
WELCOME


TRIVIA

Q1. What is the most commonly wasted food worldwide?

1. Bread
2. Dairy Products
3. Fruits and Vegetables

ANSWER: Fruits and Vegetables!

These are often wasted due to spoilage and poor storage conditions.

Q2. True or False?

Honey can be stored in your cupboard indefinitely (it doesn't go bad).

ANSWER: True!

- Honey has a low water content and high acidity.
- It is an unfriendly place for bacteria to thrive.
- As long as the lid stays on and the honey stays free of added moisture, honey can be stored in the cupboard indefinitely!


Thank you for playing along.
You are all winners!

Food Systems and Climate Change

MHOA Annual Conference 2024

11/13/2024

MAPC

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Public Health Planner II

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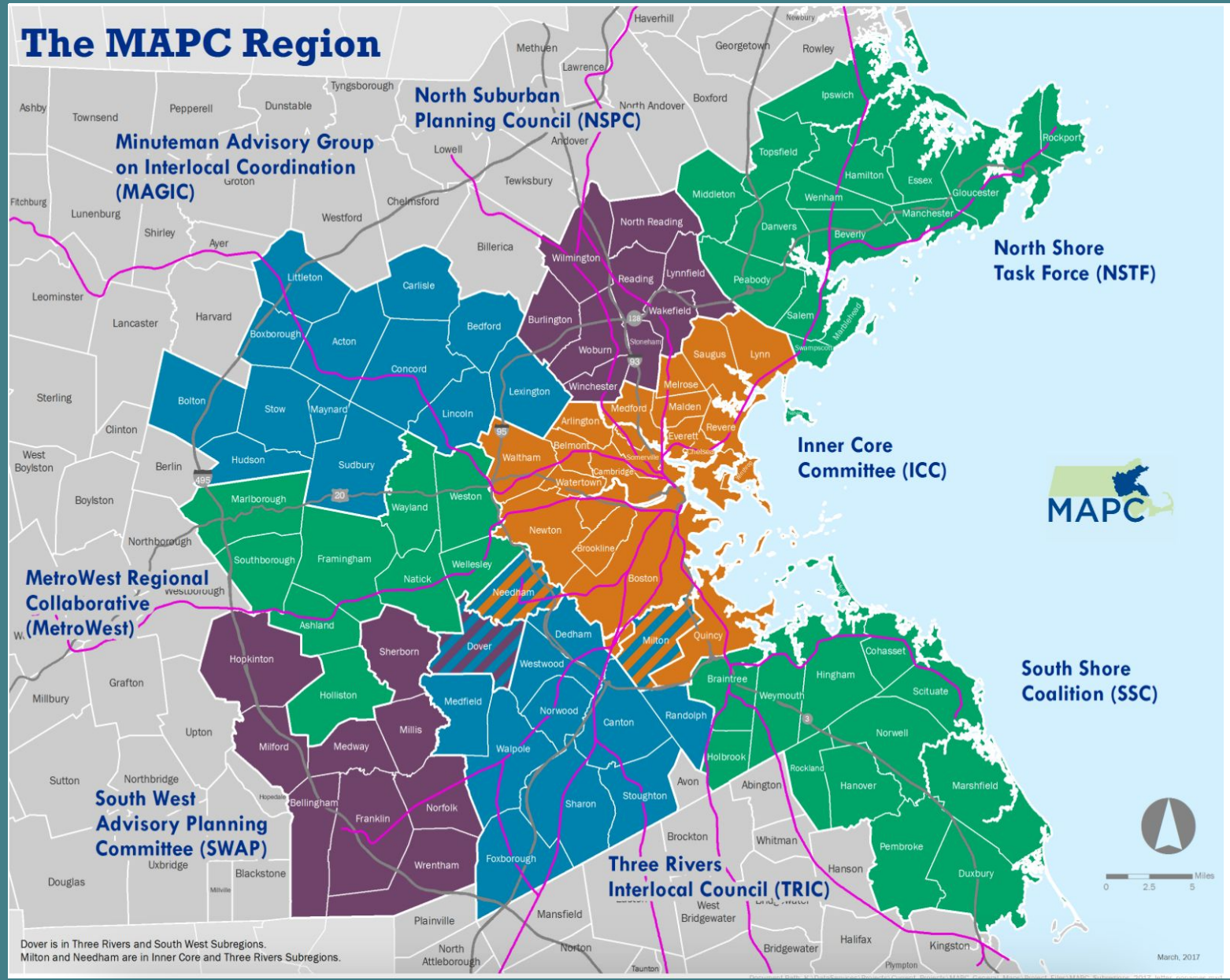
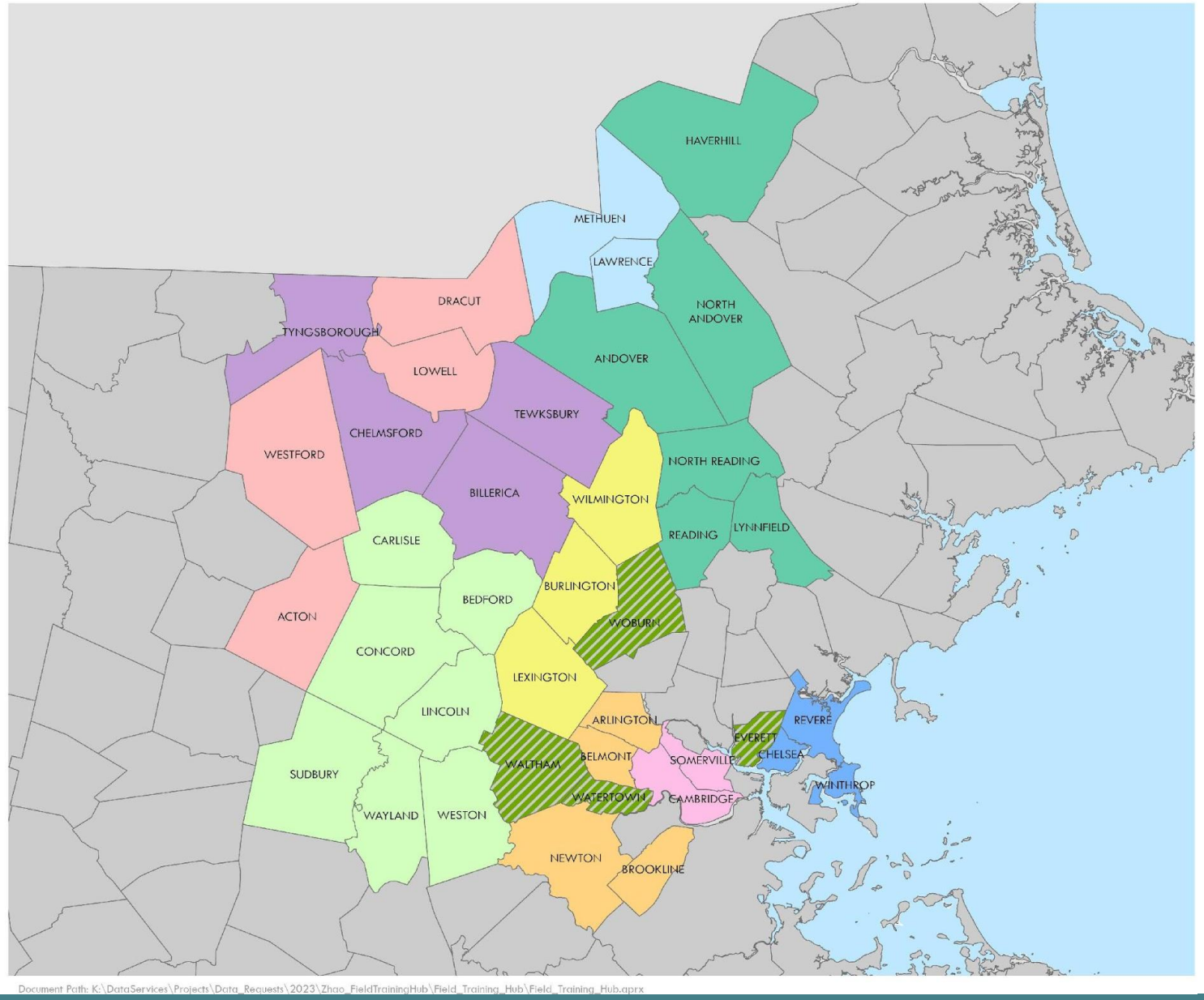


