

Vermont Fish & Wildlife Department Strategic Plan 2017-2021



Strategic planning is a process of envisioning goals for the future and focusing department energies and resources on the high-priority strategies and actions to accomplish the department's mission.

This plan identifies critical trends and concerns along with strategies to reach our goals and effectively accomplish our mission. Included also are performance measures for each program to help track our progress over the next five years from--2017 through 2021.

Approved and adopted:

A handwritten signature in black ink, appearing to read "Louis Porter".

Louis Porter, Commissioner



VERMONT
respect. protect. enjoy.

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Strategic Plan Overview

Vermont Fish & Wildlife Department's strategic plan for 2017–2021 focuses on five areas of concern: fish, wildlife and plant conservation; fish and wildlife–based recreation and use; natural resource stewardship and public education; human health and safety; and, efficient operations and effective management. The department has developed goals and measurable outcomes for each of these areas, and indicators of achievement to monitor the department's progress. Results will be measured and programs will be held accountable for meeting strategic goals.

The conservation section of the plan emphasizes the vital importance of all species of fish, wildlife and plants, and their habitats and the department's ongoing commitment to stewarding the habitats necessary for fish, wildlife, and plant communities to survive and thrive into the future. This section identifies strategies intended to conserve the natural habitats of species as well as natural communities, and landscapes; it also describes efforts needed to engage the public in a discussion of the needs and benefits of land conservation and stewardship.

The recreation and use section focuses on connecting people to nature by encouraging fish and wildlife–based outdoor activities, educating people as to nature's contribution to Vermonters' quality of life, and improving public satisfaction with how the department stewards these resources. Hunting, fishing, trapping, and wildlife viewing have a long heritage in Vermont and wildlife viewing has steadily increased in popularity with the public. The department recognizes that participation in fish and wildlife–based activities is valuable and significant to the long-term welfare of fish and wildlife and their habitats because people tend to love what they know, and a public that participates is generally a public that cares and appreciates the resource. Outdoor recreation also leads to healthier, happier people.

The recreation section also describes actions that the department will take to control the magnitude, frequency, and distribution of recreation and other uses to ensure that ecological limits are not exceeded so that Vermont's fish, wildlife and plants may be sustained without degradation through time.

The education (or public understanding) section addresses the innate interest among the public for natural resource stewardship. Growing that interest into support, in the face of competing desires for housing, industry, and infrastructure, will be key to the success of the department's habitat, species and ecosystem integrity protection efforts. Widespread appreciation for the intrinsic, economic and social values derived from Vermont's fish and wildlife offers our greatest hope for successful conservation.

The human health and safety section of this plan details the department responsibilities that are often overlooked by the public, but which impact the day-to-day quality of life for many Vermonters. The department strives to limit the number of harmful encounters with wildlife through a variety of actions. Game wardens, biologists, and other staff respond to or assist in emergency incidents of many kinds involving diseased or injured animals, search and rescue, importation and possession of dangerous wildlife, and routinely enforce a host of laws that protect human health and safety.

The efficient operations section highlights the efforts the Fish & Wildlife Department must employ to operate efficiently to attain its goals given our limited resources. Using surveys of our performance and comparisons with other state fish and wildlife agencies, we have identified strategies for more efficient operations and effective management of the department.

This strategic plan provides a template for achieving the department's conservation objectives during the next five years to further our mission: "The conservation of all species of fish, wildlife, and plants and their habitats for the people of Vermont. To accomplish this mission, the integrity, diversity, and vitality of their natural systems must be protected."

This strategic plan looks to the following goals to move the department forward in meeting the challenges of the future.

GOAL A: *Conservation.* Conserve, enhance, and restore Vermont's natural communities, habitats, and plant and wildlife species along with the ecological processes that sustain them as informed by the Vermont Conservation Design.

- **Outcome I:** Conserve, restore, and enhance habitats, natural plant and animal communities, and ecosystem integrity to maintain wildlife and ecological values in Vermont.
- **Outcome II:** Conserve and restore Vermont's fish, wildlife, and plant species to maintain ecosystem integrity for the benefit of the public.

GOAL B: *Recreation.* Provide a diversity of fish and wildlife-based activities, opportunities, and access that allow hunting, fishing, trapping, and viewing consistent with the public trust.

- **Outcome III:** Provide hunting, fishing, and trapping opportunities consistent with resource management goals and within ecological limits.
- **Outcome IV:** Provide access for viewing, photographing, and the enjoyment of fish and wildlife consistent with resource management goals while ensuring the protection of the observed species.

GOAL C: *Education.* Increase public understanding and support for natural resource conservation issues and promote and facilitate a land stewardship ethic in Vermont that includes the safe and ethical utilization of wildlife. Maintain department relevancy with the public and our traditional constituents.

- **Outcome V:** Maintain a department that is relevant to all of Vermont's citizens, their fish and wildlife values, interests, and expectations for us as a state agency.
- **Outcome VI:** Maintain and improve collaboration with partners and stakeholders (NGOs, universities, other local, state and federal agencies).

Outcome VII: Increase Vermonters connection with, and appreciation for, the land and the fish and wildlife habitat it supports.

- **Outcome VIII:** Increase public support for the department's mission/policies/public trust/land ethic.

GOAL D: *Safety.* Maintain safe and lawful fish and wildlife-based activities to protect species and their habitats and, to limit harmful human encounters.

- **2017-2021 Outcome IX:** Limit the number of human conflicts, injuries, and fatalities that result from encounters with wildlife or participation in fish and wildlife recreational activities.
- **Outcome X:** Enforce all fish and wildlife-related regulations to ensure the mission of the department.

GOAL E: *Efficiency.* Strengthen the framework of fish and wildlife conservation through efficient operations and effective and adaptive management to better accomplish the mission.

- **Outcome XI:** Achieve financial sustainability.
- **Outcome XII:** Improve facilities and business processes to maximize efficiency and reduce costs.
- **Outcome XIII:** Develop a workforce of dedicated and knowledgeable staff to meet current and emerging conservation objectives.

