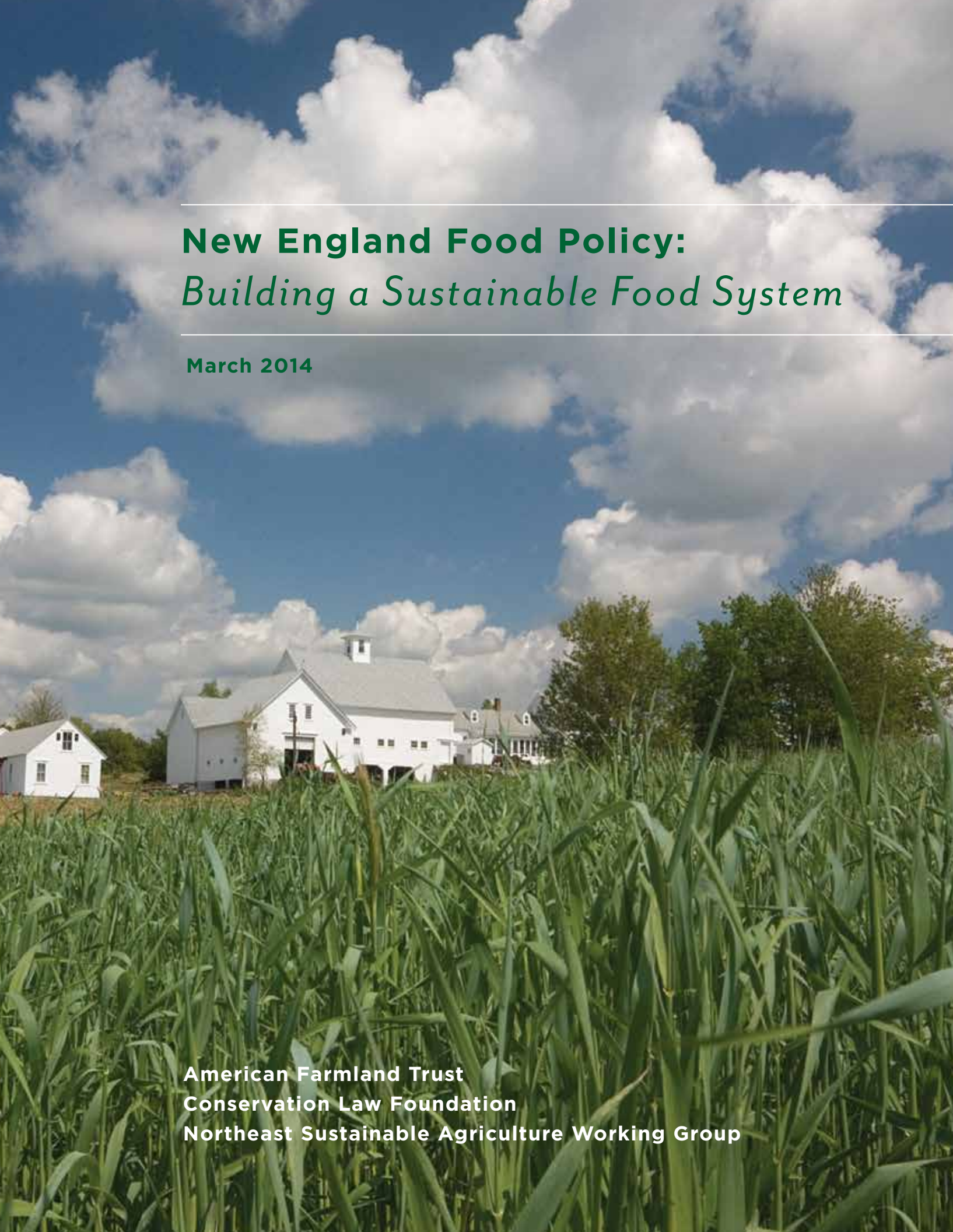

New England Food Policy:
Building a Sustainable Food System

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American Farmland Trust
Conservation Law Foundation
Northeast Sustainable Agriculture Working Group

Chapter 3

Food Safety, Processing, Aggregation and Distribution

This section explores the processing, aggregation and distribution of produce, dairy, meat and poultry, and seafood, as well as how food safety policies affect those industries. Over the last two decades, New England has seen exciting growth in both for-profit and not-for-profit ventures that are engaged in food aggregation, processing and distribution. Some are simply expanding the region's slaughter, processing and distribution capacity. Others are reconfiguring or creating new aggregation and distribution business models to expand access to healthy food, attract institutional buyers or shorten supply chains, which improves prices paid to farmers. Public investments that leverage millions of dollars from businesses and philanthropies have been critical to the redevelopment of the region's food system infrastructure. This infrastructure includes processing, slaughter and distribution facilities, and the businesses and services required to move food from farm or boat to table. Public investments in infrastructure are helping to expand the region's food processing, aggregation and distribution capacity, but food safety regulations limit the distribution of many products. This section recommends policy actions that address food safety issues while developing the capacity of the region's produce, dairy, meat and poultry, and seafood industries to build a robust food system in New England.

Highlights

- For produce, advocate for changes to the Food Safety Modernization Act rules so that the regulations address food safety concerns, while minimizing the negative effects on farmers, food producers and the environment.
- For dairy farms, promote business planning and provide grants to develop additional on- and off-farm processing capacity.
- For meat and poultry, study methods of aggregation and distribution that can meet the region's growing demand for local meat and poultry products.
- For seafood, expand efforts to educate consumers about other species of locally sourced fish available for consumption, and continue policy efforts to market sustainably harvested fish.

OVERVIEW OF FOOD SAFETY POLICY

Both public and private food safety requirements play a large role in how the region's food is produced, processed and distributed. Meat, poultry and dairy products must comply with federal food safety law in order to enter interstate commerce, and must comply with state law in order to be sold solely intra-state. In addition, private industry has, to date, largely required produce to meet voluntary food safety

standards. These requirements seek to curb foodborne illness, which has a considerable impact on health in the United States. The Centers for Disease Control and Prevention (CDC) estimates that "each year roughly 1 in 6 Americans (or 48 million people) gets sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases."[1] For years, the federal government has regulated meat, seafood and dairy product processing. But until recently, food safety standards for produce have been mostly voluntary, required only by markets that want assurance that the produce they sell will not sicken consumers. To this end, distributors, institutional buyers and grocery chains have required produce farmers to comply with a variety of food safety audits, most notably the Good Agricultural Practices (GAP). The USDA and state governments have helped train and certify farmers in these audits.

The Food Safety Modernization Act (FSMA),[2] signed into law in 2011, requires produce growers and processors to comply with food safety standards. At the time of this writing, the U.S. Food and Drug Administration (FDA) was still revising several draft rules that will implement the FSMA. When completed, the regulations will require a larger number of New England's fruit and vegetable farmers to comply with new federal safety standards for how food is grown and processed. Ensuring that food is safe is vital to a healthy, functioning food system. However, many New England farmers and food businesses are concerned that several of the proposed rules will negatively affect farms, on-farm conservation practices, and food aggregation, processing and distribution businesses.

State and local public health and safety regulations also significantly affect food aggregation, processing and distribution in New England, and can create barriers to the interstate exchange of farm products. Meeting food safety needs in a way that does not chill expansion of the region's food production will be an important public policy challenge over the next few years, especially as implementation of the FSMA begins.

FEDERAL OVERSIGHT

In the United States, federal oversight of food safety is fragmented. Fifteen agencies collectively administer at least 30 food safety laws. The two primary food regulatory agencies are the USDA — responsible for the safety of meat, poultry and processed egg products — and the FDA — responsible for regulating other food. The Government Accountability Office found that this fragmented system has caused inconsistent oversight, ineffective coordination and inefficient use of resources.[3]

As required by law, the USDA's Food Safety and Inspection Service (FSIS) conducts in-plant inspections of slaughter and processing facilities to protect consumers. The FSIS administers and enforces the Federal Meat Inspection Act (FMIA); the Poultry Products Inspection Act (PPIA); the Egg Products Inspection Act; portions of the Agricultural Marketing Act; the Humane Slaughter Act; and the regulations that implement these laws. This service is responsible for inspecting every animal before slaughter at USDA-inspected slaughter facilities and every carcass after slaughter.[4] The USDA also administers the rules regulating pathogen reduction, as well as HACCP for meat, focusing on the prevention and reduction of microbial pathogens on raw products. All federal and state establishments that are inspected are required to have a HACCP plan.

The FDA is charged with administering the FSMA,[5] which creates sweeping changes designed to prevent raw food contamination. Some changes go into effect immediately, others over time. Under the proposed food safety rules,[6] certain raw produce and processed foods will be subject to HACCP-like standards for the first time. For more information about the Food Safety Modernization Act, see the Produce section below.

STATE AND LOCAL OVERSIGHT

In addition to federal oversight of food safety, New England states administer and enforce their own food safety laws that affect the production, aggregation and distribution of agricultural products.[7] State regulations typically stipulate the conditions under which meat and poultry can be slaughtered, processed and sold within the state, and address the processing and sale of dairy and other food products. Across the region, municipal governments often impose an additional layer of local health and safety regulations. As a result, farmers and food processors face multiple layers of food safety regulations depending on what products they market and where they market them.[8] The New England Extension Food Safety Consortium — a six-state collective — maintains a website with links to each New England state's food safety laws.[9]

3.1 PRODUCE

Introduction

Food safety requirements present financial and logistical challenges for all produce farms, but particularly for smaller operations. These challenges may increase once the final food safety rules under the FSMA are implemented. Farmers, food businesses and policymakers throughout New England are struggling to understand the FSMA's proposed Produce Safety and Preventive Controls rules and their implications.

Discussion

FOOD SAFETY LAWS AND REGULATIONS

Produce safety law is a developing area, and mandatory federal regulation is replacing voluntary standards. The FDA recently published for public comment proposed rules for produce safety and preventive controls for human food.[10] At the time of this writing, the FDA was redrafting significant portions of these rules and planning to release amended proposed versions for public comment sometime in the summer of 2014.

Currently, distributors (food aggregators, wholesalers, supermarkets and other large sellers of produce) largely dictate food safety standards for produce production, handling and processing by requiring farmers to comply with voluntary standards. Once finalized, the FDA's food safety rules will impose mandatory standards with the force of law. Until then, industry often wants growers to comply with a voluntary independent audit system focused on best practices to verify that fruits and vegetables are grown, packed, handled and stored in the safest manner possible to minimize the risk of microbial food safety hazards. These GAP and Good Handling Practices (GHP) audits were developed by the USDA in 2008. They verify that growers and processors have adhered to recommendations made in the 1998 FDA "Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables."[11] Around the region, distributors and their institutional customers, such as large grocery chains, have required GAP audits of produce farmers. In the past few years, a number of different food safety audit systems have been developed, prompting a new, "GAP Harmonized" audit,[12] which grocery chains in New England increasingly require. These industry standards often force smaller growers to comply with the same standards as larger growers in order to sell their produce to institutional buyers. Some small farmers struggle to meet the costs associated with these voluntary audits, and instead limit their business to venues like farmers' markets.