Metropolitan Area Planning Council (MAPC)

- Regional planning agency.
- Serve the people who live and work in the 101 cities and towns of Metropolitan Boston.



Eastern MA Training Hub

- 9 Shared Services Arrangements, *35* Municipalities.
- Supporting Local Public Health Inspectors with training needs.

Food + Climate work at MAPC

Public Health team's developing area of practice.

Developed a training module for the Cambridge Community Corps (C3).

Presented at the Food and Fitness Policy Council at Cambridge Public Health Department (CPHD).

Why Focus on Food Systems and Climate Change?

Food Production

- Erratic environmental conditions (extreme heat, drought, and flooding) affect water/air quality, soil health.
- Coastal ecosystem disruption, invasive species.
- Occupational health and safety.

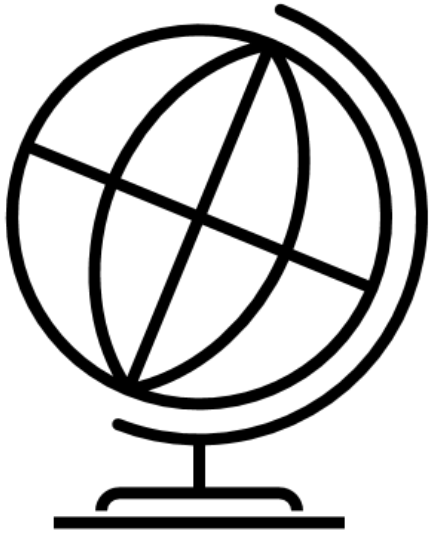
Food Access

- Increase in food insecurity
- Uncertainty of access - including culturally relevant foods
- Increase in food prices

Food Quality

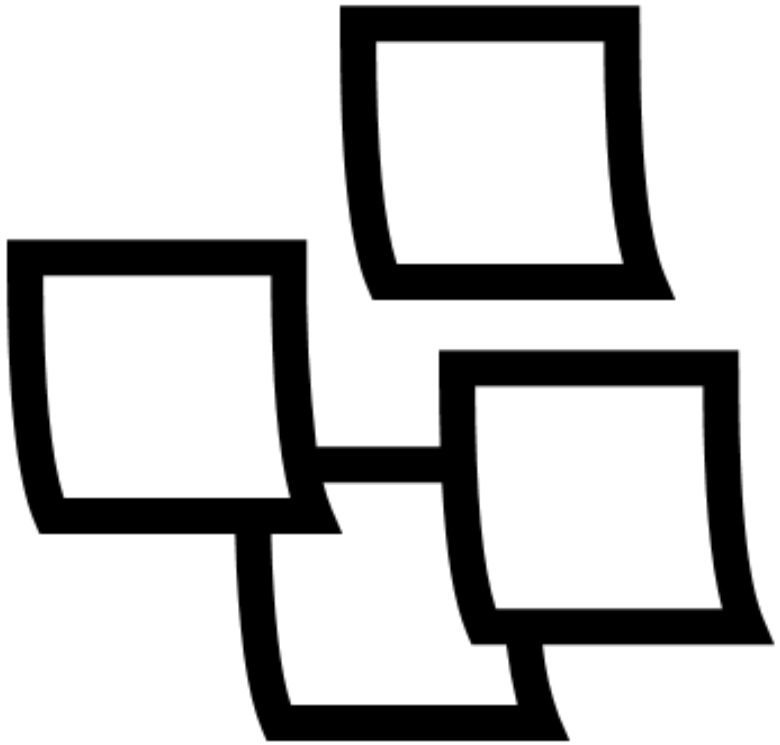
- Nutritional value of food
- Taste

Geography of the Food Disruptions



GLOBAL

LOCAL



Let's Look At A Few Examples!