Philosophy of the Vermont Fish & Wildlife Department

We, the employees of the Vermont Fish & Wildlife Department, are public servants. We act as stewards of all of Vermont's fish, wildlife, plants and the habitats and natural communities that support them. Our every power is derived from law, and our only authority is that given us by the people of Vermont. The following articles of Vermont law and the State Constitution, and the following mission statement frame our philosophy and constitute our vision of our mandate.

Mandates

The Fish & Wildlife Department is specifically charged with promulgating rules, through the Fish and Wildlife Board and the Commissioner, enforcing those rules and procedures, and conducting programs to achieve the following mandates:

“That all power being originally inherent in and consequently derived from the people, therefore, all officers of government, whether legislative or executive, are their trustees and servants; and at all times, in a legal way, accountable to them” (*Vermont Constitution, Chapter 1, Article 6*).

“The inhabitants of this State shall have liberty in seasonable times, to hunt and fowl on the lands they hold, and on other lands not enclosed, and in like manner to fish in all boatable and other waters (not private property) under proper regulations” (*Vermont Constitution, Chapter 2, Article 67*).

“It is the policy of the state that the protection, propagation, control, management, and conservation of the fish, game, and furbearing animals in this state is in the interest of the public welfare, and that safeguarding of these valuable resources for the people of the state requires a constant and continual vigilance” (*10 V.S.A. Section 4081*).

Mission

The mission of the Vermont Fish & Wildlife Department is the conservation of all species of fish, wildlife, and plants and their habitats for the people of Vermont. To accomplish this mission, the integrity, diversity, and vitality of their natural systems must be protected.

Department Vision

We believe that fish, wildlife and plants are part of the natural systems that sustain us and add meaning to our lives. We believe it is desirable and appropriate for people to utilize and enjoy fish and wildlife resources; however, we also value them for their intrinsic and ecological importance.

To carry out our mission we must communicate with the public about the intrinsic, economic, educational, and scientific values of fish and wildlife and their habitats, and the outcomes of human interactions with those resources. We acknowledge the importance of the public's role in enabling our work, and encourage citizen participation in our efforts. The department remains committed to fostering partnerships in pursuit of effective delivery of conservation, recreation, and education initiatives.

Introduction

This document is the Vermont Fish & Wildlife Department's fourth strategic plan. The original plan was developed by teams from each major department work unit. That plan was then reviewed by the Vermont Agency of Natural Resources, the public and department staff. The organization of this plan closely follows the previous plans with some additional indicators to more effectively track progress over time.

Other changes to the plan primarily involve consolidation, including: fine-tuning the performance measures to achieve truly measurable indicators, integrating strategies from the Wildlife Action Plan where logical, and adding new strategies with the guidance of the agency and department staff. The plan emphasizes strategies that enhance the effect of our core work and the mission.

The department's leaders take this document seriously and will make every effort to implement it. Hopefully, by reviewing this document, readers can visualize the positive impact this plan will have on positioning the department to meet its near-term and future challenges.

Background of the Fish & Wildlife Department

The Vermont Fish & Wildlife Department's history extends back to 1866. In that year, the legislature appointed a Board of Fish Commissioners. Within the next decade this board gained authority over game birds and mammals, and in 1892 the Board of Fish Commissioners was renamed the Fish and Game Commission.

The department has been almost entirely funded from its beginning by a user-pay system of license sales and excise taxes on hunting and fishing equipment. For this reason, game fish and wildlife were historically its major focus; however, the department has always been concerned for the welfare of all fish and wildlife. This is demonstrated by early interest and initiatives to protect wildlife habitat through management, regulation, and acquisition, and attempts to restore the American marten, peregrine falcon and loon. More recently new funding sources have enhanced these efforts. This broad interest was formally recognized in 1983 when the department's name was changed from Fish and "Game" to Fish and "Wildlife." Overtime, the people of Vermont through its General Assembly have increased and diversified the responsibilities of the department. The department is now responsible for the conservation of all wildlife in its broadest sense: 41 species of reptiles and amphibians, 89 species of fish, 268 species birds, 58 species of mammals, more than 15,000 insect species, and 2,000 higher plant species, and 80 types of natural communities. In recent years with the support of the Legislature and Governor as much as one-third of the department's budget has been supported through the General Fund. This broad-based funding reflects the department's diversified mandate.

The Vermont Fish & Wildlife Department is presently staffed by more than 145 dedicated employees. All are committed to the department's mission of "conserving fish, wildlife, and plants and their habitats for the people of Vermont." These people answer the public's phone calls, navigate boats, walk through fields and woods with landowners, issue licenses, educate teachers as well as students, and the public, tag and stock fish, acquire and manage land, weigh deer, monitor threatened and endangered species, respond to animal damage complaints, attend public meetings, evaluate hydroelectric proposals, provide expert testimony before regulatory bodies, and enforce laws, to name only a few of the staff's responsibilities.

The strategic plan will help to more efficiently and effectively prioritize the department's work to better accomplish the mission. Habitat conservation and management through planning, public education, regulation, acquisition of critical lands, and active management of state lands are all important objectives because the quality of Vermont's aquatic and terrestrial habitats ultimately determines the ability of the water and land to support healthy fish and wildlife populations. Biologists will continue to inventory, monitor, and manage many different plant, fish and wildlife species, and natural communities. Reliable information capable of quantifying the status and trends among Vermont's fish and wildlife populations and habitats is essential to recognize change, identify threats, describe impacts, and direct actions to protect and manage populations and their habitats.

Fish will continue to be stocked in the waters of the state to restore sustainable fisheries and enhance recreational opportunities.

Wardens will continue to protect fish and wildlife from misuse or overuse in accord with the laws and regulations of the state. They will continue to offer assistance in protecting human health and safety, and they will respond to damage complaints.

Education, outreach, marketing, and customer service will remain important activities. We will produce educational materials and programs, participate in selected public events, offer training to people who desire to watch, hunt, fish, or trap, and provide easy ways for the public to purchase licenses.