The proposed food safety rules will move beyond voluntary GAP and impose mandatory safety standards in an attempt to significantly reduce produce contamination. The federal Food, Drug, and Cosmetic Act (FDCA) requires the FDA to issue food safety regulations for food products, including fruits and vegetables.[13] The FSMA imposes the following changes:

- **Recalls:** The FDA can recall food products. Before the FSMA, recalls were voluntary.
- **Inspections:** More frequent inspections based on risk will occur. Foods and facilities that pose greater food safety risks will get more attention.
- **Imported food:** The FDA's ability to oversee food imported into the United States from foreign countries is significantly enhanced. The FDA has the authority to prevent food from entering this country if the facility, including those that produce, manufacture, hold, pack or distribute food, refuses U.S. inspection.
- **Preventing problems:** Food facilities must have a written plan that spells out possible food safety problems and steps the facility will take to prevent those problems.
- **Focusing on science and risk:** The law establishes science-based standards for the safe production and harvesting of fruits and vegetables. These standards will consider both natural and manmade risks to the safety of fresh produce.
- **Small businesses and farms:** The law provides some flexibility for smaller farms that sell the majority of their product direct to retail, such as through farmers' markets, farm stands and community supported agriculture (CSA) programs.[14]

Some believe that GAP audits already result in excessive paperwork, time and money. Once the final food safety rules are implemented, distributors and supermarkets may expect all growers to comply with the FSMA as well, even if a farm is exempt. Many small- and medium-scale growers already avoid this larger marketplace, thwarting their ability to scale up to the regional produce market.[15] The new food safety rules may further restrict their ability to enter it.

Produce Safety Rule

The scope of the proposed Produce Safety Rule mirrors the FDA's 1998 GAP Guide and the Harmonized Standards, all of which cover the growing, harvesting and on-farm handling of fresh produce.[16] Some experts believe that those in compliance with Harmonized GAP will likely be able to meet the final requirements of the Produce Safety Rule without changing practices or adding costs.[17] Interviewees for this project stated that the rule will likely have a significant and detrimental impact on the region's produce growers, deterring efforts to scale up food production in the region.[18] The National Sustainable Agriculture Coalition is one of many groups that filed comments on the proposed rule, stating that the data on which the FDA relied to draft the rule does not demonstrate that smaller operations pose the same food safety risks as larger ones; therefore, the data does not adequately establish a scientific basis for the proposed standards.[19] While the proposed rule exempts some smaller farms, several interviewees said they believe distributors and other food buyers will demand compliance regardless of farm size, much as buyers have demanded GAP audits from small farms.[20]

Under the proposed rule, a small-farm exemption applies to "small" and "very small" businesses.[21] A "small" business sells annually no more than $500,000 in all food sales, calculated on a three-year rolling basis.[22] A "very small" business sells annually no more than $250,000 in food, calculated on a three-year rolling basis.[23] (The farm exclusion, according to the proposed rule, applies to any farm with annual average food sales of $25,000 or less, calculated on a three-year rolling basis.[24]) Farms would be eligible for the exemption if, annually, the dollar value of direct sales to "qualified end-users" exceeds the dollar value of sales to all other customers, and total average annual food sales to all buyers is less than $500,000, calculated on a three-year rolling basis. Qualified end-users are consumers, restaurants and retail food establishments that are either within the same state as the farm or within 275 miles of the farm.[25] Qualified farms may be subject to certain labeling requirements and the continued jurisdiction of FDA to oversee the qualified exemption.[26] The FDA will have discretion to withdraw the exemption as it deems necessary to protect public health.

The proposed rule may also cause significant environmental impacts. For example, as drafted, it requires a nine-month waiting period between applying untreated manure and harvesting a crop.[27] This length of time would necessitate manure application in the fall of the year before harvest, a practice that is discouraged because it can lead to loss of nitrogen in the soil. Such a standard may force farmers to use chemical fertilizers over manure, threatening an organic farm's USDA organic certification, and degrading water quality with increased nitrogen loading in rivers and streams. Additionally, the proposed rule may cause farmers to remove native habitat around cropland in an attempt to keep wild animals from entering a field.[28] Such habitat is crucial for conserving biodiversity and protecting key pollinators. These are just two examples of the proposed rule's potential environmental impacts.

Key Areas of Concern

- Compliance costs may force some small- and mid-sized farms out of business, and the thresholds for exemptions may chill interest among farms in expanding production and sales.
- The standard for withdrawing the qualified exemption is ambiguous.
- The withdrawal process does not afford adequate due process to farms that qualify for an exemption.
- The proposed rule may negatively impact the environment.

Preventive Controls Rule

The proposed Preventive Controls Rule will apply to many domestic and foreign farms and businesses that manufacture, process, pack or hold human food. As the rule is currently drafted, facilities that process food must register under the FDCA but may qualify for an exemption under the Preventive Controls Rule. The rule has two major features:

- It contains new provisions requiring hazard analysis and risk-based preventive controls; and
- It revises existing Current Good Manufacturing Practice (CGMP) requirements found in 21 CFR Part 110.[29]

The hazard analysis and risk-based preventive controls portion of the rule is similar to HACCP systems pioneered by the food industry for juice and seafood.

Covered "farm mixed-type facilities" — farms that manufacture or process food — and nonfarm food businesses may need to develop written plans that identify potential hazards; steps they will take to minimize or prevent those hazards; and actions that will correct problems that arise. The FDA will evaluate the plans and inspect facilities to ensure proper implementation of the hazard control plans.[30]

The proposed rule provides an exemption for small and very small businesses conducting certain low-risk activities. Under the draft Preventive Controls Rule, a small business employs fewer than 500 employees.[31] For the final rule, FDA is considering three possible definitions of a very small business:

- Less than $250,000 in total annual food sales;
- Less than $500,000 in total annual food sales; or
- Less than $1 million in total annual food sales.[32]

The Preventive Controls Rule also has the same direct-to-consumer exemption as the Produce Safety Rule. The CGMP provisions would still apply to exempt qualified facilities under the Preventive Controls Rule.[33]

Farms working cooperatively may face additional challenges under the Preventive Controls Rule. Farms that purchase and sell produce from other farms, especially those that repackage or process off-farm produce in any way, may need to comply with not only the Produce Safety Rule, but also the Preventive Controls Rule. The cost and additional labor the proposed rule would require may discourage small- and mid-sized farms from working under these cooperative arrangements. Likewise, food hubs — entities that aggregate or distribute — may need to comply with the rule. In particular, the rule may dissuade food hubs that aggregate produce from small- and mid-sized farms in the region, and work to increase those farms' profits, from continuing their operations or starting such food hubs in the first place.

As with the Produce Safety Rule, small and very small businesses will have more time to comply with the final regulation. It will apply to small businesses two years after its effective date and to very small businesses three years after its effective date.

Key Areas of Concern

- Compliance costs may force out of business some small- and mid-sized farms with facilities that process food on-site.
- The standard for withdrawing the exemption from a qualified facility is ambiguous.
- The withdrawal process does not afford adequate due process to farms and facilities that qualify for an exemption.

PROCESSING

Expanding New England's fruit and vegetable processing capacity is increasingly important in meeting the growing year-round demand for local and regional produce. Produce processing in the region is diverse, ranging from light processing — such as washing, cutting and peeling performed on the farm or by distributors and food hubs — to flash freezing, canning, juicing and dehydration. Processing also includes more extensive value-added processing. While evidence of increased produce processing can be found around the region, there has been little analysis of the extent or economic impact of this growth.

State and federal investments in both on- and off-farm produce processing have been important in leveraging private and philanthropic resources. This is especially true for processing enterprises designed to spur food entrepreneurship or improve farm profitability. With USDA support, several food processing facilities, such as the Vermont Food Venture Center and the Western Massachusetts Food Processing Center, offer processing space to new food businesses; they also process fruits and vegetables for institutional customers in the region.[34] The Vermont Food Venture Center is a 15,000-square-foot food processing facility with a produce and preparation kitchen, a "hot pack" kitchen, dry and cold storage, semi-automated equipment, and a standard loading dock to receive and deliver pallets.[35] The Western Massachusetts Food Processing Center provides co-packing services to farms interested in selling value-added fruit and vegetable products, and is also working with a food service management company to create frozen vegetable mixes for the company's institutional customers in New England. Federal programs such as the USDA's Rural Business Enterprise Grants Program and the Business and Industry Guaranteed Loan Program have been especially important to the development of these food processing centers.[36] The USDA's Value-Added Producer Grant program has helped several farmers in the region expand their light processing capacity.

State funding has also played an important role in developing produce processing capacity around the region. State farm-viability programs in Connecticut, Massachusetts and Vermont provide business plan implementation grants that farmers can use to finance construction of on-farm processing facilities.[37] In Vermont, the Working Lands Enterprise Fund offers capital and infrastructure grants for processing facilities, including shared

facilities that have an impact on the industry beyond the host farm's immediate business. For example, funding was provided to Black River Meats to increase their volume of regionally produced meat.[38] The Vermont Economic Development Authority has also provided funding for processing businesses.[39]

Federal funding has helped public schools rebuild kitchen infrastructure to enable them to use farm-fresh produce. The American Recovery and Reinvestment Act of 2009 provided $100 million in food service equipment grants, which could be used for new coolers and freezers, slicers and choppers, and produce-washing sinks.[40] Approximately $3 million was allocated to New England states through this one-time grant program.[41]

AGGREGATION AND DISTRIBUTION

The trend toward direct-to-consumer marketing in New England through farmers' markets, CSAs and farm stands has had a positive impact on farm profits and changed produce distribution patterns. However, direct-to-consumer marketing still represents only 5 percent of total farm sales in the region.[42] Many fruit and vegetable growers continue to depend on selling a portion of their product through wholesale markets. The food service management companies that run cafeterias at many of the region's institutions buy a large portion of their produce from national broadline food distributors. Increasingly, however, institutional customers are turning to regional produce distributors in an effort to satisfy customer demand for local food.[43]

In 2012, Farm to Institution New England — a network of entities seeking to expand institutional procurement in the region — interviewed 18 area distributors that sell to institutions.[44] These distributors cited several infrastructure-related challenges in handling and distributing local and regional produce. For example, farmers lack access to refrigerated transportation equipment and on-farm cooling and refrigeration facilities. They also lack on-farm infrastructure for storing, handling and light processing. Distributors also cited challenges related to on-farm packaging and handling, which must meet specific industry standards for weight and size. Additionally, distributors said that a number of produce farms are not GAP certified. These challenges point to the continued need for federal and state programs that provide cost-share assistance to farmers for post-harvest handling and storage facilities and equipment.