Sriracha shortage looming? Maker of iconic sauce temporarily halts production

Huy Fung Foods, maker of the popular sriracha hot sauce, said sauce, said it will stop producing the condiment until September.

Halt was announced because the peppers are "too green," indicating it's not fully mature or ripe.

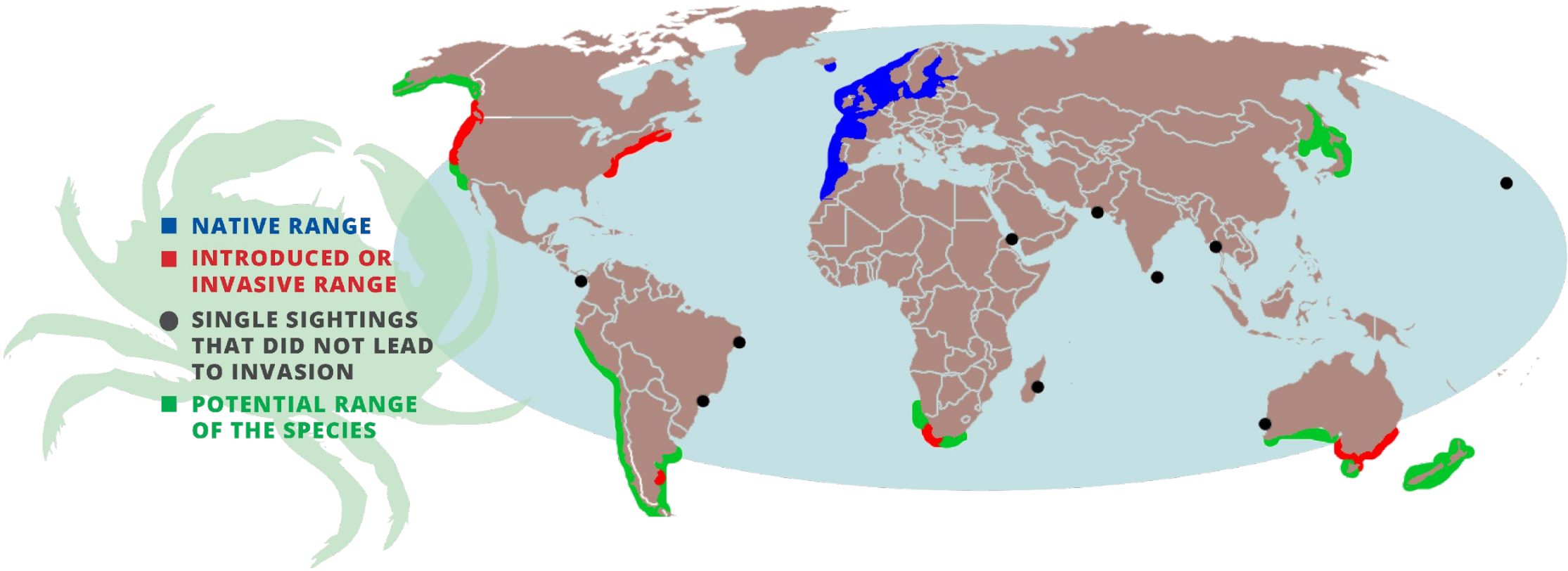
Sriracha shortage looming? Maker of iconic sauce temporarily halts production

Adverse environmental conditions slowed down the ripeness.

Mexico is suffering from a drought, with the most severe impact being felt in northern Mexico, where most of the peppers are grown.

More frequent and severe weather events increasingly shape food supply, across countries/region.

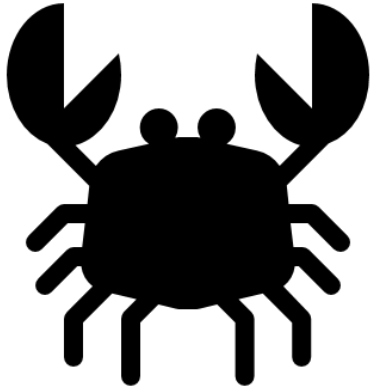
A Crabby Situation!



A Crabby Situation!

Invasive Green Crab. Photo: Linda Shaw, NOAA Fisheries.

- ***Green Crab*** is one of the most invasive species in the marine environment.
  Aggressively hunts and eats its prey, destroys seagrass, and outcompetes local species for food and habitat.
  - Ocean warming helps the crab population to explode.
  - Green Crab has been blamed for harming the softshell clam industry on the U.S. East Coast.
  - Negative ecological and economic impacts!



