

**Massachusetts**  
**Department of Fish and Game**  
*Division of Fisheries and Wildlife ♦ Division of Marine Fisheries*  
*Division of Ecological Restoration ♦ Office of Fishing and Boating Access*

**Agency Sustainability Plan**  
**Roadmap**



**November 14, 2014**

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## **1.0 Introduction and DFG Sustainability Overview**

The Department of Fish and Game (DFG) and its Divisions – Division of Fisheries and Wildlife (DFW), Division of Marine Fisheries (DMF), Division of Ecological Restoration (DER), and Fishing and Boating Access (FBA) – are working on a review and a plan to evaluate our existing programs and identify areas for improved and continuous sustainability. As an agency, DFG is responsible for stewardship of the fish, wildlife, and natural resources of Massachusetts, and there is a direct connection between our mission and our daily agency operations. The goal of this review project is to assess what we do now to operate in a sustainable and responsible manner, and then assess goals as a roadmap to becoming a more sustainable agency and improving our long-term environmental performance. We want to answer the question, is our environmental agency doing the most that it can to reduce our own energy consumption, reduce greenhouse gas emissions, conserve water, purchase and use green supplies, and reduce waste and increase our recycling? Moving toward these sustainable goals not only eases our combined impact on air, water, and energy resources, but can also reduce operating costs and improve service delivery.

Because of our mission, DFG and its Divisions comprise an agency inherently dedicated to sustainability. Specifically, by carrying out our mission “to preserve the state's natural resources and people’s right to conservation of those resources,” we work to sustain the natural resources of the Commonwealth in our activities. This roadmap and subsequent plan will build on our mission and integrate sustainable practices into our policies, procedures, and operations, while finding opportunities to reduce costs.

Becoming a sustainable agency is an active, ongoing process, and because of this, the sustainability roadmap will become a living document as we develop and implement initiatives, and highlight successes in sustainable practices. We hope to improve the ways that we measure our progress on sustainability goals, and better communicate our goals, our progress, and even areas where we need to improve. Sustainability is inherently a multi-disciplinary effort, and participation in the process will continue to draw on staff from across the agency. While a core team will foster the process, participation will come from as many individuals as possible to tap their knowledge and create a wide variety of future goals moving ahead.

### ***1.1 DFG Purpose and Scope***

The Department of Fish and Game and its four Divisions are charged with stewardship responsibility over the Commonwealth’s marine and freshwater fisheries, wildlife species, plants, and natural communities. The Department conserves and restores the state’s rivers, streams, lakes, ponds, wild lands, and coastal waters through programs of research, restoration, and land protection. In addition, the divisions issue licenses and registrations for hunting, trapping, and both inland and marine fishing, and promote recreational uses of the state’s public lands and waters consistent with the agency’s mission.

In addition to its four divisions, DFG also operates the Land Protection Program, a cooperative program between the Commissioner’s Office and DFW that acquires open space to protect the Commonwealth’s most ecologically important wildlife habitats. Finally, the Commissioner and staff provide the

administration, legal services, human resources, policy guidance, and other support necessary to enable the Divisions to carry out their individual responsibilities.

## **1.2 Sustainability Review Methodology**

Sustainability is a combination of environmental, economic, and social actions, and becoming a more sustainable agency means addressing all three issue areas. To help us identify specific issues and assess our current efforts, the Department hired Boston-based Sustainserve. Sustainserve has worked in the field of sustainability for 12 years, working with organizations of all sizes to develop and implement sustainability plans and initiatives. We worked with Sustainserve to identify specific topics in each of the three issue areas. Environmental topics included water and sewer, energy consumption, vehicle use, solid waste disposal and recycling, and hazardous waste management. Economic and social topics included funding, grant distribution, purchasing and supply chain management, labor practices, staff training, employee health and safety, impact on local communities, and how we engage, educate, and deliver services to the public.

After identifying topics, a survey was developed to measure staff understanding of operations and existing sustainability initiatives. A working group of staff members from throughout the department was selected to take the survey. Sustainserve compiled the survey results and the group met with their consultants in a workshop to discuss the results and to rank the topics from both an internal point of view as well as from the perspective of our stakeholders. By highlighting issues of high importance both internally and externally, the survey and workshop results provides a starting point for creating both long and short term goals for sustainability. The final step in this process is creating a report that highlights our current activities and initiatives, defines our goals, and then updates with results on an annual basis. (See the attached report, "Material Sustainability and Roadmap Suggestions for the Massachusetts Department of Fish and Game," for complete methodology and results.)