The department will continue to manage its 186 fishing and boating access areas, numerous streambank parcels, and its 90 wildlife management areas totaling over 135,000 acres, as well as the department's two youth conservation camps and five fish culture stations. The development of new and better access for wildlife viewing, hunting, fishing, and trapping will continue as it is essential for long-term participation and enjoyment of the outdoors.

In sum, the Fish & Wildlife Department conducts many important activities to conserve and restore Vermont's abundant fish and wildlife that the state's inhabitants enjoy and appreciate. The department will continue to meet its responsibilities despite the many challenges ahead. Indeed, this plan will help guide the adaptive process needed to balance increasing demands on limited staff time, emerging issues such as climate change, diseases and invasive species, and the complexity of modern problems and threats to our fish and wildlife.

Conservation

GOAL A: Conserve, enhance, and restore Vermont's natural communities, habitats, and plant and wildlife species along with the ecological processes that sustain them as informed by the Vermont Conservation Design.

Challenges. Conserving Vermont's natural communities and habitats that support Vermont's fish, wildlife and plants is challenging because 87 percent of Vermont's land area is privately owned. The department must constantly improve and expand its efforts to demonstrate to Vermonters the values that these lands provide. If the department is to effectively help landowners become better stewards of Vermont's natural resources, it must provide the tools for conservation management.

The Vermont landscape has been significantly altered during the past few hundred years by intense human use. The results include habitat loss, degradation and fragmentation, loss of native species and the spread of non-native species and diseases. While a few non-native species, such as the rainbow trout and the apple tree add to the integrity and productivity of Vermont's landscapes, others such as the zebra mussel, alewife and Dutch elm disease threaten that integrity and undermine Vermont's natural communities and ecosystems.

It is the department's job to objectively identify threats that ultimately may prove destructive to wildlife, natural communities and habitats as well as to the public. In addition, staff are responsible for educating citizens about potential threats, and for devising and implementing strategies to reverse or control losses in habitat integrity and/or productivity.

Approaches. The department aims to conserve natural ecosystems and where appropriate, resist changes that may result in loss of ecological integrity and productivity. We recognize that change is a constant, from the moment the last glacier receded exposing the first square foot of Vermont soil, to the natural and human-caused environmental changes witnessed today. Although change cannot be stopped, the department will seek to control the potential damages from those changes. At the same time, the department will embrace and encourage changes that naturally occur or can be achieved through active management to restore or enhance the health of our ecosystems.

One approach will be to use the Vermont Conservation Design (VCD), a template recently developed by the Agency of Natural Resources for maintaining the ecological integrity and resiliency of the state in the face of climate change, fragmentation and other current day and future pressures. Working together with partners, the department will work to implement the Vermont Conservation Design.

The department will also work to educate the public and to engage the public in support of reasonable conservation actions. A recent public mail survey (Duda 2015) demonstrated growing public awareness regarding the importance of habitat for sustaining wildlife. Legislative support for habitat conservation and management is also on the upswing. A recent analysis by the University of Vermont Gund Institute on behalf of the department helps quantify the many economic values to conserving land for wildlife and forestry. This combination presents the department with opportunities to broaden our support, to demonstrate the benefits of our work, and to further educate the public about the benefits of investing in natural resources management.

Natural Communities and Habitats

Outcome I: Conserve, restore, and enhance habitats, natural plant and animal communities, and ecosystem integrity to maintain wildlife and ecological values in Vermont.

Performance Measures

- 1.1 Change in the number of acres of high-value habitats and natural communities identified in the Vermont Conservation Design (VCD) that are conserved through acquisition or easements by the following resource categories:
 - Acres of wetlands acquisition to address flood resiliency, fish and wildlife habitat protection, clean water, and so on.
 - Acres of forest block acquisition to minimize fragmentation and parcelization and protect forest interior habitat
 - Acres of forest connectivity to wildlife movement across the landscape
 - Acres of critical wildlife habitats
- 1.2 Change in the cumulative acres of habitat protected through the regulatory process, Use Value Appraisal (UVA), Ecologically Significant Treatment Areas (ESTAs), Environmental Quality Incentives Program (EQIP), and others from current inventory. (*trend since 2005*)
- 1.3 The number of structures replaced or removed to accommodate aquatic organism passage.
- 1.4 Change in the rate of acres of contiguous forest lost to fragmentation/parcelization.

Trends and Concerns

The integrity of various natural communities and habitats (e.g., floodplain forests, sandplains, clayplains and large forest blocks) are at risk because of fragmentation, isolation, and degradation due to continuing land use changes (e.g. roads, subdivisions, invasion of non-native species and climate change).

Strategies

Prioritize and implement department land acquisition based on conservation planning efforts, to reduce the loss of and to protect high-value areas such as rare or significant natural communities, fish and wildlife habitats, corridors, and riparian and aquatic habitats, and improve resiliency to climate change.

1. Prioritize and designate “necessary” habitats and then participate in regulatory permitting and enforcement activities to protect them through the Act 250, Act 248, and other regulatory processes.
2. Implement ecosystem and landscape-level management of department lands while reflecting the intent of the purchase and maintaining the ecological values of the parcel.
3. Prioritize and implement exotic plant and animal control and prevention policies and actions to protect ecosystem health and stability.
4. Continue efforts to inventory, monitor, and research fish and wildlife habitats and natural communities to provide baseline information for conservation efforts.
5. Increase efforts to manage and restore high-value fish and wildlife habitats and natural communities through private landowner technical assistance, local and regional wildlife management plans (e.g., partnering with USDA, Vermont Land Trust, Audubon, Vermont Woodlands Association WA, Coverts, The Nature Conservancy)
6. Improve technical assistance to municipalities and others involved in regulated activities (e.g.,

Act 250, stream alteration, town zoning) that affect fish and wildlife habitats and natural communities to minimize negative impacts on natural systems.