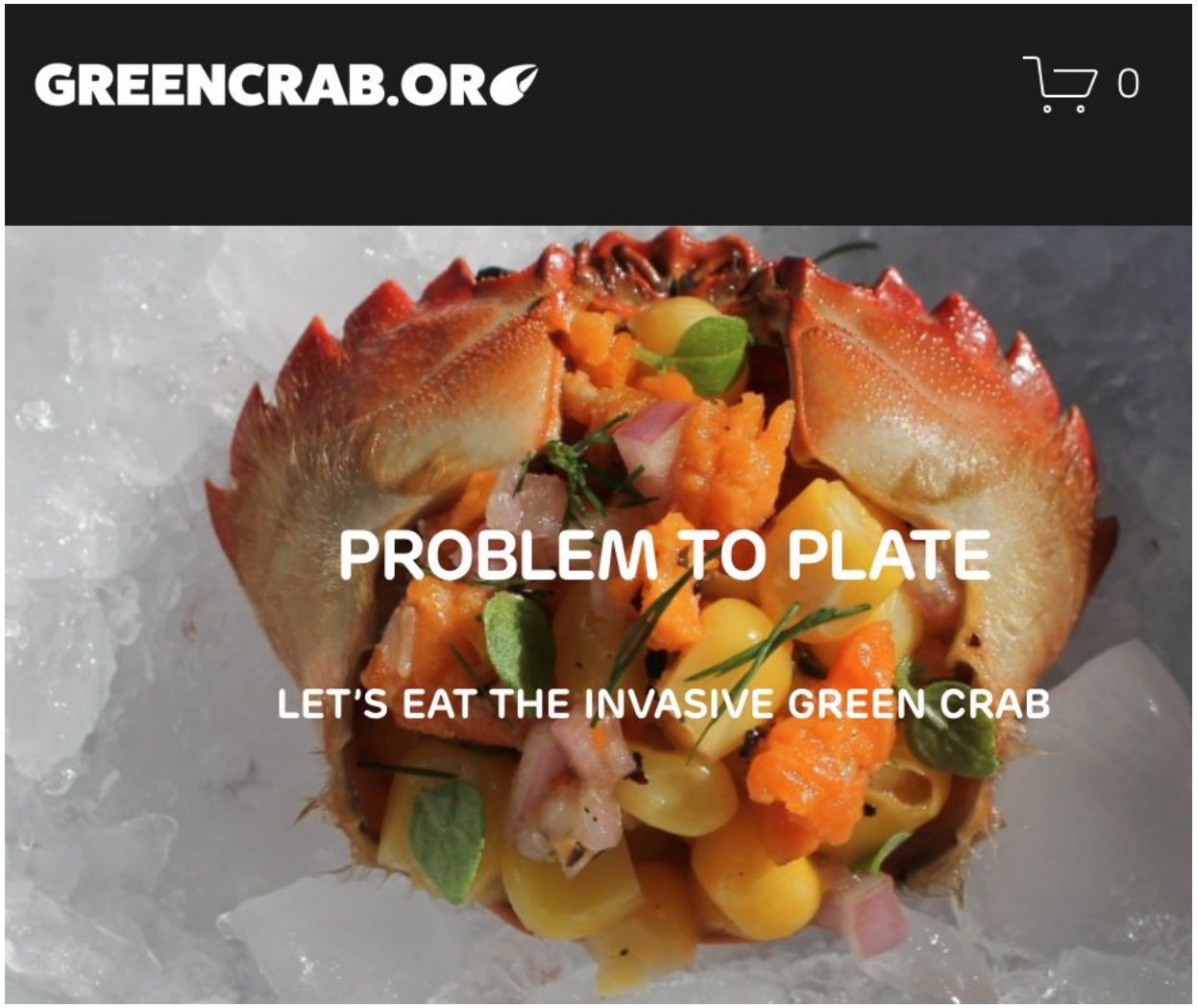
Solutions?

- The most common use of these crabs is as bait.

- Creating new economic opportunities for the fishery sector, by bringing this product to a larger market.

- Developing partnerships and awareness on how to use green crabs for culinary purposes.

Spotlight!



1. Motivate the harvest and consumption of invasive green crabs.

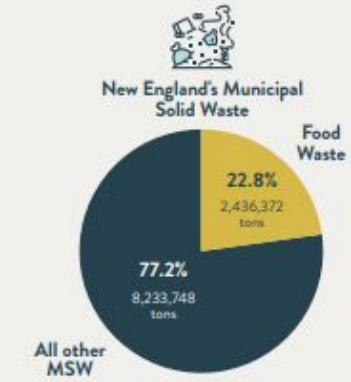
2. Educate harvesters and work directly with food service industry to bring more green crabs onto menus.

3. Provide the public with free recipes, cooking classes, and resources to spread awareness of green crabs.

What is a Local Food System?

