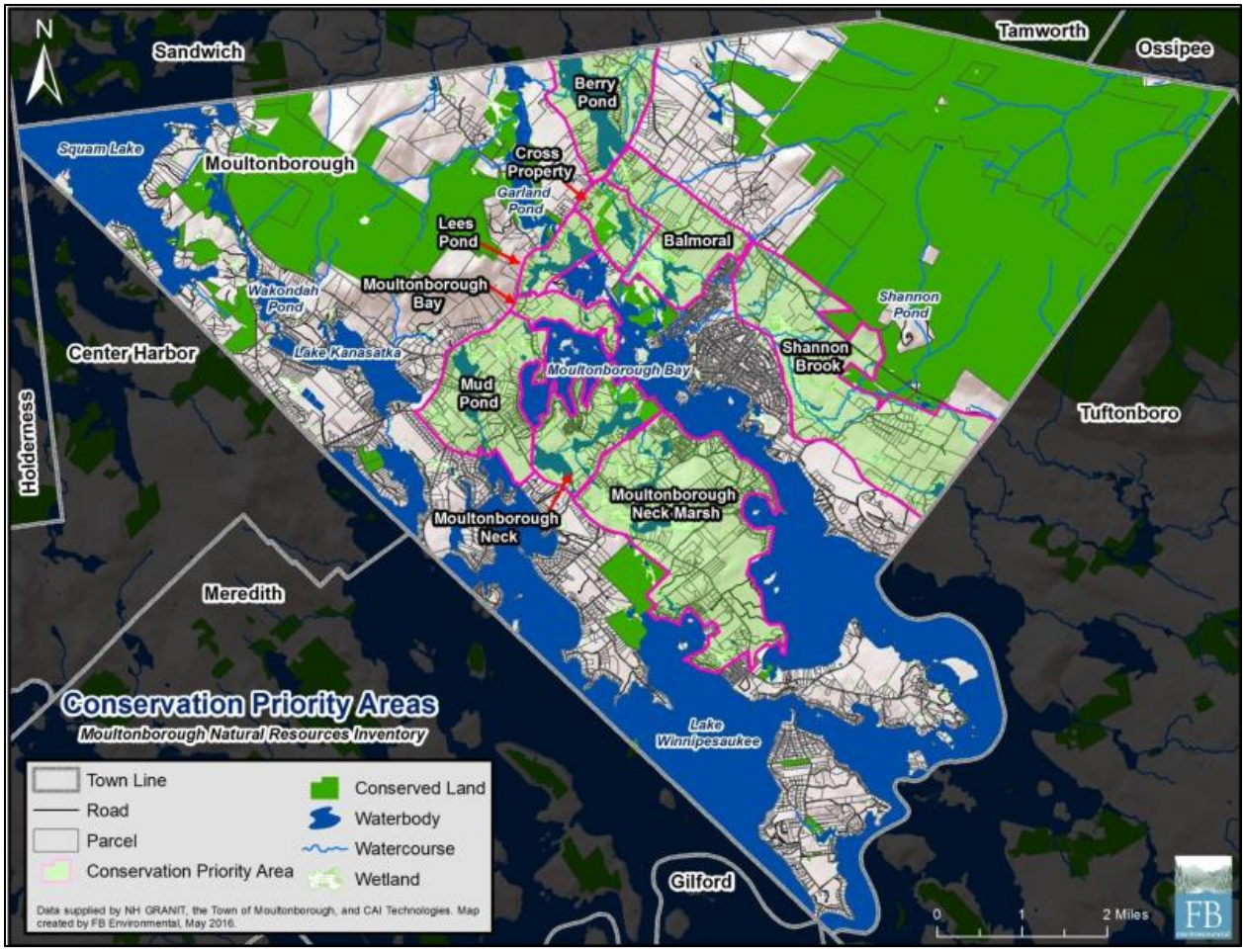

Figure 7: Map from 2016 NRI showing nine Conservation Priority Areas

The greatest threat to the natural resources and ecology for each of the nine Priority Conservation Areas is habitat alteration associated with development. The nine priority conservation areas when combined form a horseshoe shape around Moultonborough Bay. A brief description of each of area and a specific point of conservation focus is provided below.