7. Support changes in laws, regulations, and policies that minimize degradation to fish and wildlife habitat.
8. Protect and manage riparian buffers and floodplains and adopt guidelines in cooperation with the Agency of Natural Resources.
9. Look for opportunities to increase funding and support for state, federal and local land conservation programs.
10. Collaborate and support partners (e.g., NGOs, municipalities, state and federal agencies, academic institutions) to build capacity for conservation initiatives.
11. Improve riparian and stream connectivity and integrity by increasing aquatic organism passage and buffers on Vermont's rivers and streams.
12. Complete the Vermont Conservation Design map and implement with partners through land acquisition, technical assistance to landowners and municipalities, regulatory efforts, policy, and succession planning.

Fish, Wildlife, and Plant Species

Outcome II: Conserve and restore Vermont's fish, wildlife, and plant species to maintain ecosystem integrity for the benefit of the public.

Performance Measures

- 2.1 Change in the number of species that warrant listing as endangered and threatened animals and plants from the current status.
- 2.2 Change in the number of catchments (local watersheds) containing self-sustaining wild trout populations (trend since 1950).
- 2.3 The number of big game species that currently meet population targets as outlined in the big game plan.
- 2.4 Change in the number of water bodies with existing nuisance aquatic species.
- 2.5 Change in hours of Law Enforcement support for biological data collection and enforcing laws.
- 2.6 Number (Percent) of fish restoration targets met by fish culture stations.

Trends and Concerns

The Vermont Fish & Wildlife Department is responsible for the conservation of ALL native fish and wildlife species numbering upwards of 25,000 species and close to 2,000 native plants. Many of these species are at risk or declining, and others are locally overabundant. In addition, invasive exotics, including pathogens, pose increasing threats to fish and wildlife populations.

Strategies

13. Inventory, monitor, research, and manage the abundance, diversity, and distribution of Vermont's fish, wildlife and plant species and assess their well-being by:
 - Developing a comprehensive and systematic data acquisition and storage retrieval system of fish and wildlife species
 - Identifying and prioritizing inventory and research needs, and collecting information according to priority
 - Developing abundance and distribution objectives for fish and wildlife species and, where appropriate, preparing species management plans to maintain sustainable population levels while considering social implications.
 - Sharing and better integrating data with partners, the public, regional conservation efforts.
14. Coordinate with other agencies and organizations to develop and implement recovery plans for threatened or endangered species.
15. Develop regulations and species reintroduction programs to restore fish and wildlife populations.
16. Protect and manage habitats that are necessary for the conservation and restoration of species.
17. Review, update, and enforce regulations for the collection and possession of native fish, wildlife, and plant species and the importation of invasive and/or exotic fish and wildlife species.
18. Implement fish and wildlife disease and invasive monitoring protocols and management systems.
19. Work with state and federal agencies, legislators, and partners to reduce water and air pollution and greenhouse gas emissions.

Recreation

GOAL B: Provide a diversity of fish and wildlife-based activities, opportunities, and access that allow hunting, fishing, trapping, viewing, consistent with the public trust.

Regulated hunting, fishing, trapping, and observing wildlife are rich traditions and an integral part of Vermont's culture and heritage. People in Vermont have always enjoyed hunting, fishing, and trapping and looked to the land in securing food for their table, and for relaxation through observing nature. Each year, during regulated seasons, thousands of pounds of free-ranging, organic venison, fish, and fowl are harvested by the public in Vermont. Likewise, each year thousands of residents and visitors spend time watching, learning about, and admiring Vermont fish, wildlife, plants, and the landscape that sustains them.

Harvest of fish and wildlife resources as well as observing nature in natural wild settings, when balanced so that neither the quality of these experiences nor the natural resources which sustain them are compromised, contribute to the public good and are part of the quality of life people enjoy in Vermont. Additionally, these activities foster stewardship toward lands and habitats, and raise knowledge and concern for wildlife and the environment by the public who choose to participate.

Hunting, Fishing, and Trapping Opportunities

Outcome III: Provide hunting, fishing, and trapping opportunities consistent with resource management goals and within ecological limits.

Performance Measures

- 3.1 The percentage of adults participating in hunting in Vermont as measured by license sales (including the trend in the participation of women).
- 3.2 The percentage of citizens involved in wildlife viewing as measured by a public survey. The amount of wild meat, fish, and other provisions from wildlife resources annually harvested under regulated seasons –since 2005.
- 3.3 Change in public satisfaction levels from surveys among users of Vermont's wildlife and lands and other publics participating in department-sponsored programs.
- 3.5 Change in angler participation through outreach initiatives (Kids brook, Let's Go Fishing, youth licenses, master angler, fishing festivals) and license sales since 2005.
- 3.6 The number of additional or improved public access to Vermont waters due to department efforts and the miles or acres of additional posted lands (Title 10). (*Trends since 2005*)
- 3.7 Change in angler satisfaction levels 1996 to 2001 to 2010 to 2020 as measured by a statewide survey of Vermont anglers. (*Comparison of the three surveys*)
- 3.8 The number (percent) of fish production targets achieved to meet recreational angling targets.
- 3.9 Change in the number and variety of "getting started" workshops/hunting seminars.

Trends and Concerns

As human populations increase and Vermont further urbanizes, fewer Vermonters are in direct connection to the land and, therefore, may not recognize the ecological value of sustainable fish and wildlife resource use. Consequently, the support for sustainable conservation and management of fish, wildlife, and their habitats could decline. Commercialization and/or privatization of fish and wildlife resources is a continuing threat that presents additional challenges to managing fish and wildlife resources for the public, and maintaining public support. In some regions of the state, access to land is decreasing because of development and/or posting.