Around the region, many food hubs, which often are operated by nonprofit organizations with missions to support local farmers and/or to expand access to healthy food, have been beneficiaries of state and federal grants to develop new distribution models, expand cold storage and freezer capacity, and increase processing options.[45] Federal grants have also helped farmer cooperatives, such as Vermont's Deep Root Organic Cooperative, and established food businesses, such as Vermont Refrigerated Storage, which provides storage for much of Vermont's apple crop.[46]

Whether New England can sustain a larger and more integrated regional produce market depends on expansion of aggregation and distribution opportunities, especially those that provide a fair return to farmers. As noted above, the FDA's proposed rules implementing the Food Safety Modernization Act present challenges for aggregators, especially farms seeking to serve in that capacity.

Food Hubs

In 2012, the USDA identified 32 food hubs operating in and serving various parts of New England.[47] Food hubs expand the availability of healthy, fresh food and in some cases target underserved communities to address food-access issues. The National Food Hub Collaboration defines a regional food hub as "a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand."[48]

According to a 2011 USDA survey, 60 percent of food hubs received government funding — federal, state and local — to begin operations, and at the time of the study, 30 percent were actively receiving government funding. The survey found that food hubs need to invest in additional infrastructure, such as larger warehouse space, trucks, forklifts, packing crates, sorting equipment, processing equipment and cooler and freezer units. Food hubs could not manage investing in those resources without relying on external support.[49] Many of the survey participants identified access to capital as a primary limiting factor to growth. This included a lack of capital for infrastructure investments along with difficulty securing short-term revolving credit lines to maintain adequate cash flow for payments.[50]

Many federal and state grant and loan programs have already been, or could be, used to finance various aspects of food hub operations. The USDA "Regional Food Hub Resource Guide" has identified federal programs as possible funding sources for food hubs.[51] Unfortunately, some of these programs may be underutilized in the region due to eligibility and geographic restrictions, or greater demand than available funding.

In Massachusetts, Red Tomato coordinates marketing, sales and wholesale logistics for a network of more than 40 farms in the region. It currently relies on the following funding sources:

- 60 percent from government, foundation grants and individual donations;
- 30 percent from income; and
- 10 percent from consulting.[52]

The Mad River Food Hub in Waitsfield, Vt., which opened in 2012, relies on funding from a variety of sources, including the Vermont Sustainable Jobs Fund, the Vermont Housing and Conservation Board's Farm Viability Program, the Vermont Agency of Agriculture's Agriculture Innovation Center and the USDA Specialty Crop Block Grant Program.[53] Farm Fresh Rhode Island's Market Mobile was originally funded by the Rhode Island Division of Agriculture and private funders.[54]

Many food hubs are currently in a start-up or early development phase. The USDA reports that 60 percent of food hubs have been in operation for five years or less.[55] Training and support in business development is needed for some food hub operators. State farm viability programs have been used for processing and distribution projects — both for capital improvements and technical assistance or business planning. (For more information about these programs, see Food Production, Chapter 2.) However, these programs are available only to farm businesses, so food hubs may be ineligible. New food hub operators could benefit from technical assistance on facility design and operations, including equipment, floor plans and operating costs.[56]

Action

Support for Existing Programs

Federal

- Rural Business Enterprise Grants.
- Rural Business Opportunity Grants.
- Business and Industry Guaranteed Loan Program.
- Value-Added Producer Grants.
- Specialty Crop Block Grant Program.

State

- Farm Viability and Reinvestment programs in Connecticut, Maine, Massachusetts, Rhode Island and Vermont.
- Working Lands Enterprise Fund in Vermont.

Research and Analysis

- Analyze the cost of compliance with the Food Safety Modernization Act's proposed Produce Safety and Preventive Controls rules for various types of farm operations in the region.
- Determine the costs to New England states for implementing the proposed FSMA rules.
- Analyze private and philanthropic resources and the economic impact of federal and state investments in food aggregation, processing and distribution infrastructure.
- Continue to research food hub business models, especially those that can be self-supporting and provide a fair return to farmers.
- Research whether the scale and management system of a produce operation affects the risk of contaminating its product.

Policy Options

- Continue to advocate for modifications to the proposed FSMA Produce Safety and Preventive Controls rules.
- Support the development of food aggregation centers for small- and medium-sized producers.

3.2 DAIRY

Introduction

Dairy farming has been part of New England for centuries. In recent years, the number of dairy farms across the region has declined dramatically, largely driven by milk pricing. The pricing of milk has a long and complex history of federal and state supports and supplements. In 1937 Congress established the federal milk pricing system to maintain a stable milk supply. Two years later, Congress set a support price system for dairy farmers regardless of their proximity to the markets. Increasing technology and storage capacity for milk led to its production outstripping demand. Now, dairy policy in New England is a complicated mix of federal and state regulations around pricing, risk management tools, price-support programs and cost-share assistance for farm business planning, conservation practices and farm energy support. Some interviewees suggest that in order to maintain New England dairy farming and provide fresh, local dairy products throughout the region, dairy policy must better address costs of production and risks associated with increasingly severe price swings.

At the time of this writing, an updated federal farm bill had not yet passed. This legislation will likely replace the now-expired Milk Income Loss Contract program — a program that provided a needed safety net for the region's dairy farmers in times of low milk prices — with a new dairy margin protection program and, potentially, a market stabilization program. Regardless of the final configuration of dairy policy in the farm bill, federal policy alone is unlikely to ensure the future viability of the region's dairy sector.

Discussion

FOOD SAFETY LAWS AND REGULATIONS

All six New England states have adopted the Pasteurized Milk Ordinance (PMO), a model ordinance and code developed by the FDA's Public Health Service and other federal agencies. State and local milk-control agencies enforce it.[57] The ordinance is designed to promote effective and well-balanced milk sanitation programs in each state, to stimulate the adoption of adequate and uniform state and local legislation related to milk, and to encourage the application of uniform enforcement procedures through appropriate legal and educational measures. The PMO has been upheld by court actions and discourages states from using local public health regulations to create trade barriers that thwart interstate commerce of milk. The ordinance also creates a uniform standard that makes possible other voluntary programs, such as the Interstate Milk Shippers certification.[58]

The six New England states differ in their regulation of raw milk, and for purposes of food safety, raw milk cannot be sold across state lines.[59] Connecticut, Maine and New Hampshire allow retail sale of raw milk.[60] Massachusetts permits only on-farm sales of raw milk, and Vermont allows on-farm sales, as well as retail sales under certain conditions.[61] In Rhode Island, it is illegal to sell raw milk from cows, but raw goat's milk can be sold directly to consumers with a prescription.[62]

Dairy processing facilities, whether on- or off-farm, are subject to numerous state and federal food safety regulations. At the state level, the department of agriculture or the department of health typically regulates such facilities. The FDA primarily oversees these facilities at the federal level.[63]

PROCESSING

New England's dairy farms produce an average of more than 4 billion pounds of milk a year. Almost all of that is processed in the region.[64] There are more than 300 off-farm bottling and dairy processing plants in New England, employing between 5,000 and 8,500 people.[65] Dairy cooperatives play a central role in getting milk from producers to processors, including, in some cases, owning and operating processing plants. The federal Milk Marketing Order System establishes minimum prices that milk handlers, typically processors, must pay for milk. Prices are set based on the eventual use of the milk. Producers receive a blended price that reflects the average price of all milk sold through the New England market-order pool.

To capture a greater percentage of the retail dairy dollar, a growing number of dairy farms in the region have developed their own processing capacity, allowing them to produce a farm-branded milk or dairy product. Dairy producers are typically marketing these products themselves through a variety of retail venues. In some cases, farmers are creating or joining cooperatives to manage the marketing. The number of farms bottling or processing their own milk into dairy products is not tracked in every New England state, but between 1995 and 2012, the number in Maine and Vermont jumped from fewer than 20 to more

than 130.[66] Farms are processing a wide variety of milk and dairy products, from butter and yogurt to farmstead cheeses, ice cream and flavored milks. The start-up costs for many of these processing facilities are significant, as are the regulatory hurdles, which include both food safety regulations and, typically, state environmental regulations around wastewater. In order to transition into processing, many of these farms rely on state-funded business planning assistance, as well as state and/or federal infrastructure grants, primarily through the federal Value-Added Producer Grant Program and state farm viability programs.

According to a 2005 survey conducted by the Vermont Dairy Task Force of on-farm dairy processors, farms processing their own milk are processing almost all of it. On average, less than 16 percent of the milk from these farms is sold to a dairy cooperative or milk handler. Under the federal Milk Marketing Order System, dairy producers who process their own milk are exempt from the pricing provisions of the order. Producer-handlers are capped at what they may process under this exemption: 150,000 pounds per month of Class 1 milk. Significant disincentives apply for producer-handlers who exceed this cap, effectively limiting the volume of milk that a farmer can process outside of the federal milk market order system. While the cap is not problematic for most of New England's producer-handlers, for some, the cap limits their ability to expand, which in turn influences their profitability.

Another trend in dairy processing is an increase in local and regional branded fluid beverage milk products. In Rhode Island, the dairy farm members of Rhody Fresh use Guida's Dairy in New Britain, Conn., to process their milk, which is segregated from the rest of the plant's milk and bottled using Rhody Fresh cartons. In western Massachusetts, Our Family Farms dairy cooperative is exploring the feasibility of building its own processing plant to expand the line of fluid beverage milk products they can offer, including bags and half-pints for schools and other institutional customers. In both of these cases, federal funding has helped the cooperatives pursue local processing options.

In its 2006 study, the Vermont Dairy Task Force identified the need for dairy processing workforce development. Vermont dairy producers doing their own processing stated that finding labor is their primary barrier to expansion.[67] Forty-three percent of producers reported a shortage of part-time labor.

AGGREGATION AND DISTRIBUTION

As mentioned above, dairy cooperatives play a significant role in managing milk between the producer and the processor. About 70 companies pick up milk from dairy farms around the region, and the haulers are responsible for physically managing the raw product. As milk is frequently shipped to processing plants outside the state of origin, milk haulers must comply with multiple federal and state trucking regulations. Inconsistent regulation of truck weight limits between states in southern New England continues to cause problems for regional milk haulers.

Action

Support for Existing Programs

- Continue to provide business planning and grants for dairy farms to develop additional on- and off-farm processing capacity.

Research and Analysis

- Analyze private and philanthropic resources and the economic impact of federal and state investments in dairy processing infrastructure.