### Sustainability Workshop Participants:

- Doug Cameron, FBA
- Brian Castonguay, DMF
- Kevin Creighton, DMF
- Rob Deblinger, DFW
- Jon Discher, DFG
- Eileen Goldberg, DER
- Bob Greco, DFG
- Mary Griffin, Commissioner
- Kris McCarthy, DFW

Following the survey, five specific issues/metrics were selected as priority goals for DFG's sustainability effort:

- Managing biodiversity: ensure that DFG is meeting its own natural resource stewardship goals;
- Energy and green house gas emissions: this includes building energy efficiency and vehicle use;
- Daily office operations: reduce the use of daily consumables including paper and printer ink, and ensure that DFG is procuring environmentally friendly supplies where possible;

- Education and outreach: what is DFG doing to educate its constituents and train its employees; and
- Environmental and economic impact of services: is the agency meeting its mandatory operational targets.

### **1.3 Current Projects**

As part of the sustainability review, DFG identified several current and proposed projects that reflect our sustainability goals.

#### DFW Field Headquarters, Westborough

The \$25 million facility will include 45,000 square feet of office, laboratory, and meeting space and feature a geothermal heating and cooling system, solar panels, innovative mechanical systems, and a building design that will make it the first zero net energy office building constructed by the Commonwealth of Massachusetts.



The new building will replace the 12,000 square foot Richard Cronin Building and three trailers that previously housed about 90 employees. The new facility will accommodate 120 employees, allowing DFW to relocate its Hunter Education Program staff from a small office in Ayer when the new building opens. FBA offices will be relocated into the new facility, and space for the Commissioner’s Office will be created as well.

The building features a very efficient envelope with triple glazed curtain wall and metal windows as well as structural insulated panels. It has been oriented to optimize production from the rooftop photovoltaic panels while minimizing heating and cooling energy use. Efficiency features include:

- LEED Gold Certification (minimum);
- Optimum orientation to minimize heating & cooling energy use;
- Use of natural light;
- Geothermal system;
- Radiant heating and cooling;
- Photovoltaic panels on the roof;
- Mechanically assisted natural ventilation;
- Heat recovery;
- Onsite storm water recharge; and
- Sustainable site plan landscaped with native species to serve outdoor education and be a gateway to a 1,000 acre wildlife management area.

The current energy model is calling for of 303 mwh/year, which equates to 22.6 kBtu/ft<sup>2</sup>. Compared against the expected 370 mwh/year production of the PV system, this is a projected 22% buffer between energy use and production and is approximately 60% below typical usage for this type of

building. LEED modeling results suggest that the designed building will reduce actual energy cost by 50.1% compared to the LEED baseline building.

The majority of energy savings are in heating energy. These savings result from improved heating performance (heat pumps use ~25% of the energy that electric resistance requires for the same load), exhaust air energy recovery (reduces ventilation loads by ~70%), demand controlled ventilation (reduces ventilation loads by ~50%), improved envelope performance, and the decoupling of the outside air system from space loads which reduces reheat.

#### Proposed Renewable Thermal Installations

The Massachusetts Department of Energy Resources (DOER) has proposed renewable thermal installations for the following DFG buildings. DOER estimates that energy costs can be reduced by 50% or more, with significant reductions in greenhouse gas emissions, and potential installations could occur by the 2014-2015 winter heating season.

##### *Ayer District Office*

The Ayer site has two buildings with a garage attached to one. Building #1 is 3,800 sq ft, and is heated with an older #2 oil furnace. Heat distribution is above the rooms and no zoning is currently in place. The windows are single pane and the walls are poured concrete with no insulation. Building #2 is 1,200 sq ft and heated with a #2 oil furnace with a forced air distribution system. This building has central AC using the existing ductwork. The system is not zoned and the ducts are not insulated or sealed. The single zone thermostat is a mercury dial type. The building has a separate 50 gallon hot water heater. The two buildings are 60-80 ft apart.

DOER suggests replacing the furnaces with biomass boiler(s). The finished system could be a small district heating system or two separate boilers, to be determined. DOER observed that the water heaters are oversized and suggests replacing the hot water heater. One or two mini split units can replace the single speed central AC unit.