Strategies

20. Develop an outreach and an education plan that promotes a consistent message about the mission of the department and incorporates the idea of a “Working Vermont Landscape,” explaining conservation issues, the concept of utilizing wildlife, harvest methods, the importance of wildlife habitat, threatened and endangered species, and the ecological appropriateness of various human activities.
21. Increase information and opportunities available to youths and families for hands-on experiences involving hunting and fishing skills and ethics, resource conservation activities, and other department programs (e.g., camps, Working for Wildlife, outdoor family, children’s fishing events).
22. Improve access to public and private lands and waters; evaluate private landowner incentive opportunities to encourage public access to private lands and waters; and to improve user/landowner relationships. (e.g., a two-tiered current use tax rate system, more effectively linking land owners to hunters, and so on).
23. Acknowledge the support of anglers, hunters, trappers, and other wildlife enthusiasts who contribute to department programs and resource management and conservation.
24. Develop and implement management programs (e.g., habitat protection, regulations, stocking) to ensure that sustainable resources are available and that ethical harvest techniques are employed to ensure animal welfare and preclude the wanton waste of fish and wildlife resources.
25. Install informative signs on department lands that identify ownership, habitat protection function, and appropriate activities and time of use at all locations.

Trends and Concerns

Competing interests and activities may limit participation in fish and wildlife recreation. It may be difficult to engage underserved populations, including women and children, in a traditionally male-dominated activity because there are barriers both cultural and logistic to education and mentoring.

Strategies

26. Identify barriers to entry and participation in wildlife resource harvesting and utilization opportunities, and develop a coordinated broad-based plan to reduce them.
27. Review existing hunting and fishing regulations and revise to minimize complexity to the public while continuing to provide resource conservation.
28. Continue youth initiative programs (e.g., special pre-season opportunities for youths, a mentor program for trappers, the Let’s Go Fishing Program, children’s fishing derbies, fishing festivals).
29. Continue existing outreach efforts and develop new outreach strategies that encourages people moving into Vermont to continue hunting, fishing, and trapping in Vermont (e.g., linking land owners to hunters, Welcome Wagon Kit, hunting and fishing seminars).
30. Develop, update, and enhance Wildlife Management Area (WMA) management plans, and enforce rules and regulations governing public activities on WMAs to maintain and enhance opportunities.
31. Promote the retention of present hunters and anglers by managing for multiple satisfactions (e.g., keeping WMAs well-marked and aesthetically appealing), by offering a range of harvest and viewing opportunities, and by providing advanced education opportunities.
32. Expand the content of and opportunities to participate in hunter and angler education programs. Target programs to meet the needs of various groups, such as youths, families, and identified low-participation groups.
33. Increase information available to the public on how and where to fish, hunt, and trap (e.g., fishing clinics, fishing tackle loan programs, and WMA and access area maps). Continue improving communication and support with and to Big Game Reporting Stations.

Wildlife Watching Opportunities

Outcome IV: Provide access for viewing, photographing, and the enjoyment of fish and wildlife consistent with resource management goals while ensuring the protection of the observed species.

Performance Measures

- 4.1 Changes in the rates of participation in wildlife-watching activities in Vermont (USFWS survey).
- 4.2 Change in public satisfaction rating among users of Vermont's fish, wildlife, and lands and other publics interacting with Vermont's natural resources or participating in a department-sponsored program as measured through public surveys.
- 4.3 Change in donation levels from wildlife watchers (e.g., non-game check-off, T&E fund, habitat stamp)
- 4.4 Change in number of visitors to the Dead Creek Visitors Center.
- 44.6 Number of new or improved department facilities or initiatives that provide the public with access to outdoor recreational opportunities.

Trends and Concerns

Vermont leads the nation in wildlife viewing, and more services are being demanded by this constituency. Limited opportunity and access to viewing and photographing wildlife may reduce participation. Some conflicts between wildlife viewers (e.g., bird watchers) and hunters may arise. Feeding wildlife, to enhance viewing opportunities, can create wildlife management problems by attracting unintended species (e.g., bears at bird feeders) and by creating new and enhanced opportunities for disease transmission between wild animals.

Additionally, because wildlife viewing provides no significant revenue stream to the department that would allow for management of the resources viewed and development of viewing opportunities, this goal has the potential to create resource priority conflicts.

Strategies

34. Develop more public access points and viewing locations on public lands as appropriate funding becomes available. Partner with other state agencies and private landowners when feasible. Create or expand infrastructure for boating access, parking, and viewing wildlife, such as blinds, walking trails and boardwalks, platforms, parking signage and educational exhibits, consistent with maintaining fish and wildlife species and their habitats. Provide ADA accessible opportunities when possible and where appropriate.
35. Expand educational and outreach programs on watchable wildlife; including such topics as birding, wildlife photography, animal track identification, and backyard habitat as appropriate funding becomes available (e.g., Dead Creek days/Herricks Cove Wildlife Festival). Target population centers with a focus on youths and families.
36. Increase information available to the public on how, when, and where to access public land and water to watch wildlife as appropriate funding becomes available. Provide information to encourage watchable wildlife practices, such as viewing, photographing, and feeding, in a manner that is ethical, safe, and consistent with protecting the welfare of fish and wildlife resources.

Education

GOAL C: Increase public understanding and support for natural resource conservation issues, and promote and facilitate a land stewardship ethic in Vermont that includes habitat conservation and the safe and ethical utilization of wildlife. Maintain department relevancy with the broader public and our traditional constituents.

Vermont's economy is rooted in the land. Working forests and fields, wild streams, and parks form the foundation of our economy. However, the perception that land conservation is antithetical to a vibrant economy is perhaps the greatest impediment to the mission of the Department's land conservation and acquisition efforts.

The land stewardship ethos that has existed in Vermont for many years has resulted in a resilient economy and a quality of life that is the envy of many states. Rather than hitching ourselves to the boom and bust economic cycle of other regions, Vermonters value wisdom over haste and restraint over excess. We have served as a national model by placing a high priority on the conservation of our natural heritage while still maintaining a healthy economy. A recent survey done by Mark Duda [2015] suggests that Vermonters continue to highly value fish and wildlife conservation. However, that could easily change resulting in the state becoming like "anywhere USA" and undercutting the department's ability to accomplish its mission.

Natural Resource Stewardship

Outcome V: Maintain department relevancy with the public in the 21st century

Performance Measures

- 5.1 Change in the number of town plans that incorporate fish and wildlife habitat in their Town Plans.
- 5.2 Change in broad public support as evidenced by donations and philanthropy to the nongame fund, education programs, the conservation license plate program, and/or habitat stamp.
- 5.3 Number and variety of media coverage of topics as tied to the department's mission.
- 5.4 Change in public attitudes towards land and species conservation, wildlife-based recreation, support for endangered species and department credibility.