Policy Options

- Build support for the federal and state programs that are investing in dairy processing infrastructure and technical assistance.
- Raise the cap on the dairy producer-handler exemption under the federal milk marketing order to allow dairy producers to process more of their milk outside the federal milk market pool.
- Establish workforce-development programs for dairy processing, or expand current state workforce-development efforts to include dairy processing.
- Improve access to information regarding HACCP requirements so that farmers and food entrepreneurs have the tools they need to make informed decisions regarding expanded marketing opportunities and value-added processing while promoting food safety.[68]

3.3 MEAT AND POULTRY

Introduction

In recent years, New Englanders have demanded more locally raised and produced meat and poultry. In fact, in some states, like Vermont, demand for local meat outstrips supply.[69] This is in part because New England's ability to process and distribute meat and poultry is controlled by a complex set of federal regulations overseen by multiple federal agencies. Until recently, federal law mandated that only federally inspected meat could be placed in interstate commerce under the FMIA[70] and PPIA[71]. The 2008 Farm Bill relaxed that mandate. In mid-2011, the FSIS issued a final rule establishing a Cooperative Interstate Shipment (CIS) program.[72] It allows meat and poultry to be shipped and sold across state lines if it is:

- Inspected through approved state inspection programs, which must at least meet federal inspection standards; and
- From a plant with 25 or fewer employees.[73]

Ohio has been approved to participate in the CIS program,[74] but, at the time of this writing, it is unknown when or if any New England states will choose to participate. All New England states currently have at least one federally approved slaughterhouse. Some states have inspection programs that allow sales of meat and poultry within state borders. Many farmers throughout the region claim that slaughter and processing costs and quality, as well as a lack of capacity at key times of year, limit their ability to capitalize on the growing demand for local, sustainable and certified humane meat.

Discussion

FOOD SAFETY LAWS AND REGULATIONS

The two main federal laws that seek to assure a safe meat supply are the FMIA and the PPIA. The FMIA establishes inspection requirements for cattle, sheep, swine and goats.[75] These requirements are designed to prevent adulterated or misbranded meat and meat products from being sold as food in interstate commerce.[76] Meat that is intended for personal consumption by the livestock owner, his or her household, or his or her guests and employees, and is processed by the farmer or by a custom slaughterer is exempt from inspection requirements.[77] A custom slaughterer is a person who provides slaughter or processing services to the person who owns the animal and agrees not to sell or barter the meat. Custom slaughter operations appear to be growing around New England.

The PPIA mandates inspection of poultry and poultry products, and regulates the processing and distribution of "domesticated bird[s]" for sale in interstate or foreign commerce.[78] Any poultry slaughter and processing facility that sells products within a state must comply with the PPIA whenever the state does not enforce requirements at least as strict as the federal law. The PPIA exempts poultry intended for personal consumption from federal inspection and instead imposes criteria intended to facilitate the slaughter of healthy birds under hygienic conditions.[79] The PPIA also contains exemptions for:

- Custom slaughter;
- A producer-grower of 1,000 or fewer birds;
- A producer-grower of 20,000 or fewer birds;
- A producer-grower or other person;
- A small enterprise; and
- A retail operation.

These exemptions excuse the covered business from some, but not all, requirements of the PPIA and limit the sale of the exempted product to intrastate commerce.[80]

In addition to facilities that meet federal inspection guidelines, states may implement coordinated meat and poultry inspection programs under an agreement with the USDA's Food Safety and Inspection Service. Under the agreement, a state's program must enforce requirements equal to or greater than those imposed under the FMIA and PPIA, and the products can be sold only in state.[81] Maine[82] and Vermont[83] have implemented meat and poultry inspection programs, and New Hampshire has established,[84] but not yet implemented, one.[85]

The USDA rules also allow for state-inspected plants with fewer than 25 employees to apply to be part of the CIS program, making it possible for some farmers with state-inspected meat to sell their products across state lines.[86] Participating establishments receive inspection services from state personnel trained in the enforcement of the FMIA and PPIA.[87] The complexity and cost of establishing and implementing the program may deter states from taking part.

Under the PPIA, Maine and Vermont both offer inspection exemptions for small-scale poultry producers who slaughter fewer than 1,000 birds per year for certain intrastate sales.[88] Both states also license custom slaughter and processing facilities.[89] Massachusetts issues licenses to slaughter and/or process poultry using either a Mobile Poultry Processing Unit or small on-farm processing operations.[90] Connecticut has a program that allows poultry growers who process on-farm and have passed state inspection to sell directly to restaurants and consumers. In 2013, legislation expanded this program to allow the sale of Connecticut-grown and -inspected poultry to in-state retail and wholesale markets.[91]

SLAUGHTER AND PROCESSING CAPACITY

In 2010, the six New England state's chief agricultural officers identified the lack of slaughter and processing capacity as a serious impediment to increased consumption of regionally produced meat.[92] Although a 2010 regionwide study of large-animal slaughter and processing capacity found almost enough *slaughter* capacity (82 to 97 percent) around the region to meet the current large-animal market volume, there is significantly less *processing* capacity (44 to 54 percent).[93] Though some of the region's slaughter facilities are running at less than full capacity, bottlenecks are common in many areas in the high-demand fall months.[94] Additionally, livestock producers are concerned that the distance to facilities and the cost and quality of services are impeding increased slaughter and processing throughout New England.[95]

The region currently has 28 commercial slaughter facilities and 30 commercial meat and poultry processors.[96] All New England states have at least one federally inspected slaughterhouse.[97] Because Maine and Vermont comparatively raise a lot of livestock, those states have the most slaughter facilities in New England. Between 1997 and 2010, however, Vermont lost more than half its federal or state-inspected commercial red meat slaughter and processing facilities.[98] Both Maine and Vermont have state meat inspection programs, which allow intrastate sale of meat. New Hampshire has authorized a state meat inspection program but has not funded it. Legislation to create a program is pending in Massachusetts, and neither Connecticut nor Rhode Island has such a program.[99]

In addition to fixed slaughter facilities, mobile poultry processing units have been built in and licensed by several New England states, including Vermont, Massachusetts and Rhode Island.[100] These units are intended to travel to farms, enabling those that produce fewer than 20,000 birds each year to slaughter onsite.[101] A USDA-inspected red meat Modular Harvest System based in New York's Hudson River Valley was built to serve not only New York, but also Massachusetts and Connecticut. The Modular Harvest System is a custom-built harvest unit that can be moved to any suitable docking site in the region. The first and so far only docking unit is in Stamford, N.Y.[102] Both the mobile poultry processing units and Modular Harvest System are subject to the same federal regulatory requirements and small-processor exemptions as brick-and-mortar facilities, but may also be subject to additional state requirements.[103] The USDA recently issued a guidance document to assist states in developing regulations for mobile processing facilities.[104]

For many livestock operations, the high cost of slaughter and processing limits their ability to sell to local and regional markets. Another issue is the inconsistent quality of processing, which can affect the ability to capture a high price in the marketplace. A third issue is slaughter and processing availability. In parts of the region, farmers must reserve slaughter dates for animals that have not yet been born.[105] Public programs and policies can and in some cases already are helping to address these issues. The Vermont Farm to Plate Strategic Plan has identified several ways the federal and state governments can help slaughter and processing facilities reduce operating costs. Vermont has invested in educational programs aimed at growing the pool of skilled meat cutters.[106] Expanding the use of mobile slaughter and processing units to provide additional capacity will require increased technical assistance and better collaboration with state and local health officials.

Increasing demand for slaughter and processing facilities in the region in the lightly used winter and spring months would help to improve the profitability of many facilities. At the time of this writing, Vermont was already experiencing less seasonal decline in the spring months because more producers are finishing animals year round.[107] One possibility for expanding the regional supply of meat is dairy beef. These cows — culled from dairy herds — can provide several cuts of meat, including ground beef. A collaborative project between Farm to Institution New England (FINE) and the six state departments of agriculture is focused on expanding institutional markets for New England-sourced beef, including dairy beef. The project is fostering relationships between institutional buyers

and the region's processors, and is exploring creating a New England-branded meat program to promote locally produced, source-verified meat for wholesale and institutional buyers. Such buyers often have additional food safety standards for meat, requiring processors to have additional, expensive equipment, such as pasteurization machines. Public funding has been important to offset these costs and enable processors to meet institutional price points.

AGGREGATION AND DISTRIBUTION

Around the region, several meat distributors are working with livestock farmers to meet demand for regionally sourced meat and poultry, amassing products from participating farms. Associations and cooperatives of livestock growers seeking to aggregate, slaughter, process and market their own meat are also emerging. For example, the Rhode Island Raised Livestock Association, a nonprofit membership organization, worked with two local family-owned meat processing businesses to "re-knit a piece of the fabric of local agriculture infrastructure" and provide livestock growers with access to USDA-inspected processing facilities. This Rhode Island association now runs a processing scheduling service for its members, giving them a local and cost-effective way to have their animals processed at a USDA-inspected facility. In addition to private funding, the association was supported in its early stages by a USDA grant.[108] Replicating this type of cooperative development in other areas of the region could help livestock producers meet both processing and marketing needs.

Action

Support for Existing Programs

Federal

- Rural Business Enterprise Grant Program.
- Rural Energy for America Program.

State

- Farm viability programs in Connecticut, Maine, Massachusetts and Vermont.
- Vermont Working Lands Enterprise Fund.

Research and Analysis

- Analyze the success of state farm viability programs in leveraging state and federal investments and improving the profit margins of slaughter and processing facilities.
- Explore the feasibility of on-farm slaughter facilities to process livestock from other farms.

Policy Options

- Develop a more workable plan than the Cooperative Interstate Shipment program to allow shipment of meat across state lines.
- Develop state-funded, low-interest loan programs for capital improvements to new and existing slaughterhouses. Such improvements could include the development of satellite processing sites and additional on-site storage to maximize the facility's kill-floor capacity.[109]
- Provide business assistance to slaughter and processing plants, allowing them to improve their services and overall profitability.[110]
- Decrease the costs of slaughterhouse and processing operations; provide access to technical assistance and funding to address energy-efficiency opportunities; develop risk-management training to reduce insurance premiums; and explore the potential for pooled liability insurance.[111]
- Continue to provide regulatory support and training on standard operating procedures and HACCP plans for small-scale slaughter and processing facility operators.
- Encourage the development of livestock cooperatives that are able to address holistically the slaughter, processing and marketing needs for a given commodity or region.
- Streamline the regulatory structure for mobile poultry processing units and the Modular Harvest System.
- Provide educational opportunities and incentives for training skilled workers to meet increased processing demands.

3.4 SEAFOOD

Introduction

Seafood has been a valued — and sometimes vital — source of food for New Englanders. Its place in the regional food system, however, has been complicated in recent years by the decline in traditional finfish stocks in the Gulf of Maine and Georges Bank. This has led to the loss of much of the commercial fishing fleet, higher prices for consumers and declining availability of cherished species, such as cod and flounder. Changes in the ocean ecosystem caused by global warming and other human-induced activity have also affected shellfish species. For example, lobster stocks have significantly declined in southern New England waters but have increased dramatically off the coast of Maine, while invasive European green crabs are expanding their range and consuming copious quantities of mollusks and bivalves.