1. MOULTONBOROUGH NECK MARSH

   Based on the Wildlife Action Plan habitat ranking data, 33.5% (66.4 acres) of Moultonborough Neck Marsh Priority Conservation Area is one of the top-ranked habitat

categories. A stratified drift aquifer exists under 627.5 acres (20.9%) of the area. The 2015 build-out analysis identified 797.0 acres (40.1%) of the area as buildable. Initial conservation activity in this area should focus on Moultonborough Neck Marsh as it contains the highest amount of area mapped as one of the top-ranked habitat categories in the Wildlife Action Plan.

2. MOULTONBOROUGH NECK

Based on the Wildlife Action Plan habitat ranking data, 70.7% of Moultonborough Neck Priority Conservation Area is one of the top-ranked habitat categories. Stratified drift aquifers comprise 22.5% (177.1 acres) of the priority conservation area. The 2015 build-out analysis classified 258.3 acres (32.8%) as buildable. Conservation activity within this area should focus on areas mapped as top-ranked habitat and wetlands.

3. MUD POND

The Mud Pond Priority Conservation Area encompasses 1,104.3 acres surrounding Mud Pond. The pond's outlet drains south into Salmon Meadow Cove. Based on the Wildlife Action Plan habitat ranking data, 33.5% (66.4 acres) of the Mud Pond Priority Conservation Area is one of the top-ranked habitat categories.

Additionally, a stratified drift aquifer exists under 469.0 acres (4.25%) of the area. The 2015 build-out analysis identified 499.7 acres (45.3%) of the area as buildable. Conservation activity within this area should focus on Mud Pond and the wetland complexes in the northeastern portion of the area.

4. MOULTONBOROUGH BAY

Based on the Wildlife Action Plan habitat ranking data, 34.9% (97.8 acres) of Moultonborough Bay Priority Conservation Area is one of the top-ranked habitat categories. Additionally, a stratified drift aquifer exists under 76.3 acres (27.2%) of the area. The 2015 build-out analysis identified 136.1 acres (48.5%) of the area as buildable. Town parcel data shows this priority area contains a few large tracts of land to targeted for possible land protection efforts.

5. LEE'S POND

Based on the Wildlife Action Plan habitat ranking data, 25.9% (73.9 acres) of Lee's Pond Priority Conservation Area is one of the top-ranked habitat categories. Additionally, 76.3 acres (27.2%) of the area underlain by a stratified drift aquifer. The 2015 build-out analysis identified 95.8 acres (33.5%) of the area as buildable. Conservation activity focus near Lee's Pond and the wetlands associated with it. In 2018, the town purchased a 37-acre parcel, which provides additional protection from buildout along the Northern edge of Lee's pond.

6. CROSS PROPERTY

The Cross property encompasses a 409.8-acre area which includes an unnamed waterbody and a stretch of Halfway Brook, a tributary to Moultonborough Bay which drains from the Ossipee Mountains and is one of the largest stream complexes in the town. Route 25, Lee

Road, Lees Mill Road, and Blake Road border the area. Based on the Wildlife Action Plan habitat ranking data, 25.0% (102.3 acres) of Cross Property Priority Conservation Area is one of the top-ranked habitat categories. Additionally, a stratified drift aquifer exists under 76.3 acres (27.2%) of the area. The 2015 build-out analysis identified 118.3 acres (28.9%) of the area as buildable. Conservation activity within this area should first focus on Halfway Brook, as the Wildlife Action Plan maps the land bordering it as Highest Ranked in the State.

7. BERRY POND

   The Berry Pond priority conservation area encompasses 831.3 acres, and it includes Berry Pond and a tributary to it, Weed Brook. Based on the Wildlife Action Plan habitat ranking data, 50.2% (417.5 acres) of Berry Pond Priority Conservation Area is one of the top-ranked habitat categories. Additionally, a stratified drift aquifer exists under 351.8 acres (42.3%) of the area. The 2015 build-out analysis identified 183.4 acres (22.1%) of the area as buildable. Conservation activity within this area should first focus on Weed Brook; the Ecological Condition in the Wildlife Action Plan maps it and the land bordering it among the highest-ranked in the in the state.