Trends and Concerns

As the human population increases in Vermont, the potential for adverse impacts on fish, wildlife, plants, and natural communities also increases. The public is not always aware of the adverse impacts human activities can have on the environment or the importance of sustaining fish, wildlife, and plants. They also are unaware of the economic benefits of conservation and its contribution to Vermont's economy and Vermonters' quality of life. In addition, as the traditional rural culture in Vermont becomes more suburbanized, fewer people are directly connected to the land. This could also lead to a lower appreciation of the ecological value of sustainable natural resources use, including fishing, hunting and trapping. The department will need to work more strategically to find common ground between different constituent groups by leveraging land stewardship messages.

Strategies

38. Develop tools to bridge disparate constituents' interests in fish and wildlife conservation, and foster partnerships to better achieve our mission.
39. Foster a land stewardship ethic amongst the public and in particular, private landowners.
40. Assist municipalities, regional planning commissions, and land management groups in the implementation of land conservation strategies for fish and wildlife at the local and regional levels.

41. Develop a messaging plan around the concept of conservation.
42. Implement the Economics of Conservation plan.

Outcome VI: Maintain and improve collaboration with partners and stakeholders (NGOs, universities, other local, state and federal agencies)

Performance Measures

- 6.1 Number of projects/initiatives that engage partners and/or increase public understanding and support for the mission. Measure via an internal staff survey. [do this first]
- 6.2 Engagement/satisfaction of partners as measured through annual surveys.
- 6.3 The number of internships, collaborations, and associations with Vermont universities.

Trends and Concerns

A declining percentage of Vermonter's recognize the ecological value of sustainable utilization of natural resources and/or the importance of conservation to their quality of life. Communication and cooperation among stakeholders and partners can be hampered by a perceived lack of common goals.

Strategies

43. Collaborate and support partners (NGO's municipalities, state and federal agencies) to build capacity for conservation initiatives
44. Continue the seminar course for UVM students to expose them to real life management issues. Consider expanding to other Universities.
45. Collaborate on areas of common ground between different constituent groups by using land stewardship messages to encourage Vermonters to support the important goals of conservation.

Outcome VII: Increase Vermonters' connection with, and appreciation for, the land and the fish and wildlife habitat it supports.

Performance Measures

- 7.1 Change in the level of public knowledge about the relationship between human activities, conservation ethics, habitat loss, and biodiversity as measured through public surveys.
- 7.2 The change in knowledge, skills, and attitudes, and participation of GMCC campers.
- 7.3 The change in knowledge, skills, and attitudes of fishing event attendees (e.g., Let's Go Fishing attendees, children's fishing summer fishing festivals).

Connection with Nature

Trends and Concerns

Today the average 6-year old spends only 0.2% of the year outside, not including organized sports. Children ages 2 through 17 spend an average of 30 hours/week in front of an electronic device—almost a full-time job. We face a generation defined in part by *biophobia*, an aversion to nature, a discomfort in natural settings and a preference for human made environments. The term for this is "Nature Deficit Disorder." Human costs associated with this disconnect with nature include diminished use of the senses, attention difficulties, and higher rates of physical and emotional illness. Vermont's wild places and creatures depend on maintaining the public's, and in particular, children's connection to a love of the out-of-doors.

Strategies

46. Define a land stewardship message that promotes the conservation and ethical use of Vermont's fish, wildlife, and plants and the habitats that sustain them. Promote this message, including

training for all department employees, so it will be incorporated into outreach and education programs and contacts with the public. Department employees will make an effort to emphasize land stewardship and conservation ethics with their contacts.

47. Continue to support and staff the two Conservation Camps.
48. Focus department outreach and education efforts (e.g., social media, camp programs, teachers' program, trapper and hunter education, news releases, advertisements, website) on issues that will enable the public to make informed decisions affecting ecosystems in Vermont such as:
 - Habitat degradation and fragmentation
 - Threats to fish and wildlife species and their habitats
 - The value of working rural landscapes and other rural lands
 - The sustainable and ethical use of wildlife
49. Involve Vermonters in activities that will increase their understanding of land stewardship and the influences of human activities on fish and wildlife resources to build public support for fish and wildlife conservation (e.g., Dead Creek Days, teacher's course, citizen science and species surveys, streambank planting, field classrooms).
50. Promote the Welcome Wagon bucket to landowners through peer to peer distribution to encourage sustainable management and private land conservation for wildlife.

Outcome VIII: Increase public support for the department's mission/policies/public trust/land ethic.

Performance Measures

- 8.1 Maintain public support for the department's mission as evidenced by the department's public survey.
- 8.2 Number of events that include an invitation to legislators.

Trends and Concerns

Without the support of all Vermonters, not just our traditional constituents, the department risks losing relevancy. We must continue to explore ways to engage all publics in our mission, as well as educate them about benefits from what the department actions.

Strategies

51. Create opportunities for Board members and legislators to gain a better understanding of the breadth of the Department's mission and the land ethic.
52. Address areas of public dissatisfaction.
53. Host Wildlife Congresses or other smaller symposiums every 3 to 5 years to encourage common ground among disparate partners and publics.
54. Incorporate and encourage an outreach component into all department position job specifications.
55. Report accomplishments on an annual basis to the legislature, on the website, and to the public.
56. Share land stewardship and conservation ethics more with identified target audiences.
57. Consider developing a 3 or 4 day course that promotes "hunter/trapper master conservationists".

Safety

GOAL D: Maintain safe and lawful fish and wildlife-based activities to protect species and their habitats and, to limit harmful human encounters.