In the wake of declining traditional fish stocks from overfishing and an ocean ecosystem stressed by rising temperatures, acidification and pollution, producers increasingly are looking for means to adapt to these changes. They have turned to aquaculture to generate fish and shellfish for human consumption. Aquaculture presents opportunities for regional growers. For example, oyster farming has already proved an economic boon to southern New England.[112] Aquaculture also comes with challenges, however, including managing pollution from discharging wastewater and farming species that consumers demand.

Discussion

FOOD SAFETY LAWS AND REGULATIONS

The safe handling and processing of fish and shellfish fall under several laws administered by different agencies. The Food, Drug, and Cosmetic Act, administered by the FDA, mandates that all national and international seafood retailers and processors[113] implement a HACCP program at critical points in the supply chain for each species processed.[114] To help meet this requirement, the Seafood Inspection Program in the National Oceanic and Atmospheric Administration (NOAA) offers professional, fee-for-service food safety inspections for fish, shellfish and fishery products industries.[115] This service is often referred to as the U.S. Department of Commerce Seafood Inspection Program and uses marks and documents bearing the Commerce Department's seal.

Shellfish is also inspected under the National Shellfish Sanitation Program, a federal-state cooperative project recognized by the FDA and the Interstate Shellfish Sanitation Conference. The National Shellfish Sanitation Program promotes and improves the sanitary control of shellfish produced for human consumption and sold across state lines. Participants in the program include many state agencies, as well as the FDA, the Environmental Protection Agency, NOAA and the shellfish industry. Under international agreements with the FDA, foreign governments also participate in the National Shellfish Sanitation Program, which includes a model ordinance, state growing-area classification and dealer certification programs, as well as FDA evaluation of state program elements.[116]

All New England states have implemented the National Shellfish Sanitation Program.[117] Dealers must be certified under this program to ship shellfish within or across state lines. As of October 2012, there were 69 certified interstate shellfish shippers in Connecticut; 121 in Maine; 157 in Massachusetts; 24 in New Hampshire; 48 in Rhode Island; and five in Vermont.[118]

PRODUCTION, AVAILABILITY AND HARVESTING

Finfish

Fishermen and policymakers have increasingly wrestled with limiting finfish harvest while simultaneously replenishing stocks and finding responsible ways to keep fishermen in business. The federal government is largely responsible for setting catch limits. The Magnuson-Stevens Fishery Conservation and Management Act establishes a United States exclusive economic zone between the outer limits of state waters and 200 miles offshore. Eight regional fishery councils manage living marine resources within the exclusive economic zones. The act principally addresses heavy foreign fishing. It develops a domestic fleet and allows the fishing community more voice in the management process.

The New England Fisheries Management Council is the body that oversees management of the region's fisheries. It is composed of state and federal government officials and 12 members nominated by the governors of the five New England coastal states. The council prepares and submits to the U.S. Secretary of Commerce a fishery management plan and amendments as needed for each commercial fishery within its geographic area that requires conservation and management.[119] As a result of decreasing fish stocks, many fishermen have left the industry. Those

that remain are, in part, trying to create markets for fish species that remain abundant but are less known by consumers. Whether consumers will accept these less popular species instead of traditional finfish remains to be seen.

As the dearth of wild fish worsens, New England also has turned to aquaculture, which helps meet consumer demand. But it also creates challenges, including water pollution from excess food, feces and antibiotics, and genetic mutation from escaped fish interbreeding with wild species.[120] Aquaculture businesses are often unique operations that require a balanced regulatory structure.

Aquaculture has been limited to a few species. Recent attempts to farm other popular finfish species are in progress. Great Bay Aquaculture, based in New Hampshire and Maine, is researching and farming Atlantic cod, summer flounder, sea bass and sea bream.[121] Great Bay Aquaculture is currently the only aquaculture company in the United States that raises Atlantic cod.[122] Australis, one of the largest aquaculture businesses in New England, is the first in the nation to produce barramundi — a high-value Pacific fish.[123] At present, however, only salmon is available to the consumer market, and raising other finfish faces several technical challenges. In addition to marine aquaculture, a few inland fish farms in Vermont,[124] New Hampshire[125] and Massachusetts[126] farm trout and other freshwater species for the consumer market.

Despite the success of New England aquaculture operations, the lack of a simple, comprehensive regulatory structure for the industry remains a major barrier to growth.[127] Currently, several government agencies manage policies and regulations for these commercial operations. Each agency's authority in the realm of aquaculture is often not clearly defined.[128] Generally, anyone interested in starting an aquaculture business[129] must consult with, and obtain permits or permission from, the Food and Drug Administration; the Department of Agriculture; the Environmental Protection Agency; the National Oceanic and Atmospheric Administration; the Army Corps of Engineers; and the U.S Fish and Wildlife Service.[130]

Shellfish

The two primary taxonomic orders of shellfish — mollusks and crustaceans — are experiencing very different trajectories within the food system. Coastal harvesting of bivalve mollusks, like clams, has declined significantly from a complicated mix of threats, including: the arrival of invasive species; changes in seawater chemistry that affect the capacity of these species to make shells; water pollution, such as sewage discharge and nonpoint source runoff into estuaries and bays; and red tide, which refers to paralytic shellfish poisoning and an algae-caused threat to human health. As a result, for many mollusk species, there has been a shift from wild harvesting to aquaculture. However, aquaculture faces many of the same challenges. Additionally, it poses several environmental risks, as noted above.

Conversely, lobster harvests off the Maine coast have increased dramatically due to rising ocean temperature, which has also caused a proliferation of non-native crab species. The invasive crab species appears to be decimating mollusk populations, as the crabs feed on young clams, scallops and other species. The abundance of lobster, particularly in the Gulf of Maine, runs the risk of creating a monoculture very susceptible to outbreaks of shellfish-related diseases. In 2012, this abundance drove down market prices and exceeded the capacity of New England processors. Industry leaders, nonprofit organizations, and policy makers in Maine are meeting to discuss possible actions to countermand the negative impacts of rising ocean temperature and the green crab invasion. At the time of writing, the Maine legislature was considering a bill to study the impacts of ocean acidification on Maine's wild and aquaculture shellfish industries and to recommend actions to protect these important fisheries.

PROCESSING

New England likely has enough capacity to process the numbers of finfish harvested under federally mandated fishing limits.[131] Thus, the number of processors appears to have declined in step with the decline in commercial finfish stock. Some remaining processors have started importing fish from outside the region to stay in business. To adapt to the changing seascape, New England needs to increase its lobster-processing capacity and its capacity to process previously undervalued finfish species.

There are currently fewer than 20 lobster-processing plants operating in Maine, not nearly enough to process the state's lobster harvest.[132] Annually, Maine ships millions of pounds of lobsters — 35 to 50 percent of the state's annual catch[133] — to processing plants in Canada, where it is transformed into frozen products and sold back to retail and foodservice markets in the United States and elsewhere.[134] Maine's state government is actively promoting increased marketing and in-state processing of Maine

lobsters because the state is losing money to Canada.[135] More complicated still, the record lobster harvest of the past several years has driven down the prices paid to lobstermen on both sides of the border.[136] There was such an abundance of Maine lobster during the summer of 2012 that Canadian lobstermen blockaded their own processing plants to prevent deliveries of U.S. lobsters.

Processing previously undervalued finfish species presents a different problem. For example, a facility may have a HACCP plan and staff trained to process cod, which currently are in short supply, but no staff or HACCP plan to process species — like dogfish — that are more abundant but less familiar to consumers. Groups throughout New England are promoting these lesser known fish to institutional markets; restaurants are adding new species to their menus to meet customer demand for fish and to try to increase consumer interest in less-known fish. If these less popular species, such as skate and dogfish, become popular with consumers, processors will need to develop new HACCP plans and train staff to process these thicker-skinned species.[137]

A related issue, identified by participants in the 2013 Food Solutions New England Summit, is that traditional single-species processing has concentrated on high volumes in a few locations that are significant distances from the region's smaller fishing communities. The lack of processing capacity near small landing ports adds transportation costs and diminishes the freshness of fish in many market locations.

AGGREGATION, DISTRIBUTION AND MARKETING

Given the fish-stock crisis in New England, many markets and consumers demand seafood that is certified "sustainable."[138] The international nonprofit Marine Stewardship Council offers an eco-label and sustainable fishery certification program.[139] The Global Aquaculture Alliance, through its Best Aquaculture Practices certification, sets standards for sustainable aquaculture.[140] Developments on the local level include:

- The **Gulf of Maine Research Institute** has developed a Sustainable Seafood Initiative,[141] which includes a Responsibly Harvested branding program that identifies Gulf of Maine seafood products that meet traceability and responsible harvest criteria.[142] The institute also collaborates with retailers and Portland-area restaurants.[143] As a result of this collaboration, Hannaford Supermarkets has established a sustainability policy that traces each of more than 2,500 products back to their source, down to the precise fishery.[144]
- The **New England Aquarium** encourages responsible management of fishery resources and provides support to regional and international fishing communities, industries and organizations.[145] The aquarium also works with supermarket chains and seafood companies to implement sourcing policies and practices to ensure greater environmental accountability throughout their supply chains.[146] Aquarium partners include Stop & Shop, Giant Food stores and Darden Restaurants, which owns and operates Red Lobster, Olive Garden, Longhorn Steakhouse, The Capital Grille, Bahama Breeze and Seasons 52.[147]
- The **University of Rhode Island** has a Sustainable Seafood Initiative intended to "provide an independent third-party, objective source of information and research on the sustainable seafood movement, its functioning, and its effectiveness."[148]
- **Roche Brothers Supermarket** announced a new seafood traceability program in October 2012 through which customers can scan a QR, or Quick Response, code for selected species, see a photo of the fishing boat that captured the fish, and get information about the location fished and a description of the gear used.[149] Roche Brothers developed the program in conjunction with their longtime partner, Foley Fish, a seafood processor based in Boston and New Bedford, Mass.[150] Fish destined for Roche Brothers stores are cleaned and filleted exclusively at Foley Fish, and delivered directly to Roche Brothers stores, allowing for an unprecedented level of traceability.[151]

While farm-to-school programs have been relatively successful in the region, as of this writing there are no parallel "boat-to-school" programs in state or local purchasing systems. But some institutional purchasers, such as hospitals, purchase regionally caught fish. Fostering a more robust market for a variety of local fish species presents distinct, but not insurmountable, challenges.

THE ROLE OF FISHING COMMUNITIES AND WORKING WATERFRONTS

A number of the issues noted above are making it increasingly difficult for smaller, more remote fishing communities

to survive. Throughout New England, efforts are underway to mitigate this, including community-supported fisheries and initiatives by Coastal Enterprises, Inc.