##### *Plum Island Shellfish Purification Plant*

The Plum Island Shellfish Purification Plant is a two story building that is 4,366 sq ft. Heat for the building is provided by an oil-fired hot air furnace and oil tank in the workshop, and is controlled by programmable thermostats. The unit is approximately 15 years old and is serviced annually. Heating capacity maximum is 140,000 BTU/Hr. Ducts have been insulated. The building has numerous mini-split AC units; not all function properly. The laboratory has a direct vent fan that is not sealed for winter time, and AC load is very high due to an autoclave and other instruments that deliver a large amount of unwanted heat into the room. DOER recommends replacing all mini-split AC units with high efficiency single head air-source heat pumps (ASHP) for heating and cooling and adding an ASHP for tank room.

### *Belchertown McLaughlin Hatchery*

Constructed in 1968, the McLaughlin Hatchery sits on 140 acres abutting the Swift River Wildlife Management Area. McLaughlin Hatchery is the largest of the five fish hatcheries operated by the Division. It produces 50% of the trout grown and stocked annually by DFW. The main hatchery building complex includes offices, a laboratory, hatch house, and garage totaling 14,271 sq ft. The hatchery complex includes three outbuilding and three underground well vaults that house the pumps and blowers that pump and aerate water used in rearing the fish. The hatchery grows the fish in 20 concrete outdoor raceways.

This site is heated with two 660,000 BTU/Hr boilers with a separate large hot water heater. DOER recommends replacing the furnace with biomass boiler(s).

### *West Boylston District Office*

The DFW Central District office in West Boylston is a 4,800 sq ft. single story, flat-roofed, cinder block structure dating back to the World War II era when it was originally used for communications. A recently upgraded oil furnace/forced hot water system supplemented by two wood burning stoves provides heat. Other improvements undertaken over the past 10 years have included upgraded heaters/blowers for workshop spaces, energy efficient replacement windows, insulated doors and garage doors, insulation between unheated garages and interior office space, vinyl siding with an insulating layer, and a new rubberized roof. Eight DFW staff members are assigned to the office as well as a DFG Land Agent.

This site is one building with a large, old pot belly woodstove in the office complex. The building has a #2 boiler with two zones. Windows have been upgraded and a 50-gallon water heater is installed.

### Teleconferencing Initiative

DFG and its divisions have staff in locations across the state that are often working together and need to meet to conduct daily activities. In an effort to reduce the number of miles travelled for meetings, DFG has purchased online meeting and collaboration software, and is researching video conferencing options and hardware options to enhance online meetings. Many DFG involved with management of migratory species, particularly fish and migratory birds, work with fish and wildlife managers from other state and federal agencies. Use of online and video meeting technology will help with productivity by reducing travel and the associated environmental impacts. Allowing staff to meet and collaborate online will reduce the number of miles travelled for face-to-face meetings, and reduce the associated vehicle fuel use and emissions, reducing green house gas emissions and reducing fuel consumption. Online collaboration also reduces the need to print documents and meeting materials, easing paper and printer ink consumption.

## **2.0 Short-Term Goals and Baselines**

In order to set goals, we have to establish baselines so we can measure changes to see if we are meeting our sustainability goals. In this section we take our list of priority issues, define our goals, and identify

metrics to measure change. By establishing these baselines we also create an outline for a formal DFG sustainability plan.

This phase of the sustainability evaluation is a three step process to produce DFG's working sustainability plan. First, we will evaluate DFG's current impact in each of the issue areas. With the baseline set, DFG can evaluate the level of significance of the current impacts, and allow us to set goals and targets for each of the issue areas. The final step is to determine the specific actions necessary to meet the goals, and assign a staff member to take responsibility for each action item. Each action item can be small steps which when combined allow DFG to reach our sustainability goals.

## **2.1 *Managing Biodiversity***

Stewardship responsibility for the Commonwealth's marine and freshwater fisheries, wildlife species, plants, and natural communities is a key issue area for DFG. Our mission to preserve the state's natural resources and people's right to conservation of those resources is itself a sustainable course of action, and DFG should include this message in all sustainability communications.

An example goal for this issue area:

- Continue to manage wildlife management areas (WMA) and wildlife conservation restrictions (WCR) using sound scientific practices to conserve natural resources and natural communities on behalf of the people of Massachusetts.