The state's policy is that the protection, management, and conservation of fish and wildlife in Vermont is in the best interest of public welfare, while acknowledging that some encounters may be harmful or fatal to humans (e.g., rabies, motor vehicle collisions with wildlife). To this end, the department strives to limit the number of harmful encounters with wildlife by, among other actions, monitoring incidents, implementing species management actions, and building awareness through public outreach. The department also protects human health and safety through its involvement and assistance in emergency incidents including search and rescues. Enforcing laws intended to prevent incidents that threaten human health and safety, and providing public training in safe hunting practices will continue.

Human Safety

Outcome IX: Limit the number of human conflicts, injuries, and fatalities that result from encounters with wildlife or participation in fish and wildlife recreational activities.

Performance Measures

- 9.1 Change in the number of big game motor vehicle collisions with a goal of decreasing the yearly number of big game motor vehicle collisions below 770 collisions /100,000 Vermonters, and keeping the number of collisions per year resulting in human fatalities below 0.5 deaths/100,000 Vermonters – trend since 2005
- 9.2 Change in the rate of hunting-related accidents with a goal of maintaining the number of wildlife harvesting recreational related accidents below 5 human injuries and 0.5 fatalities per 100,000 Vermonters per year—trend since 2005
- 9.3 Change in the number of human exposures to fish and wildlife species transmittable diseases per year—trend since 2005
- 9.4 Decrease in the number of nuisance bear conflicts reported.

Outcome X: Enforce all fish and wildlife-related regulations to ensure the mission of the department.

Performance Measures

- 10.1 Enforce all fish and wildlife regulations. (*Number of violations statewide per warden and/or number of actual cases*)
- 10.2 Hours spent by law enforcement supporting the other four divisions. (*Camps, furbearer tagging, public speaking, fish stocking, and so on*)
- 10.3 The average number of square miles covered/warden.

Trends and Concerns

As the human population increases in Vermont and wildlife species extend their range, there is the increased potential for harmful interactions between humans and wildlife and fewer people know how to deal with those conflicts. Vermont's hunter education program, initiated in 1959, has successfully produced a hunting environment for which there have been far fewer hunting-related accidents in recent times (35 hunting related accidents in 1958 versus 2.3 annually on average during 2010–2015).

Strategies

59. Address adverse human-wildlife encounters in the management of wildlife populations.
60. Coordinate with the Agency of Transportation to identify wildlife road crossings and develop strategies to minimize motor vehicle collisions.
61. Provide the public with the current wildlife collision data to increase public awareness of the potential for collision.
62. Respond to public requests regarding human exposure to potentially rabid wild animals, and provide the public with information regarding the occurrence and distribution of rabies vectors. Continue to coordinate efforts with other public agencies involved in rabies management.
63. Review, update, and enforce regulations controlling the importation of potentially harmful fish and wildlife species and pathogens.
64. Partner with other state agencies to monitor and document the occurrence of specific contaminants in fish and provide the public with information/warnings about possible health risks associated with the contact or consumption of certain fish and wildlife species (e.g., mercury contamination).
65. Provide education and information about the safe, ethical, and appropriate use of the equipment used for hunting, fishing, and trapping (e.g., hunter/trapper education programs, children fishing clinics, and youth conservation camps).
66. Provide the public with timely information and warnings of potentially harmful situations that may be associated with participating in fish and wildlife-based outdoor activities.
67. Update existing regulations pertaining to human-wildlife conflicts, and develop procedures and protocols to address wildlife conflicting with human activities (e.g., bear, beaver, deer).
68. Respond to human-beaver conflicts according to the beaver best management practices (BMPs).
69. Establish trained nuisance wildlife response teams to implement nuisance protocol.
70. Continue to provide critical support to wildlife, fisheries, and outreach divisions.

Trends and Concerns

Although the department must respond to requests from citizens and agencies regarding threats to human life and safety, inadequate funding mechanisms exist to support involvement in such activities, causing strain on other resources.

Strategies

71. Provide assistance to other agencies during emergencies, including search and rescue and emergency response situations.
72. Assist other state and municipal agencies in the enforcement of statutes and regulations concerning recreational vehicles (boats and ATVs), motor vehicles, environmental quality issues, and illegal drug and alcohol enforcement and interdiction.

Efficiency

GOAL E: Strengthen the framework of fish and wildlife conservation through efficient operations and effective and adaptive management to better accomplish the mission.

To accomplish the department's mission, the organization must strengthen itself through stable funding, a dedicated workforce, public support, and efficient facilities and business processes. As a strong organization, the department has the resources and flexibility to meet traditional expectations and emerging challenges. The department's responsibilities have grown vastly from 1866, when it was the Board of Fish Commissioners, to a modern government organization responsible for the conservation of all fish, wildlife, and plants. Looking forward, Vermonters' expectations for conservation will likely continue to change in future years. In order to meet an expanding scope of work, the department will need the capacity to adapt and efficiently evolve with these demands.

State fish and wildlife agencies across the country are experiencing a decline in traditional constituents and in many cases a concurrent decline in license sales and funding. Historically, Vermont Fish & Wildlife has been funded almost exclusively from these core constituents even though the mission is much broader and the department's work benefits all Vermonters. The department will need to maintain its relevancy with all Vermonters to ensure future funding and credibility in the eyes of all Vermonters.

Outcome XI: Achieve financial sustainability.

Performance measures

- 11.1 An increase in non-dedicated annual funding to maintain department's base budget.
- 11.2 An increase in the amount and diversification of restricted funds so no one funding source accounts for more than 20% of the total annual revenues.
- 11.3 Sustaining a financial reserve of fish and wildlife funds equivalent to 5% of the annual operating budget.

Trends and Concerns

The department underwent a major transformation in its financial management strategy between 2011 and 2015. This included a significant increase in major revenue sources, a new investment strategy, and new funding sources. The transformation was sparked by the request and receipt of a \$3-million increase in General Fund from 2012 to 2015. While the department is currently in a strong financial position, concerns remain regarding the stability of revenues.

The department's four main sources of revenues are license and permit fees (30%), General Fund (22%), Federal Wildlife Restoration funds (15%), and Federal Sport Fish Restoration funds (14%). Based on demographic projections for Vermont, the state's population will continue to age during the coming decades, likely reducing the number of licenses and permits sold for angling and hunting. General Fund resources also face various other pressures from year to year, including lower than projected revenues, unbudgeted costs, and growing costs for other state programs. These pressures could impact the department's General Fund apportionment.