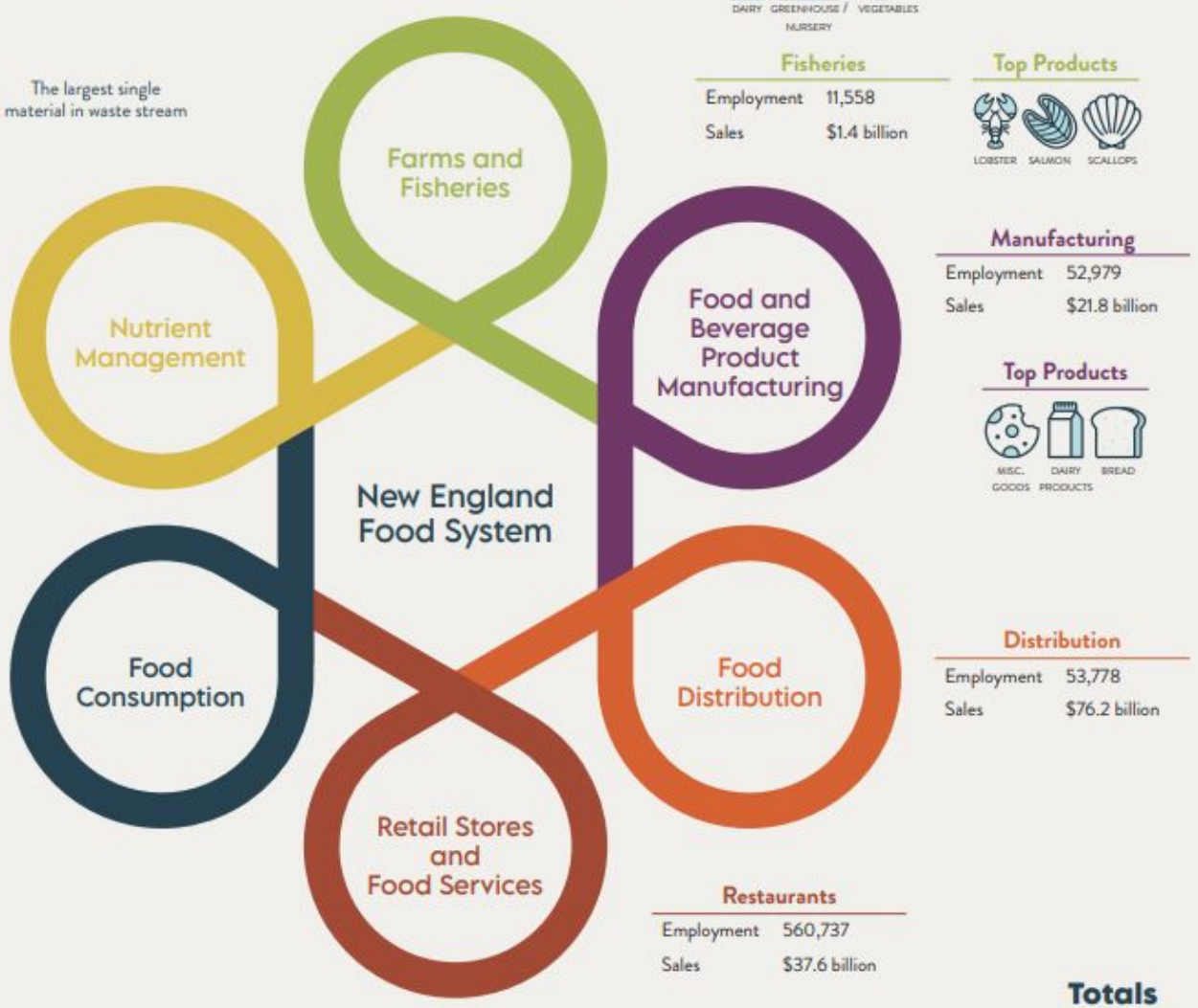
NEW ENGLAND FEEDING NEW ENGLAND

FIGURE 1: New England's Food System



The largest single material in waste stream

Sources: Waste characterization studies from each state from different years. Values for New Hampshire were approximated.



Farms

Employment	115,514
Sales	$2.6 billion

Top Products

DAIRY · GREENHOUSE / NURSERY · VEGETABLES

Fisheries

Employment	11,558
Sales	$1.4 billion

Top Products

LOBSTER · SALMON · SCALLOPS

Manufacturing

Employment	52,979
Sales	$21.8 billion

Top Products

MISC. GOODS · DAIRY PRODUCTS · BREAD

Distribution

Employment	53,778
Sales	$76.2 billion

Restaurants

Employment	560,737
Sales	$37.6 billion

Stores

Employment	204,711
Sales	$50.0 billion

Estimated Consumption

32 billion pounds

Food Insecure*

MA	>590,000
CT	>346,000
NH	>74,000
ME	>124,000
RI	>88,000
VT	>50,000

*AVERAGE: 2019-2021

Source: Alisha Coleman-Jensen, et al., September 2022, Household Food Security in the United States in 2021, USDA Economic Research Service, report #309.

Totals

>993,000 jobs
>$190,000,000,000 sales

Source: Volume 3: Economic Impact of New England's Food System

Projected Climate Risks

VERY HIGH | HIGH | MEDIUM | LOW | NO RISK

HURRICANES

Since 1980, 9 hurricanes, including Hurricanes Bob (1991) and Sandy (2012) were billion-dollar disasters that impacted Massachusetts.

WATER STRESS

MA has experienced abnormally dry seasons since 2012, but precipitation is expected to be above normal over this century.

EXTREME RAIN

From 2005 to 2014, MA experienced the largest number of 2-inch extreme rain events in its history, about 30% above the long-term average.

Source: Stuart A. Thompson and Yaryna Serkez, September 18, 2020, "Every Place Has Its Own Climate Risk. What Is It Where You Live?," *The New York Times*. Based on data from Four Twenty Seven.

Projected Climate Risks

VERY HIGH | HIGH | MEDIUM | LOW | NO RISK

SEA LEVEL RISE

The sea level off the MA coast rose by over 8 inches since 1950. Sea level is expected to rise by 6 inches by 2032. Sea level near Martha's Vineyard is projected to rise 1 to 6 feet by 2100.