## **2.2 *Energy and Green House Gas Emissions***

A clear step in becoming a sustainable agency is to mitigate climate change impact through reduced energy consumption in our buildings and transportation. Energy efficient buildings, such as the new Westborough Field Headquarters, can use renewable power sources, and our existing buildings can be made more efficient through upgraded environmental controls and staff best practices. We can work to increase the percentage of electricity used from renewable sources. Where possible, DFG can increase the use of electric or hybrid vehicles instead of a traditional gas-powered fleet. Staff will be encouraged to make use of public transportation and car-pooling by promoting pre-tax savings programs available to employees, and we can make use of our virtual meeting rooms and teleconferencing to reduce miles travelled for meetings.

For this issue area we will develop a baseline using current energy and vehicle use, and then set a goal to measure our progress. Example goals for this issue area include:

- Reduce overall energy consumption in our buildings by X% over the next year.
- By 2015, X% of our electricity will come from renewable sources.
- Reduce staff's single-occupancy vehicle miles by X% in the next year.

## **2.3 *Daily Office Operations***

Waste generation, recycling, paper reduction, and the use of green cleaning supplies are some of the topics we can address in this issue area. Changing how DFG produces and manages documents can have

a significant impact on the environment. Increasing our purchase of environmentally preferable products (EPP) such as green cleaning supplies, remanufactured toner cartridges, and energy efficient lighting helps us become a more sustainable agency.

For this goal we can set both qualitative and quantitative goals. Examples include:

- Set as default double-sided on 100% post-consumer recycled content paper.
- Increase purchase of environmentally preferable products by X% in the next year.
- Achieve 100% recycling rate for recyclable materials in our facilities by 2016.

## **2.4 *Education and Outreach***

Sustainability discussions usually focus on environmental impacts, however it is also important to address social and economic impacts to become a more sustainable agency. Accountability to the public and our staff are important issues to DFG, and we can address them through education and outreach. In addition to communicating our sustainability efforts both internally and externally, it is important to know if we are serving the needs of our customers and constituents. By actively soliciting input and feedback, we can tailor our public outreach efforts to educate the public about our activities, and continue to earn and maintain the support of our constituents. Feedback, education, and outreach form a loop of continuous improvement to create a sustainable agency.

Examples of goals for this issue area include:

- Over the next year, include a sustainability update and/or discussion topic in staff meetings.
- In the next year, develop satisfaction surveys in two additional user groups beyond hunters.
- Create a department-wide database of public education activities.

## **2.5 *Environmental and Economic Impact of Services***

The last issue area identified addresses a combination of environmental and economic sustainability of our work, specifically evaluating its environmental and economic impacts. Clearly it is important that our work is compliant with current laws and regulations, and we are avoiding non-compliance. Using a combination of employee training and best practices, we can ensure we are compliant in activities ranging from restoration projects to handling hazardous materials at DFG facilities. The other component of this issue area is evaluating what we are giving back to constituents economically with our projects, by assessing the value of projects such as building boating access and hazardous dam removal.

Examples of goals for this issue area include:

- Reduce incidents of noncompliance for all DFG projects/facilities.
- Ensure 100% of facilities have appropriate hazardous material management systems in place by 2016.
- Create a report of the economic benefits of DFG projects for the Commonwealth based on existing DER and FBA economic benefit documents.

### **3.0 Communicating Sustainability**

To ensure sustainable practices take a permanent hold across the agency, we have to make sure that our employees are given opportunities for sustainability education and know how to make sustainable practices part of their daily work. Employees should have regular updates on progress and access to educational materials. Because sustainability is an ongoing process, it is vital to keep current information available both internally and externally.

This communication and training is a vital piece to DFG's sustainability roadmap and subsequent plan. To keep travel to a minimum, materials will be made available to employees – and the public – online where ever possible. Employee training will utilize DFG's online meeting and collaboration tools, and email will be used to communicate updates where applicable. Keeping staff and the public informed about our sustainability initiative is a key component for success.

### **4.0 What's Next?**

This sustainability roadmap is DFG's first step in creating an agency sustainability plan. By defining our initial set of issue areas, we can measure baselines and create concrete goals to address them. To meet the goals, we can generate best practices and activities to meet the goals of each issue area. As we move toward meeting these goals, we will periodically meet to create new goals and identify new issue areas to address.

Finally, it is essential to keep this initiative moving ahead and not stop after establishing an initial sustainability plan. A small core team can lead a larger group of rotating membership to keep sustainable practices fresh and discover new goals and areas for improvement. By utilizing a rotating membership, we can include more and a wide-range of staff members in the process, creating a more representative sustainability plan. The team should meet annually to review progress toward existing goals, create new goals when necessary, and communicate the results to staff and constituents.