8. BALMORAL

   The Balmoral Priority Area encompasses 893.7 acres located northeast of Moultonborough Bay and southwest of the Governor Wentworth Highway. Present at the south end of this area is a large wetland complex adjacent to Moultonborough Bay. Halfway Brook traverses this area. The watercourse is a tributary to Moultonborough Bay, which drains from the Ossipee Mountains and is one of the largest stream complexes in the town. Based on the Wildlife Action Plan habitat ranking data, 25.4% (227.3 acres) of Balmoral Priority Conservation Area is one of the top-ranked habitat categories. Additionally, a stratified drift aquifer exists under 568.1 acres (63.6%) of the area. The 2015 build-out analysis identified 331.1 acres (37.0%) of the area as buildable. Conservation activity within this area should first focus on Halfway Brook and the large wetland complex at the southern end of the priority area.

9. SHANNON BROOK

   The Shannon Brook, priority conservation area, is 2,473.5 acres in size and is located in between the Ossipee Mountains and Moultonborough Bay. Based on the Wildlife Action Plan habitat ranking data, 60.7% (1,501.3 acres) of Shannon Brook Priority Conservation Area is one of the top-ranked habitat categories. Additionally, a stratified drift aquifer exists under 759.2 acres (30.7%) of the area. The 2015 build-out analysis identified 1,468.3 acres (59.4%) of the area as buildable. Conservation activity within this area should first focus on Shannon Brook as it, and the land adjacent to it is mapped as one of the top-ranked habitat categories in the Wildlife Action Plan.

As opportunity presents, consider the use of conservation easements, land purchases, land donations, town ordinance changes or prime wetland designations to protect the areas described above. Proposed development in these nine high-priority areas merits a higher degree of assessment by developers and town land-use boards to prevent loss of wildlife habitat, wildlife corridors, and negative impacts to surface and subsurface water resources.

N. Community Involvement

Governments and external organizations cannot protect natural resources by themselves. There are already over a thousand homes built along Moultonborough's surface water shoreland. Private ownership is common in areas of sensitive wetlands, animal corridors, and prime views. The importance of the local community, especially property owners, to adopting best management conservation practices, cannot be understated. Community engagement and public access to open spaces strengthen public appreciation for Moultonborough's natural resource assets and support for land use decisions that protect and preserve them. Here are some possible initiatives to enlist the public's help.

a. Publish more conservation information and advice in the newsletters included with the town's tax bills, the town website, and social media. Encourage questions and comments that town officials can address.

b. Publish reference material that helps people understand best practices for shoreland ownership, development that protects land current use status or conservation easements.

c. Encourage tax-deductible donations to the town's Conservation Fund.

d. Initiate volunteer monitoring projects that increase knowledge of flora and fauna present in Moultonborough, and enhance understanding of water quality trends. The data could be one means to update GIS wildlife, wetland, and vernal pool location data.

e. Involve young people in conservation projects with initiatives at the public school, recreation department, and private organizations such as summer camps and scouts.

f. Encourage residents and visitors to explore the woods more frequently by publishing maps of hiking trails and protecting snowmobile trails for winter access.

O Regulatory Changes

The master plan suggests a review of current ordinances, to ensure relevancy, identify areas for improvement, and increase public awareness in conservation practices. Specifically, it is important to consider the following:

- **Private Road Maintenance**: With many dirt roads in the town, much nutrient-rich silt washes into the surface waters. Develop an ordinance to require best practices for road construction, maintenance, and repair, to reduce the negative impact on water quality. Additionally, the town and private contractors should reduce road and driveway salt use where possible and sweep up excess sand from winter treatment operations.

- **Septic Maintenance**: Failing septic systems contribute nutrients to surface water and can threaten groundwater. There are still grandfathered systems that were installed before regulations went into effect. As a first step to reducing septic pollution, older septic systems should require pumping every 2-5 years.

- **Increasing the setback requirement** from water bodies and wetlands beyond 50 feet.

- **Increasing the minimum lot size** for development, especially in high-priority areas, to reduce the impact on water quality, wildlife habitat and rural character.

- **Increasing restrictions on steep slope development,** to reduce accelerated water runoff and erosion.

- **Establishing a skyline overlay district** that restricts clear-cutting in upland areas above 800' above sea level (MSL), to reduce erosion and maintain the rural character that mountain and skyline ridge views provide.