- **Community-supported fisheries** exist throughout New England and are modeled after community supported agriculture programs. For example, one community-supported fishery in Seabrook, N.H., has consumers pay in advance for a guaranteed stream of fish throughout the summer.[152] It is part of a collaborative effort to increase fishermen's ability to market their products locally and increase consumer awareness of the benefits of seafood in their diet. [153] Partners include New Hampshire Sea Grant, the University of New Hampshire's Cooperative Extension, and the local fishing community
- **Coastal Enterprises, Inc.**, is based in Wiscasset, Maine, and has a Fisheries and Working Waterfront Program that fosters the sustainable development of Maine's fisheries and fishing communities.[154] The organization recently announced the launch of a two-year study with Wholesome Wave to identify the best ways to integrate Maine seafood into the Northeast regional food hub system and make it more widely available to consumers.[155]

Action

Research and Analysis

- As identified by the breakout session on seafood supply chain at the 2013 New England Food Solutions Summit, determine the viability of smaller-scale and regionally distributed multi-species processing of harvested finfish.
- Examine different types of processing facilities from technical, regulatory and economic perspectives.
- Support efforts to research and find actions to countermand the impacts of ocean acidification, the green crab invasion, stormwater runoff and other human-induced changes to the ocean environment.

Policy Options

- Expand efforts to educate consumers about other species of locally sourced fish available for consumption, and continue policy efforts to market sustainably harvested fish or environmentally sensitive aquaculture seafood.
- Foster innovative approaches to processing, distributing and marketing under-utilized fish species.
- Create a campaign that parallels the success of farm-to-table and farmers' markets programs.
- Advocate for a simplified, streamlined and comprehensive regulatory structure for the aquaculture industry that capitalizes on opportunities, adequately addresses environmental challenges and provides aquaculture businesses sufficient flexibility to grow.

ENDNOTES

[1] *Estimates of Foodborne Illness in the United States*, Ctrs. for Disease Control and Prevention, http://www.cdc.gov/foodborneburden/ (last visited Nov. 22, 2013).

[2] FDA Food Safety Modernization Act, Pub. L. No. 111-353, 124 Stat. 3885 (2011).

[3] U.S. Gov't Accountability Office, GAO-07-449T, Federal Oversight of Food Safety: High-Risk Designation Can Bring Needed Attention to Fragmented System 1 (2007), *available at* http://www.gao.gov/new.items/d07449t.pdf.

[4] Letter from Charles E. Williams, U.S. Dep't of Agric., Food Safety & Inspection Serv., to Bruce A. Wagman, Schiff Harden LLP (Jun. 28, 2013).

[5] *Guidance & Regulation*, U.S. Food & Drug Admin., http://www.fda.gov/Food/GuidanceRegulation/default.htm (last visited Nov. 22, 2013).

[6] *See* Standards for Growing, Harvesting, Packing, and Holding of Produce for Human Consumption, 78 Fed. Reg. 3504 (2013) (to be codified at 21 C.F.R. pts. 1, 16, 106, et al.) (proposed Jan. 16, 2013), *available at* http://www.gpo.gov/fdsys/pkg/FR-2013-01-16/pdf/2013-00123.pdf; Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Human Food, 78 Fed. Reg. 3646 (to be codified at 21 C.F.R. pts. 1, 16, 106, 110, 114, 117, 120, 123, 129, 179, and 211) (proposed Jan. 16, 2013), *available at* http://www.gpo.gov/fdsys/pkg/FR-2013-01-16/pdf/2013-00125.pdf.

[7] *New England Food Entrepreneurs*, New England Extension Food Safety Consortium, http://extension.unh.edu/nefe/index.html (last visited Nov. 22, 2013).

[8] Personal Communication with Jiff Martin, Conn. Coop. Extension Educator (Sept. 25, 2012).

[9] *New England Food Entrepreneurs, supra* note 7.

[10] See 78 Fed. Reg. 3504, 3646.

[11] *Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables*, U.S. Dep't of Health & Human Servs., Food and Drug Admin., (Oct. 1998), http://www.fda.gov/downloads/food/guidancecomplianceregulatoryinformation/guidancedocuments/produceandplanproducts/ucm169112.pdf; *see also Grading, Certification and Verification*, U.S. Dep't of Agric., Agric. Mktg. Serv., http://www.ams.usda.gov/AMSv1.0/gapghp#P25_1498 (last visited Nov. 22, 2013).

[12] David E. Gombas, *Produce GAPs Harmonization: The Goal Is in Sight*, Food Safety Magazine, June/July 2013, http://www.foodsafetymagazine.com/magazine-archive1/junejuly-2013/produce-gaps-harmonization-the-goal-is-in-sight/.

[13] Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 341–350l-1 (2013).

[14] *See* 124 Stat. 3885–3973; Margaret A. Hamburg, *What Does the New Food Safety Law Mean for You?*, Foodsafety.gov, (Jan 5, 2011), http://www.foodsafety.gov/blog/fsma.html.

[15] *See* Hamburg, *supra* note 14; Personal Communication Abbey Willard, Vt. Agency of Agric. Local Foods Adm'r (Mar. 29, 2013).

[16] Gombas, *supra* note 12.

[17] *See id.*; *see also* Personal Communication with Ken Ayars, R.I. Div. of Agric. (Apr. 1, 2013) [hereinafter, Ayars].

[18] *See, e.g.*, Ayars, *supra* note 17.

[19] *See, e.g.*, Re: Comments on the Proposed Rule for Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption 9, Nat'l Sustainable Agric. Coal. (submitted Nov. 15, 2013).

[20] *See, e.g.*, Personal Communication with Steve Revicsky, Conn. Dep't of Agric. (Apr. 1, 2013); Personal Communication with Rich Bonanno, Univ. of Mass. & Mass. Farm Bureau Fed'n (Mar. 4, 2013); Personal Communication with John Harker, Me. Dep't of Agric. (Apr. 11, 2013).

[21] 21 U.S.C. § 350h(a)(1)(B) (2013).

[22] 78 Fed. Reg. 3630.

[23] *Id.*

[24] *Id.* at 3632.

[25] *Id.* at 3504.

[26] *Id.* at 3504.

[27] *Id.* at 3637.

[28] *Id.* at 3638.

[29] *Id.* at 3795–3824.

[30] *Id.*. at 3805–08.

[31] *Id.* at 3800.

[32] *Id.*

[33] *Id.*

[34] *About Mad River Roof Hub*, Mad River Food Hub, http://madriverfoodhub.com/about/ (last visited Nov. 22, 2013); *see also Our Facility*, Vt. Food Venture Ctr., http://www.hardwickagriculture.org/vermont-food-venture-center/our-facility (last visited Nov. 22, 2013); *About the Western Massachusetts Food Processing Center*, Franklin Cnty. Cmty. Dev. Corp., http://www.fccdc.org/food-processing#facilities (last visited Nov. 22, 2013); *Freedom Foods*, http://freedom-foods.com/ (last visited Nov. 22, 2013).

[35] *Our Facility, supra* note 34.

[36] *See, e.g., USDA's Business and Industry Guaranteed Loan Program*, U.S. Dep't of the Treasury, 7 (June 2012), http://www.occ.gov/topics/community-affairs/publications/insights/insights-usda-business-industry-guaranteed-loan-program.pdf.

[37] *Farm Reinvestment Program: 2012 Grant*, Conn. Dep't of Agric., http://www.ct.gov/doag/lib/doag/marketing_files/frp_application_2012.pdf (last visited Nov. 22, 2013); *2012 Agricultural Viability Grants Program*, Conn. Dep't of Agric., http://www.ct.gov/doag/lib/doag/marketing_files/ag_viability_application_and_eval_12.pdf (last visited Nov. 22. 2013); *Farm Viability Enhancement Program*, Mass. Dep't of Agric. Res., http://www.mass.gov/eea/agencies/agr/about/divisions/fvep.html (last visited Nov. 22, 2013); *Vermont Farm Viability Enhancement Program*, Vt. Housing and Conservation Bd., http://www.vhcb.org/viability.html#brochure (last visted Nov. 22, 2013).

[38] *Capital and Infrastructure Investments*, Vermont Working Lands Initiative, http://workinglands.vermont.gov/projects/2012_2013/capitalandinfrastructure (last visited Nov. 22, 2013).

[39] *VEDA Approves $10.1 Million in Commercial and Agricultural Development Financing*, Vt. Econ. Dev. Auth., http://www.veda.org/press-releases/veda-approves-10-1-million-in-commercial-and-agricultural-development-financing/ (last visited Nov. 22, 2013).

[40] *Farm to School Routes Newsletter*, Nat'l Farm to School Network, (Apr. 2009), http://www.farmtoschool.org/newsletter/april09/.

[41] *2009 Equipment Assistance Grants for School Food Authorities*, Memo Code SP 18-2009, U.S. Dep't of Agric. Food & Nutrition Serv., (Mar. 9, 2009), http://www.fns.usda.gov/cnd/governance/Policy-Memos/2009/SP_18-2009_os.pdf.

[42] *2007 Census of Agriculture,* U.S. Dep't of Agric., http://www.agcensus.usda.gov/Publications/2007/index.php (last visited Nov. 22, 2013).

[43] Dorothy Brayley et al., *Produce Distribution Practices: Incorporating Locally Grown Produce into New England's Institutional Food System*, Farm to Inst. New England (June 2012), http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5105338.

[44] *Id.*

[45] *Farm to Plate Strategic Plan*, Chapter 3.4 *Food Processing and Manufacturing*, Vt. Sustainable Jobs Fund, 20–25 (May 2013), http://www.vtfoodatlas.com/assets/plan_sections/files/3.4_Food%20Processing_MAY_13.pdf.

[46] *Id.*

[47] James Barham et al., *Regional Food Hub Resource Guide*, USDA, 4–81 (Apr. 2012), http://community-wealth.org/sites/clone.community-wealth.org/files/downloads/tool-usda-regional-food-hub.pdf.

[48] *Id*. at 4.

[49] *Id.* at 24.

[50] *Id*. at 26.

[51] *Regional Food Hub Resource Guide*, USDA (Apr. 2012), http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5097957.

[52] *See* Supporters, Red Tomato, http://www.redtomato.org/supporters.php (last visited Dec. 23, 2013).

[53] *Mad River Food Hub To Open In Waitsfield Community Food Processing Facility Will Serve Local Farms and Value-Added Producers*, Mad River Food Hub, (Aug. 24, 2011), http://madriverfoodhub.com/mad-river-food-hub-to-open-in-waitsfield-community-food-processing-facility-will-serve-local-farms-and-value-added-producers/.