Strategies

- 74. Develop fee proposals every three years for hunting and fishing licenses, permits, and other services provided by the Department.
- 75. Reduce churn rate among resident hunters and anglers.
- 76. Increase the sale of hunting and fishing licenses through the department's website.

77. Ensure that General Fund revenues keep pace with rising costs through state appropriations.
78. Maintain a \$2,000,000 biannual capital appropriation.
79. Take a leading role on national efforts to create a dedicated, federal funding source for conservation.
80. Promote discussions around a dedicated, permanent state funding source for conservation.
81. Increase marketing budget and outreach for philanthropy, nongame, habitat conservation, and conservation camp funds.
82. Maximize principal invested and financial returns with designated funds.

Outcome XII: Improve facilities and business processes to maximize efficiency and reduce costs.

Performance measures

- 12.1 Change in the amount of electricity used at department-owned facilities measured in kilowatt/hours.
- 12.2 Change in the percentage of energy obtained from on-site solar.
- 12.3 Change in the amount and percentage of fleet management and space costs compared to the overall budget.
- 12.4 Increase the number of business processes utilizing labor-saving information technology solutions.
- 12.5 Reduction in the number of federal and state audit and internal control findings.

Trends and Concerns

The department owns facilities statewide including five fish culture stations and two conservation camps as well as assorted residences and storage buildings. Using innovative technology and resources will be critical to minimize costs, energy usage, and the carbon footprint associated with these facilities.

The department must manage its business processes in compliance with various federal and state requirements. This includes rules around sub-grants, purchasing, fleet management, and space management. Granting agencies and the state legislature increasingly require transparent management of assets and funds. While the department must comply with these rules, it must also maximize staff and financial resources focused on conservation work. Increases in fixed costs, in excess of inflation, must also be factored in.

Strategies

75. Complete energy audits of department-owned facilities.
76. Maximize energy efficiency at department-owned facilities through innovative technologies, energy efficiency, and on-site solar energy.
77. Complete an analysis of vehicle and equipment use, rotation schedules, and maintenance costs and provide a recommendation of any potential cost savings.
78. Complete a review of department-paid leases for office and storage space.
79. Submit a contracting waiver plan for procurement processes that are inefficient either because of the amount of staff time required to execute or because they limit the number of qualified vendors.
80. Facilitate contract, grant, and budget processes to minimize roadblocks and streamline processes within the sideboards of the bulletins and government parameters.
81. Prioritize processes that require large amounts of staff time, have inefficient workflows, or have unnecessary delays for information technology solutions.
82. Correct all audit findings within six months of notification and monitor for two years after

findings to ensure processes are functional.

83. Complete bi-annual internal audits.

Outcome XIII: Develop a workforce of dedicated and knowledgeable staff to meet current and emerging conservation objectives.

Performance measures

- 13.1 Change in the percentage of staff who report being satisfied with their job.
- 13.2 Change in the percentage of staff who feel the work they perform has an impact on the Department meeting its goals and mission.
- 13.3 Change in the percentage of staff who feel they receive adequate guidance and training to improve their performance.
- 13.4 Maintain annual employee retention rate at 99% outside of retirements.

Trends and Concerns

The department has a tradition of hiring employees that dedicate more than 20 years of their career to working on conservation in Vermont. This allows employees to build relationships with stakeholders, develop technical expertise, and fosters a strong workplace culture. In the last staff survey a majority of employees (86.3%) agreed that the work they perform is meaningful, varied and rewarding and 95.2% believe the work they perform has an impact on the department meeting its goals. During the next five years, the department estimates that a significant percentage of its workforce will retire, many of whom will come from the fisheries or wildlife divisions. The department must proactively plan for this transition and develop strategies to address it.

Strategies

- 84. Strengthen partnerships with universities, colleges, and organizations that work with young adults to promote internship and educational opportunities.
- 85. Embrace a workplace culture founded on history, dedication to the mission, and passion for conservation.
- 86. Improve communication between staff and management about department priorities and accomplishments.
- 87. Invest in staff trainings by identifying needs and developing an annual training schedule with a focus on improving technical and leadership skills.
- 88. Develop a career ladder for fish and wildlife scientists to incentivize the continuation of professional level training and education.

Glossary

Contiguous Forest	An area of forested land with either no roads or low densities of class III and/or IV roads having little or no human development (buildings, parking areas, lawns, gravel pits). Contiguous forest may have various age classes of forest cover and include other habitat types such as wetlands or grasslands that are part of the overall contiguous habitat complex.
Ecosystem	A complex array of organisms, their natural environment, the interactions between them, and the ecological processes that sustain the system. Ecosystems can be described at any scale, from those contained in rotting logs, Lake Champlain, the Green Mountains, etc.
Goal	A qualitative directional statement of intention that is specific to a particular program.
Habitat	Physical, chemical and biological conditions that determine the space or area within which an organism lives. Habitat is species, life stage and activity specific. Subunits of a species habitat that have seasonal or special use are termed micro-habitat.
Indicator	A measure or parameter describing condition or change of some physical, chemical or biological condition (which includes human feelings).
Landscape	A heterogeneous area of land containing groups of natural communities and clusters of interacting ecosystems. These can be of widely varying scales, but normally include a range of elevations, bedrock, and soils.
Natural Community	A dynamic, interacting assemblage of plants and animals, their physical, chemical and biological environment, and the natural processes that affect them.
Outcome	Stated endpoints, benefits, results, or targets that the department plans to achieve during the planning period, from which a level of quality, effectiveness, or success can be determined.
Pathogen	Any disease producing microorganism.
Regulated Hunting/Fishing/Trapping	The harvest of wildlife under regulations that define seasons, time frame of lawful harvest, open and closed zones, methods of take, bag limits, possession limits, sex or size restrictions, reporting or tagging requirements, etc.