- **Expanding the scope of zoning ordinance** article XII for stormwater management to include projects that disturb less than 20,000 sq. ft. and to include smaller construction projects.

- **Adopting a Prime Wetlands Protection Ordinance** (2008 Natural Resource chapter Goal # 2 Action Item G).

- **Developing a process that includes the Conservation Commission** in an advisory role of all construction permits, exceptions, and waver applications located in the shoreland and wetland areas and the priority conservation areas identified in this chapter.

P. Natural Resource Protection Funding

Because prevention is easier and less expensive than repair, funding for protection of natural resources should be generous and predictable. The following list identifies potential funding sources.

- Local tax revenue is one source and is already contributing over $200,000 to milfoil removal. One-time funding grants from the town to special projects are also possible, as was seen with the purchase of the Moultonborough Falls land.

- Current use tax is paid when a property is removed from its current use status. Currently, 100% of this revenue, up to $20,000 is given to the Conservation Fund. With town voter approval, change the current use tax allocation to the conservation fund to no limit. This fund helps to balance development and protection.

- The conservation fund can accept donations from the public. Donations to the conservation fund should be encouraged and a program put in place to solicit donations for conservation projects.

- Grants are available, especially for mitigation projects. Grant applications are difficult to submit and may come with undesirable restrictions, so it is wise to hire experts to help with grant applications.

- The highway department should include conservation aspects to its projects in funding requests. This earmarking ensures that conservation is a priority.

Q. Master Plan & Abutting Communities Conflicts [15]

The 2008 Moultonborough Master Plan is, as of April 2019, in the process of incremental revision. The following chapters were updated in 2016: Chapter II: Vision, Chapter III: Land Use and Development, Chapter VIII: Transportation, and the Executive Summary. Updated in 2018 were Chapter II Economic Development, and Chapter VI: Housing. A review of the overall Master Plan chapters did not find any direct conflicts of this chapter with the currently active chapters of the town Master Plan and found them philosophically aligned concerning the protection of Moultonborough's natural resources. Potential conflicts between this chapter and other chapters of the Master Plan could arise in the future, however, in the form of future town approvals for projects on undeveloped land.

New village overlay districts and efforts at attracting affordable housing must balance development goals with conservation goals. Future development is the greatest threat to the ecology and natural resources in the nine Priority Conservation Areas and prime agricultural lands noted in this chapter. There are currently no special district zoning regulations or master plan elements that prevent future development of undeveloped parcels located in environmentally sensitive areas. Additionally, this chapter appears to be the only chapter that proposes action items to reduce the negative impacts of stormwater runoff on surface and subsurface waters.

A review of the master plans for the abutting towns of Tuftonboro, Ossipee, Tamworth, Sandwich, Meredith, and New Hampton, did not find any direct conflicts with this chapter. It was noted however that except for the Sandwich Master Plan, master plans for the other abutting towns predate Moultonborough's 2008 Master Plan, and have widely varying content and detail. Future conflict may emerge as older town master plans are updated, due to how towns decide to manage natural resources.

[15] NH RSA 674:2 (III) (d) indicates that the identification of conflicts between other elements of the master plan as well as conflicts with the plans of abutting communities is a key component of a Natural Resources chapter in a master plan

R. Implementation of Natural Resource Goals and Objectives

In order to implement the goals and objectives recommended in this Natural Resources Chapter of the Master Plan, the following objectives, strategies, tactics, timeframes and responsible parties are provided in Appendix 1: Natural Resource Chapter Goals and Objectives Implementation Task Matrix. The "implementation task matrix" is advanced by the Moultonborough Planning Board to support effective conservation practices for the town's natural resources.

Each objective works in concert with the other objectives to achieve Moultonborough's goals for conserving Moultonborough's natural resources. The Master Plan Steering Committee, and Conservation Commission developed the "task matrix" shown in Appendix 1 to successfully achieve Moultonborough's natural resource conservation objectives. Priority strategies were determined based on the timeframe for implementation. Generally, the timeframe is defined as: Near-Term – zero to thirty-six months; Mid-Term – three to five years; and Long-Term – greater than five years.