[54] *Local Farms' Sales to Chefs, Grocers, Schools up 50% in 2012*, Farm Fresh R.I. (Dec. 14, 2012), http://blog.farmfreshri.org/post/37916201120/local-farms-sales-to-chefs-grocers-schools-up-50-in.

[55] Barham et al., *supra* note 47, at 10.

[56] *Id.* at 34–47.

[57] *See* 7 M.R.S.A. §2910 (1999); N.H. Rev. Stat. Ann. §184-30a; 6 V.S.A. § 2701 (2011); 330 CMR § 28.03 (2013): R.I.G.L. § 21-2-23 (2013); Conn. Gen. Stat. § 22-194.

[58] *Grade A Pasteurized Milk Ordinance 2009 Revision*, U.S. Dep't of Health & Human Serv., Food & Drug Admin., http://www.fda.gov/downloads/Food/FoodSafety/Product-SpecificInformation/MilkSafety/NationalConferenceonInterstateMilkShipmentsNCIMSModelDocuments/UCM209789.pdf (last visited Nov. 22, 2013).

[59] 21 C.F.R. § 1240.61 (2012).

[60] Conn. Gen. Stat. § 22-129; Conn. Gen. Stat. § 22-173a; 7 M.R.S.A. § 2902-B (2013); G. L. c. 94 § 13; N.H. Rev. Stat. Ann. § 184:30-a.

[61] 6 V.S.A. §§ 2775-78.

[62] R.I.G.L. § 21-2-2.

[63] *Northeast Center for Food Entrepreneurship*, Cornell University, College of Agric. & Life Scis., http://necfe.foodscience.cals.cornell.edu/regulations (last visited Nov. 22, 2013).

[64] *The New England Milkshed Assessment*, American Farmland Trust (Sep. 2013), http://www.farmland.org/documents/AFTdairyfinal10313.pdf.

[65] *Id.*

[66] *Id.*

[67] *Farm to Plate Strategic Plan, Chapter 3.4 Food Processing and Manufacturing, supra* note 45, at 32.

[68] *Id.* at 40.

[69] *Farm to Plate Investment Program: 18 Month Report (Jul. 1, 2010 – Dec. 31, 2011)*, Vt. Sustainable Jobs Fund, http://www.vsjf.org/assets/files/Agriculture/Farm%20to%20Plate%20Annual%20Report_FY11.pdf.

[70] *See* 21 U.S.C. §§ 601 et seq.

[71] *See id.* §§ 451 et seq.

[72] The Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-234, H.R. 2419, 80 Stat. 923 (2008), amended the Federal Meat Inspection Act and the Poultry Products Inspection Act to establish a cooperative inspection program under which certain small and very small state-inspected establishments are eligible to ship meat and poultry products in interstate commerce. *See* 21 U.S.C. §§ 683, 472 (2008).

[73] *See* 21 U.S.C. §§ 683, 472 (2008).

[74] *Ohio First to Participate in USDA's Cooperative Interstate Shipment Program*, U.S. Dep't of Agric., http://www.usda.gov/wps/portal/usda/usdahome?contentid=2012/08/0268.xml&contentidonly=true (last visited Nov. 25, 2013).

[75] 21 U.S.C. § 601(j) (2011).

[76] 21 U.S.C. § 610 (2012).

[77] 9 C.F.R. § 303.1 (2012).

[78] 21 U.S.C. §§ 452–53 (2011).

[79] *See Guidance for Determining Whether a Poultry Slaughter or Processing Operation Is Exempt from Inspection Requirements of the Poultry Products Inspection Act*, U.S. Dep't of Agric., (Apr. 2006), http://afdo.org/resources/Documents/topical-index/2013/Poultry_Slaughter_Exemption_0406.pdf.

[80] An extensive discussion of these exemptions is beyond the scope of this report. For a thorough overview of the exemptions and a flow chart for determining poultry exemptions please refer to *Guidance for Determining Whether A Poultry Slaughter or Processing Operation Is Exempt from Inspection Requirements of the Poultry Products Inspection Act. Id.*

[81] *"At Least Equal to" Guidelines for State Meat and Poultry Cooperative Inspection Programs,* U.S. Dep't of Agric., Food Safety Inspection Serv. (Jul. 2008), http://www.fsis.usda.gov/wps/wcm/connect/e257c4af-2a5e-4b50-8e5e-3e8da94af949/At_Least_Equal_to_Guidelines.pdf?MOD=AJPERES.

[82] *Quality Assurance & Regulations*, Maine Dep't of Agric., Conservation & Forestry, http://www.maine.gov/agriculture/qar/inspection.html (last visited Nov. 25, 2013).

[83] *Vermont Meat & Poultry Inspection*, Vt. Agency of Agric. Food & Mkts., http://agriculture.vermont.gov/food_safety_consumer_protection/meat_poultry_inspections (last visited Nov. 25, 2013).

[84] N.H. Rev. Stat. Ann. § 427:3.

[85] Kathleen Callahan, *Are Two Slaughterhouses Enough to Handle Meat Processing in the Entire State?*, New Hampshire Business Review (Oct. 5, 2013), http://www.nhbr.com/October-5-2012/Are-two-slaughterhouses-enough-to-handle-meat-processing-in-the-entire-state/.

[86] 9 C.F.R. § 332.3(a) (2011).

[87] 9 C.F.R. § 332.6(b) (2011).

[88] 22 M.R.S.A. § 2517-C(1) (2009) ("[I]nspection is not required for the slaughter of poultry or the preparation of poultry products as long as the poultry are slaughtered or the poultry products are prepared on the farm where the poultry were raised and: A. Fewer than 1,000 birds are slaughtered annually on the farm; B. No birds are offered for sale or transportation in interstate commerce; C. Any poultry products sold are sold only as whole birds; D. The poultry producer has a valid license issued under section 2514; E. The facilities for slaughtering and processing are in compliance with rules adopted under subsection 6; F. The poultry producer assigns a lot number to all birds sold and maintains a record of assigned lot numbers and the point of sale; and G. The poultry are sold in accordance with the restrictions in subsection 2."); 6 V.S.A. § 3312(b) (2007) ("Inspection shall not be required for the slaughter or preparation of poultry products of the producer's own raising on the producer's own farm, whether or not they are intended for use as human food if: (1) Fewer than 1,000 birds are slaughtered annually; and (2) No birds are offered for sale or transportation in interstate commerce; and (3) The poultry products are only sold, as whole birds only, from the farm, at a farmers' market, or to a food restaurant licensed by the commissioner of health, or are for personal use.").

[89] *See* 22 M.R.S.A. § 2514 (1999); 6 V.S.A. § 3306 (2010).

[90] *Application for Licensure to Slaughter and/or Process Poultry Using Mobile Poultry Processing Unit (MPPU) or Small On-Farm Processing Operations in Accordance with M.G.L.C. 94, § 120 and/or 105 CMR 530.000 and 532.000 and in Accordance with Exemptions Associated with the Federal Poultry Products Inspection Act*, Commonwealth of Mass., Executive Office of Health and Human Servs., Dep't of Public Health, Food Protection Program (May 2011), http://www.mass.gov/eohhs/docs/dph/environmental/foodsafety/mppu-license-application.pdf.

[91] Ken Dixon, *Legislature 2013 Heads Towards the Eggs-It*, Connecticut Post (May 17, 2013), *available at* http://www.ctpost.com/news/article/Ken-Dixon-Legislature-2013-heads-for-the-eggs-it-4526449.php.

[92] *Blue Ribbon Commission on Land Conservation Report to the Governors*, New England Governors' Conference, Inc., 21 (Jul. 2010), http://efc.muskie.usm.maine.edu/docs/2010_clc_report.pdf.

[93] Chelsea Bardot Lewis, An Assessment of New England's Large Animal Slaughter and Processing Capacity (June 2010).

[94] *Id.; see also Farm to Plate Strategic Plan, Chapter 3.4 Food Processing and Manufacturing, supra* note 45, at 6.

[95] *See Farm to Plate Strategic Plan, Chapter 3.4 Food Processing and Manufacturing, supra* note 45; *See also Demand Study: Assessing volume and attributes of farmer demand for slaughter and meat processing services in Massachusetts*, Community Involved in Sustaining Agriculture (June 2008), http://www.buylocalfood.org/upload/resource/Slaughter.DemandStudy2008.pdf.

[96] *See Scaling Up New England's Value Added Meat Industry*, Vt. Food System Atlas, http://www.vtfoodatlas.com/network/technical-assistance-producers-processors/activity/3 (last visited Dec. 30, 2013).

[97] *See Local Slaughterhouses & USDA Processing Facilities*, Univ. of Conn. Coop. Extension Sys., http://www.ct.gov/doag/lib/doag/farm_to_school_images_/CT_SLAUGHTERHOUSES.pdf (last visited Nov. 25, 2013); Elaine Grant, *Farmers Struggle to Satisfy Appetite for Local Meat*, N.H. Public Radio (May 18, 2010), http://info.nhpr.org/node/32463; Personal Communication with Carrie A. Roberts, Vt. Agency of Agric., Food & Mkts., Food Safety & Consumer Prot. (Jul. 12, 2013) [hereinafter, Roberts].

[98] *State, USDA and Custom Slaughter Establishments in Maine*, Maine Dep't of Agric., Conservation & Forestry, http://www.maine.gov/dacf/qar/inspection_programs/red_meat_poultry_inspection.shtml (last visited Nov. 25, 2013); Roberts, *supra* note 97; *see also Farm to Plate Strategic Plan, Chapter 3.4 Food Processing and Manufacturing, supra* note 45, at 11.

[99] Listing of States Without Inspection Programs, U.S. Dep't of Agric., http://www.fsis.usda.gov/wps/portal/fsis/topics/inspection/state-inspection-and-cooperative-agreements/states-without-state-mpi-programs (last visited Nov. 25, 2013).

[100] *Mobile Slaughter/Processing Units Currently in Operation*, Univ. of R.I., Coop. Extension Sys., http://www.extension.org/pages/19781/mobile-slaughterprocessing-units-currently-in-operation (last updated Aug 20. 2013).

[101] *Mobile Poultry Processing Unit Project*, New England Small Farm Inst., http://www.smallfarm.org/main/special_projects/mppu/ (last visited Dec. 23, 2013).

[102] *The Modular Harvest System: Supporting the Region's Livestock Producers*, Local Infrastructure for Local Agriculture., http://www.lila-northeast.org/mission.html (last visited Nov. 25, 2013).

[103] Mobile Slaughter Unit Compliance Guide, U.S. Dep't of Agric., http://www.fsis.usda.gov/shared/PDF/Compliance_Guide_Mobile_Slaughter.pdf (last visited Nov. 25, 2013).

[104] *Id.*

[105] Personal Communication with Winton Pitcoff, Northeast Organic Farming Ass'n: Mass. Chapter (Oct. 11, 2012).