WILDFIRE

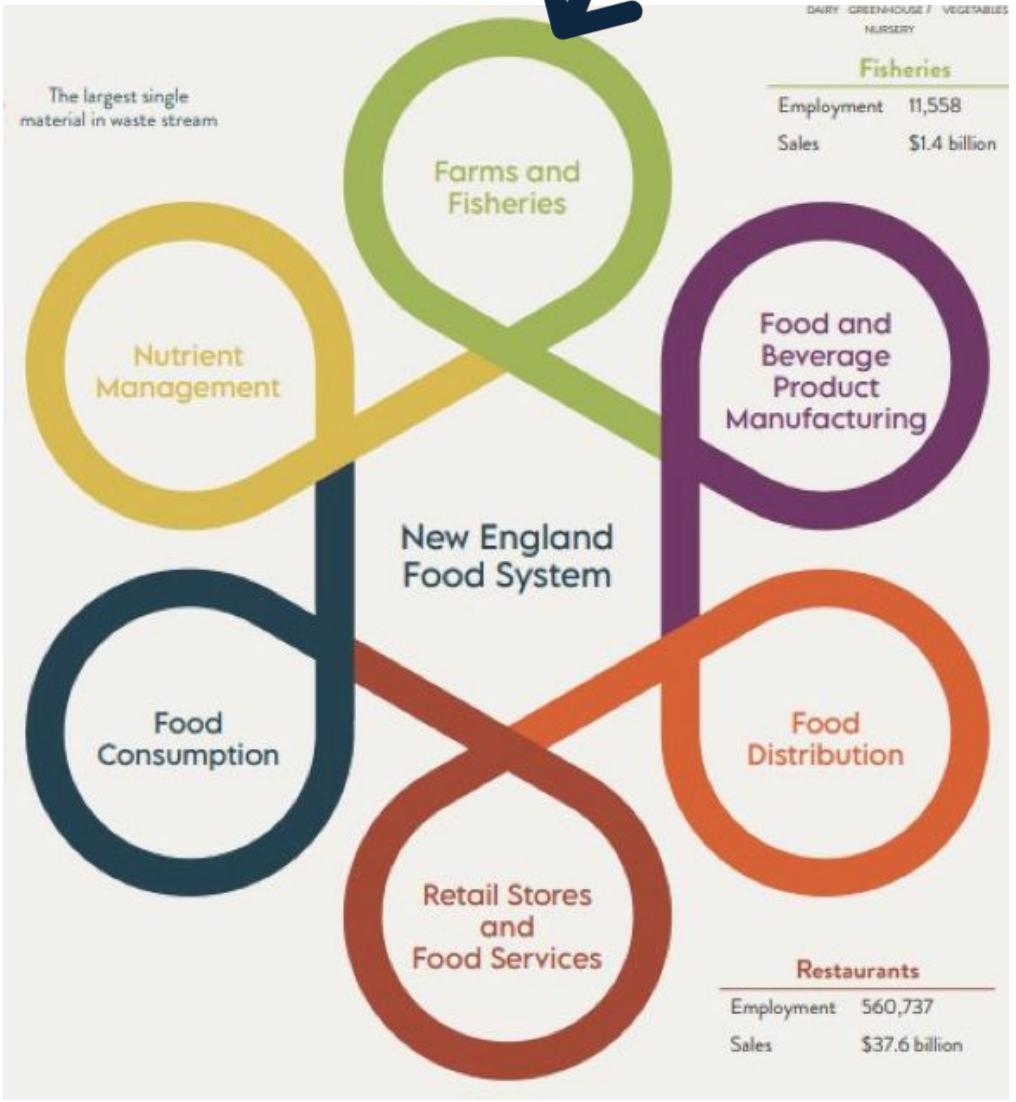
Wildfires in MA are small compared to the West, but the number of wildfires has increased in recent years due to drought conditions.

HEAT STRESS

Temperatures have risen about 3.5°F since the beginning of the 20th century. Warmer temperatures increase vulnerability for agriculture and densely populated cities.

Source: Stuart A. Thompson and Yaryna Serkez, September 18, 2020, "Every Place Has Its Own Climate Risk. What Is It Where You Live?," *The New York Times*. Based on data from Four Twenty Seven.

Let's focus on



Source: Boston Globe

AQUACULTURE

Climate change effects:

- Rising water temperatures
- Loss of wetlands
- Acidification

What species are at risk?

- Lobsters
- Cod
- Scallops
- Bass
- Clams

Source: WBUR

CRANBERRIES

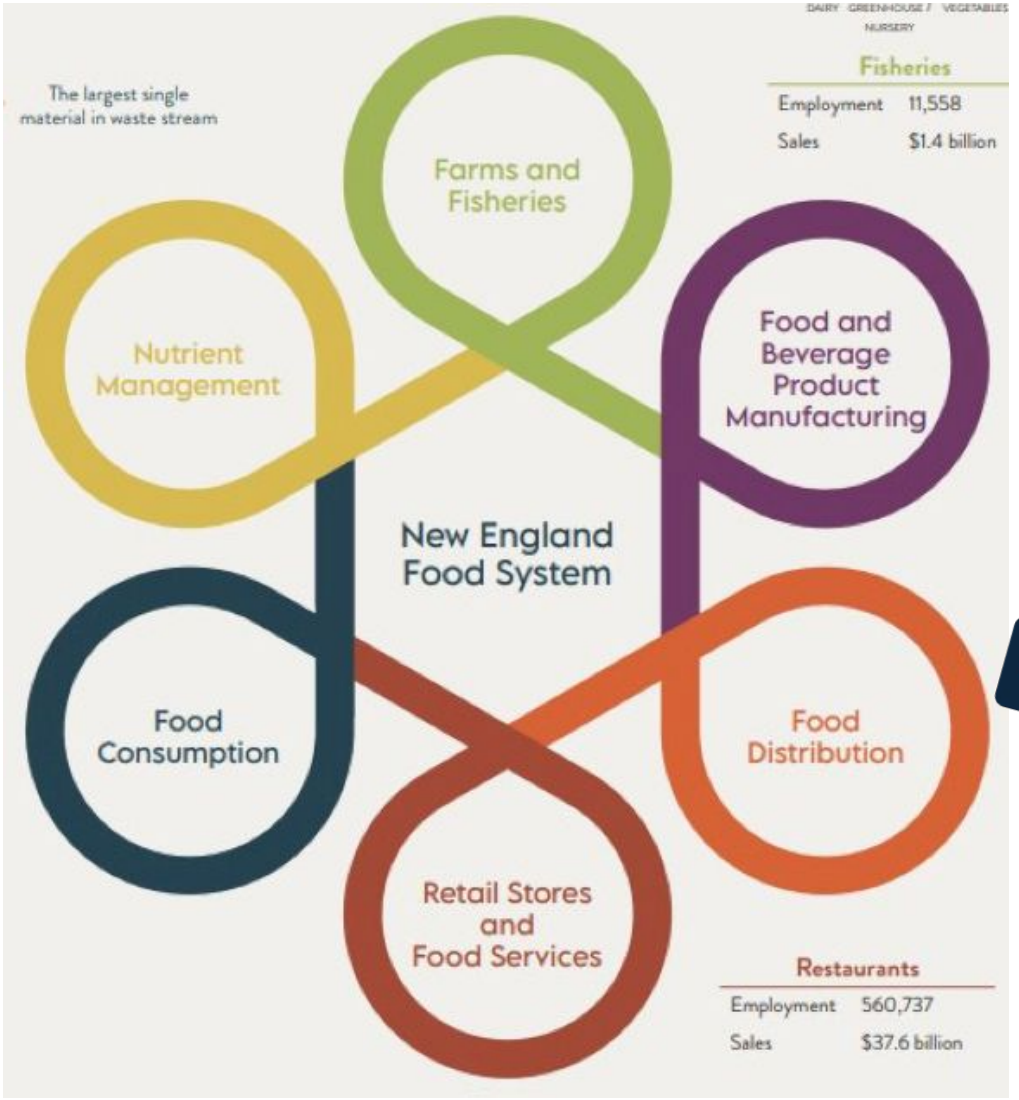
Climate change effects:

- More extreme heat in summer
- Warmer winters
- Fluctuations between heavy rain and drought

Impacts:

- Later growing season
- More unpredictability in harvest

Source: WBUR



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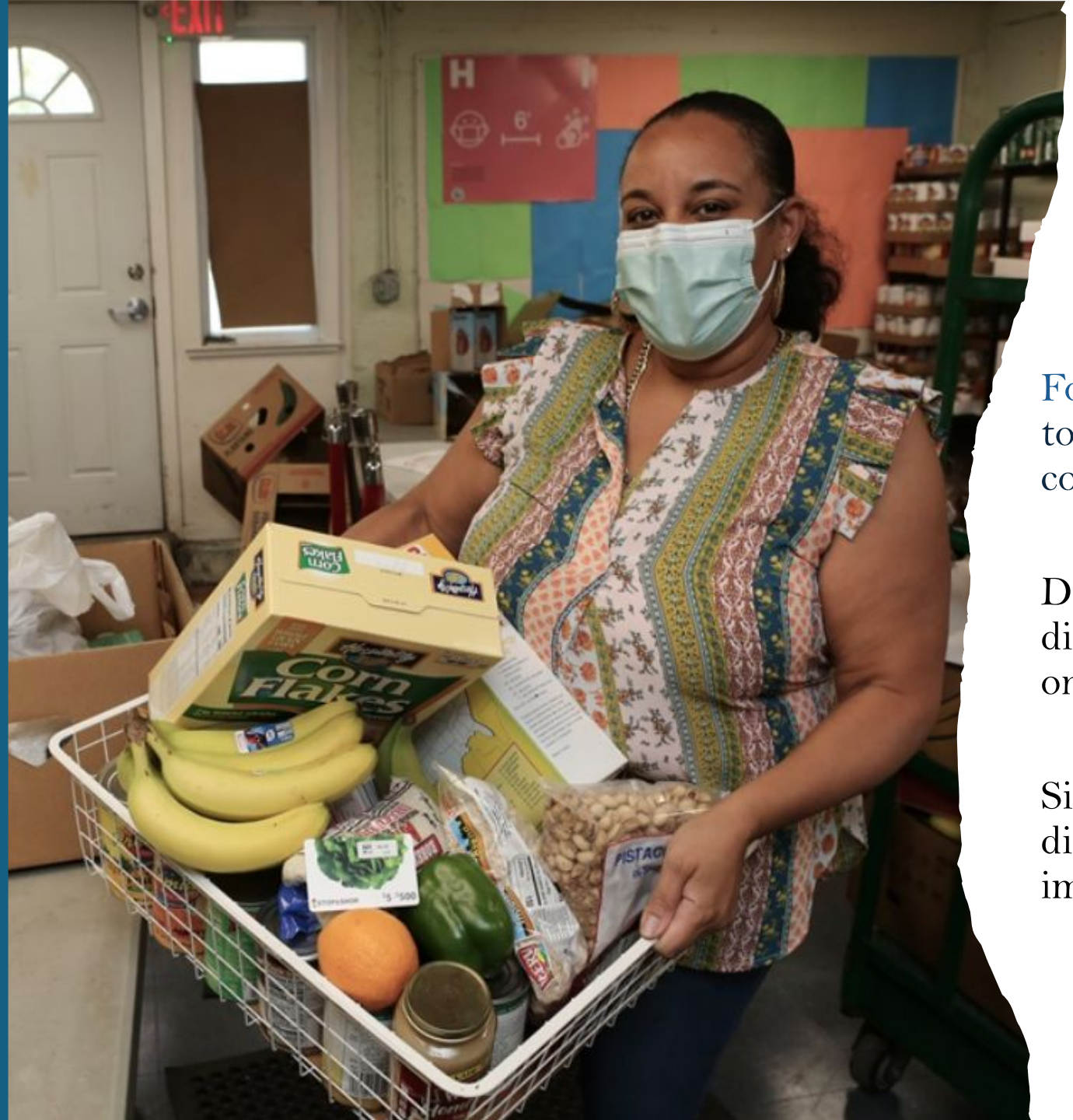