The parties charged with the responsibility for implementing the natural resource goals and objectives include the Board of Selectmen, Moultonborough Conservation Commission, Planning Board, Zoning Board of Adjustment, Highway Department, Recreation Department and staff of the Moultonborough Land Use Department. A concerted and sustained team effort by these various boards and committees will determine if Moultonborough is to satisfy the long-range natural resource conservation and protection goals.

S. Glossary

Aquifers are underground layers of water-bearing permeable rock, rock fractures, or unconsolidated materials (gravel, sand, or silt). It is possible to use a water well to extract groundwater.

Best Management Practices (BMP) - techniques or methods that aim to manage the quantity and improve the quality of stormwater runoff in a cost-effective manner.

Conserved areas of protected or conserved land on which development is indefinitely set aside or minimized in well-defined terms.

Floodplain is an area of land adjacent to a stream or river which stretches from the banks of its channel to the base of the enclosing valley walls, and which experiences flooding during periods of high discharge

GIS (Geographic Information System) is a system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data. GIS applications are tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations.

Groundwater is the water present beneath Earth's surface in soil pore spaces and the fractures of rock formations. A unit of rock or an unconsolidated deposit is an aquifer when it can yield a usable quantity of water.

High Priority Habitats cover a wide range of semi-natural habitat types, identified as being the most threatened and requiring conservation action.

Hydric Soils are permanently or seasonally saturated by water, resulting in depleted oxygen conditions, such as is found in wetlands. Hydric soils may be wetlands not yet designated as such.

Infiltration is the downward entry of water into the soil or rock surface, removing it from the runoff that reaches the watershed basin.

Land-Use Boards are local government officials that govern the use of land.

Milfoil (Variable) is an exotic invasive submersed perennial. It reproduces via fragments and seeds. A single piece of fragmented Eurasian milfoil can multiply into many new plants.

Natural Resource Inventory compiles and describes important naturally occurring resources such as forests, wetlands, surface and ground waters, and farmland within a given locality (e.g., municipality, watershed, or region).

Nutrients, such as phosphorus, are an essential plant food found in aquatic ecosystems; however, in excess amounts, can cause significant water quality problems.

Open Spaces refer an open piece of land that is undeveloped (has no buildings or other built structures).

Phosphorus Loading is one of the most important drivers of poor water quality and the proliferation of nuisance algae. Both tributary and atmospheric inputs represent phosphorus loading.

RSA The New Hampshire Revised Statutes Annotated (RSA) forms the codified law of the state subordinate to the New Hampshire State Constitution.

Rural Character refers to the patterns of land use and development where open space, natural landscapes, and vegetation are predominant over the built environment

Steep Slopes are areas that exceed a certain percent slope.

Storm Water Runoff is water that originates during precipitation events and snow/ice melt. Stormwater can soak into the soil (infiltrate), remain on the surface, and evaporate, or runoff and end up in nearby streams, rivers, or other water bodies (surface water).

Stratified Drift refers to well-sorted layers of sand and gravel deposited by glacial meltwater.

Surface Water is water on the surface of the planet such as in a river, lake, wetland, or ocean. It is contrasted with groundwater and atmospheric water.

Water Quality refers to chemical, physical, biological, and radiological characteristics of water.[1] It is a measure of the condition of water relative to the requirements of one or more biotic species and or to any human need or purpose.[2] It can have a subjective meaning too, based on how attractive it is to swim or fish in or live near.

Watershed is an area or ridge of land that separates waters flowing to different rivers, basins, or seas.

Wetland is a distinct ecosystem inundated by water, permanently or seasonally, where oxygen-free processes prevail.[1] The primary factor that distinguishes wetlands from other land forms or water bodies is the characteristic vegetation of aquatic plants,[2][3] adapted to the unique hydric soil. Wetlands play a number of functions, including water purification, water storage, processing of carbon and other nutrients, stabilization of shorelines, and support of plants and animals.[4] Wetlands are also the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life.

Viewshed is an area that is visible from a specific location.

Wildlife is living things and especially mammals, birds, and fishes that are neither human nor domesticated.

Wildlife Action Plan is a blueprint for conserving species of greatest conservation need and their habitats. Each habitat has an individual profile that includes information about the population, threats, and actions needed to conserve these features.

Wildlife Corridor is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development, or logging).

-30-