[106] John Flowers, *Local Program to Boost Number of Meat Cutters*, Addison Cnty. Indep., (Feb. 23, 2012), *available at* http://www.addisonindependent.com/201202local-program-boost-number-meat-cutters.

[107] Personal Communication with Chelsea Bardot Lewis, Senior Agric. Dev. Coordinator, Vt. Agency of Agric., Food & Mkts. (Nov. 1, 2013).

[108] *Rhode Island Raised Livestock Association*, http://www.rirla.org/ (last visited Nov. 27, 2013).

[109] *Farm to Plate Strategic Plan, Chapter 3.4 Food Processing and Manufacturing, supra* note 45, at 35.

[110] *Id.* at 36.

[111] *Id*. at 37.

[112] Lindsey Konkel, *On the Rebound, New England Oysters Face Climate Threat*, Progressive Charleston (Apr. 22, 2013), http://www.progressive-charlestown.com/2013/04/on-rebound-new-england-oysters-face.html.

[113] *Fish Watch, U.S. Seafood Facts*, Nat'l Oceanic & Atmospheric Admin., http://www.fishwatch.gov/buying_seafood/inspecting_seafood.htm (last visited Nov. 27, 2013).

[114] *Id.*

[115] *Id.*

[116] *National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish*, U.S. Food & Drug Admin., http://www.fda.gov/Food/GuidanceRegulation/FederalStateFoodPrograms/ucm2006754.htm (last visited Nov. 27, 2013).

[117] *See The Connecticut Shellfish Program*, Conn. Dep't of Agric., http://www.ct.gov/doag/cwp/view.asp?a=1369&Q=259170 (last visited Nov. 22, 2013); *Maine Shellfish Dealer Certification and Inspection Program*, Me. Dep't of Marine Servs., http://www.maine.gov/dmr/rm/public_health/certification.htm (last visited Nov. 27, 2013); *Shellfish Sanitation and Management*, Mass. Div. of Marine Fisheries, http://www.mass.gov/eea/agencies/dfg/dmf/programs-and-projects/shellfish-sanitation-and-management.html (last visited Nov. 27, 2013); *Shellfish Inspection*, N.H. Dep't of Health & Human Servs., http://www.dhhs.state.nh.us/dphs/fp/shellfish/index.htm (last visited Nov. 27, 2013); *Shellfish Inspection Program*, R.I. Dep't of Health., http://www.health.ri.gov/programs/shellfish (last visited Nov. 27, 2013); *Shellfish Sanitation Program Rules*, Vt. Dep't of Health. http://healthvermont.gov/regs/shellfishrules.pdf (last visited Nov. 27, 2013).

[118] *Interstate Certified Shellfish Shippers List*, U.S. Food & Drug Admin., http://www.fda.gov/downloads/Food/GuidanceRegulation/UCM322593.pdf (last visted Nov. 27, 2013).

[119] *Statement of Organization Practices and Procedures (SOPP)*, New England Fisheries Mgmt. Council, http://www.nefmc.org/about/index.html (last visited Nov. 27, 2013).

[120] Rebecca J. Goldburg et al., *Marine Aquaculture in the United States: Environmental Impacts and Policy Options*, Pew Oceans Comm'n (2001), http://www.iatp.org/files/Marine_Aquaculture_in_the_United_States_Enviro.htm.

[121] *About GreatBay Aquaculture of NH*, GreatBay Aquaculture, http://www.gbanh.com/aboutus.html (last visited Oct. 18, 2013).

[122] Whit Richardson, *Fishing for a Future, Facing Mounting Costs and Restricted Access, Maine Fishermen find New Opportunities in a Growing Aquaculture Industry*, MaineBiz (Feb 9, 2010) http://www.mainebiz.biz/article/20100208/CURRENTEDITION/302089998/fishing-for-a-future-part-2-%7C-facing-mounting-costs-and-restricted-access-maine-fishermen-find-new-opportunities-in-a-growing-aquaculture-industry.

[123] *Barramundi: The Sustainable Seabass*, Australis, http://www.thebetterfish.com/home (last visted Nov. 27, 2013).

[124] *Aquaculture Situation and Outlook Report 2007: Vermont*, Northeastern Region Aquaculture Ctr., http://nrac.umd.edu/files/factsheets/nrac-111-2007_vermont.pdf (last visited Oct. 18, 2013).

[125] *New Hampshire's Fish Hatchery Program*, N.H. Fish & Game, http://www.wildlife.state.nh.us/Fishing/fisheries_management/hatcheries.htm (last visited Nov. 27, 2013).

[126] *State Fish Hatcheries*, Mass. Executive Office of Energy & Envtl. Affairs, http://www.mass.gov/eea/agencies/dfg/dfw/about-masswildlife/state-fish-hatcheries.html (last visited Nov. 27, 2013).

[127] *National Aquaculture Sector Overview, United States of America*, Food & Agric. Org. of the United Nations, http://www.fao.org/fishery/countrysector/naso_usa/en (last visited Nov. 27, 2013).

[128] *Development of a Policy Framework for Offshore Marine Aquaculture in the 3-200 Mile U.S. Ocean Zone*, Ctr. for the Study of Marine Policy Univ. of Del., http://www.lib.noaa.gov/retiredsites/docaqua/reports_noaaresearch/sgeez1final.pdf (last visited Nov. 27, 2013).

[129] *Ecosystem-based management and jurisdictional issues surrounding non- fisheries offshore marine services: LNG terminals, aquaculture and wind farming*, Memorandum from Chad Demarest to New England Fishery Mgmt. Council, 2 (Sept. 2, 2005), http://www.nefmc.org/ecosystems/05Sep02_NEFMCwhitepaper.pdf.

[130] *All About Aquaculture: Current Status in New England*, Talking Fish, http://www.talkingfish.org/did-you-know/all-about-aquaculture-current-status-in-new-england (last visited Nov. 27, 2013).

[131] For example, because of high demand, it does not appear that Whole Foods's 2012 decision not to process and sell seafood it considers unsustainable has affected seafood processing in New England. This is true even though Whole Foods had a processing plant in Gloucester, Mass., that previously processed 10,000 pounds of seafood a day. *See* Abby Goodnough, *A Ban on Some Seafood Has Fishermen Fuming*, N.Y. Times (Apr. 21, 2013) http://www.nytimes.com/2012/04/22/us/to-new-england-fishermen-another-bothersome-barrier.html.

[132] *Maine's Surging Lobster Haul Shifts Focus to Processing* (Me. Public Broadcasting Network broadcast Aug. 6, 2013), http://www.mpbn.net/Home/tabid/36/ctl/ViewItem/mid/5347/ItemId/29303/Default.aspx.

[133] Clarke Canfield, *Lobster Glut Causes Canadian Fisherman to Protest Maine Lobster, Call Product 'Garbage'*, Huffington Post, http://www.huffingtonpost.com/2012/08/10/lobster-glut-canadian-fisherman_n_1763759.html (last visited Nov. 27, 2013).

[134] *Governor Meets with Maine Lobster Processors* (Me. Public Broadcasting Network broadcast Aug 10, 2012), http://www.mpbn.net/Home/tabid/36/ctl/ViewItem/mid/3478/ItemId/23222/Default.aspx.

[135] Don Carrigan, *Governor Wants Maine Lobster Independent of Canadian Processors*, WCSH (Aug. 1, 2013), http://www.wcsh6.com/news/article/251791/2/Governor-wants-Maine-lobster-independent-of-Canadian-processors.

[136] Canfield, *supra* note 133.

[137] Personal Communication with Niaz Dory, Director, Northwest Atlantic Marine Alliance (Apr. 30, 2013).

[138] *See Fish and Seafood Sector Profile – New England, United States*, Agric. & Agri-Food Can., http://www.ats-sea.agr.gc.ca/amr/4659-eng.htm (last visited Nov. 27, 2013).

[139] *Vision and Mission*, Marine Stewardship Council, http://www.msc.org/about-us/vision-mission (last visited Nov 27, 2013).

[140] *Global Aquaculture Alliance*, http://www.gaalliance.org/, (last visited Nov 27, 2013).

[141] *Sustainable Seafood Initiative*, Gulf of Maine Research Inst., http://www.gmri.org/mini/index.asp?ID=33&p=85 (last visited Nov. 27, 2013).

[142] *Gulf of Maine Responsibly Harvested Program*, Gulf of Maine Research Inst., http://www.gmri.org/mini/index.asp?ID=33&p=111 (last visited Nov. 27, 2013).

[143] *Restaurants and Retailers*, Gulf of Maine Research Inst., http://www.gmri.org/mini/index.asp?ID=33&p=109 (last visited Nov. 27, 2013).

[144] Matt Wickenheiser, *Hannaford Unveils Storewide Sustainable Seafood Policy*, Bangor Daily News (May 23, 2013) http://bangordailynews.com/2012/05/23/business/hannaford-unveils-storewide-sustainable-seafood-policy/.

[145] *Sustainable Seafood Program*, New England Aquarium, http://www.neaq.org/conservation_and_research/projects/fisheries_bycatch_aquaculture/sustainable_fisheries/index.php (last visited Nov. 27, 2013).

[146] *Sustainable Seafood Advisory Service*, New England Aquarium, http://www.neaq.org/conservation_and_research/projects/fisheries_bycatch_aquaculture/sustainable_fisheries/corporate_partners/index.php (last visited Nov. 27, 2013).

[147] *Sustainable Seafood Partners*, New England Aquarium, http://www.neaq.org/conservation_and_research/projects/fisheries_bycatch_aquaculture/sustainable_fisheries/corporate_partners/client_list.php (last visited Nov. 27, 2013).

[148] *Safe and Sustainable Seafood Extension Program*, R.I. Sea Grant, http://seagrant.gso.uri.edu/seafood/index.html (last visited Nov. 27, 2013).

[149] *Roche Bros. Announces All Natural, Sustainable Seafood Program*, PR Newswire, http://www.prnewswire.com/news-releases/roche-bros-announces-all-natural-sustainable-seafood-program-174384261.html (last visited Nov. 27, 2013).

[150] *Id.*

[151] *Id.*

[152] Jennifer Feals, *Fisherman's Coop Offers Community Supported Fishery Program*, SeacoastOnline (Jun. 27, 2013) http://www.seacoastonline.com/articles/20100627-NEWS-6270342.

[153] *Id.*

[154] *A Development Approach to Fisheries and Maine's Working Waterfront*, Coastal Enterprises, Inc., http://www.ceimaine.org/Fisheries (last visited Nov. 27, 2013).

[155] Jessica Hall, *Study to Look at Ways to Distribute Maine Seafood to Food Hubs*, Portland Press Herald (Oct. 14, 2012) http://www.pressherald.com/business/Study-to-look-at-ways-to-distribute-Maine-seafood-to-food-hubs.html.

www.newenglandfoodpolicy.org

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