Food Insecurity & Climate Change

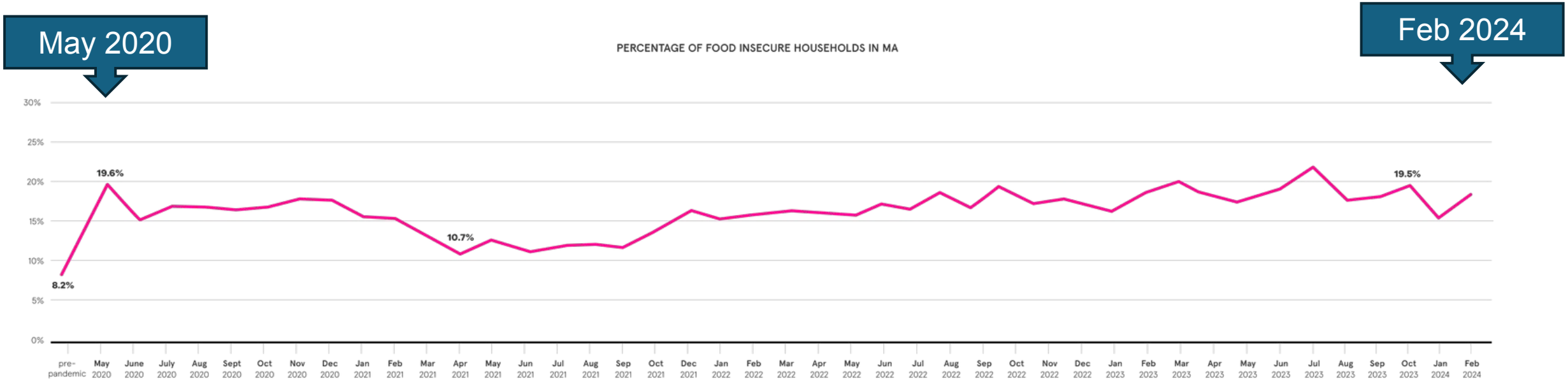
Food insecurity is when people don't have enough to eat and don't know where their next meal will come from.

During the COVID-19 pandemic, supply chain disruptions exposed the risk of food systems reliant on global supply chains.

Similarly, climate change–driven hazards can disrupt food production and distribution, and thus impact food security.

Food Insecurity in Massachusetts

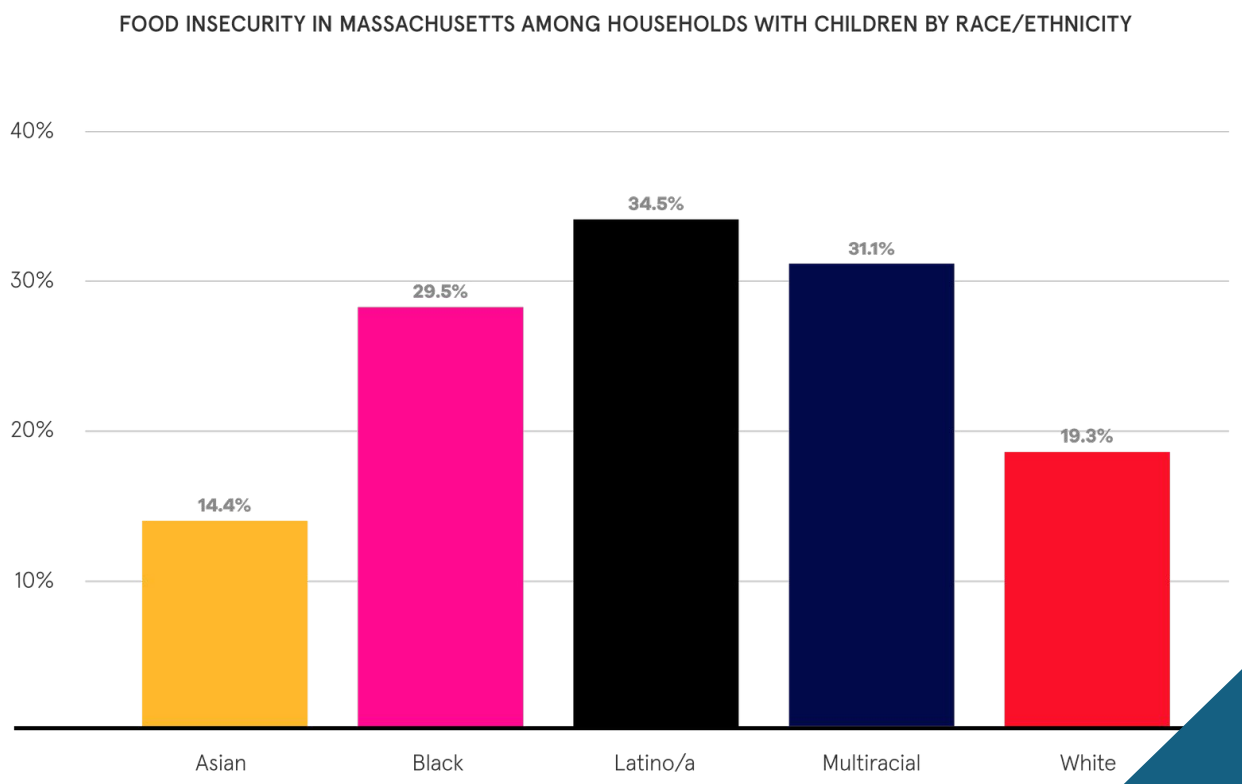
- Food insecurity in Massachusetts doubled during the pandemic.
- February 2024 Pulse Survey estimated that 17.9% of households in MA are experiencing food insecurity.



Source: Project Bread

Populations most at risk of climate-change related food insecurity

- Low-income population
- BIPOC population
- Latinx population
- LGBTQ+ population
- Seniors



Source: Project Bread

Let's focus on

Mass. is a national leader in keeping food waste out of landfills, study finds

September 24, 2024 By Barbara Moran

Food waste to be processed at the Vanguard Renewables Organics Recycling Facility in Agawam. (Jesse Costa/WBUR)

Source: WBUR

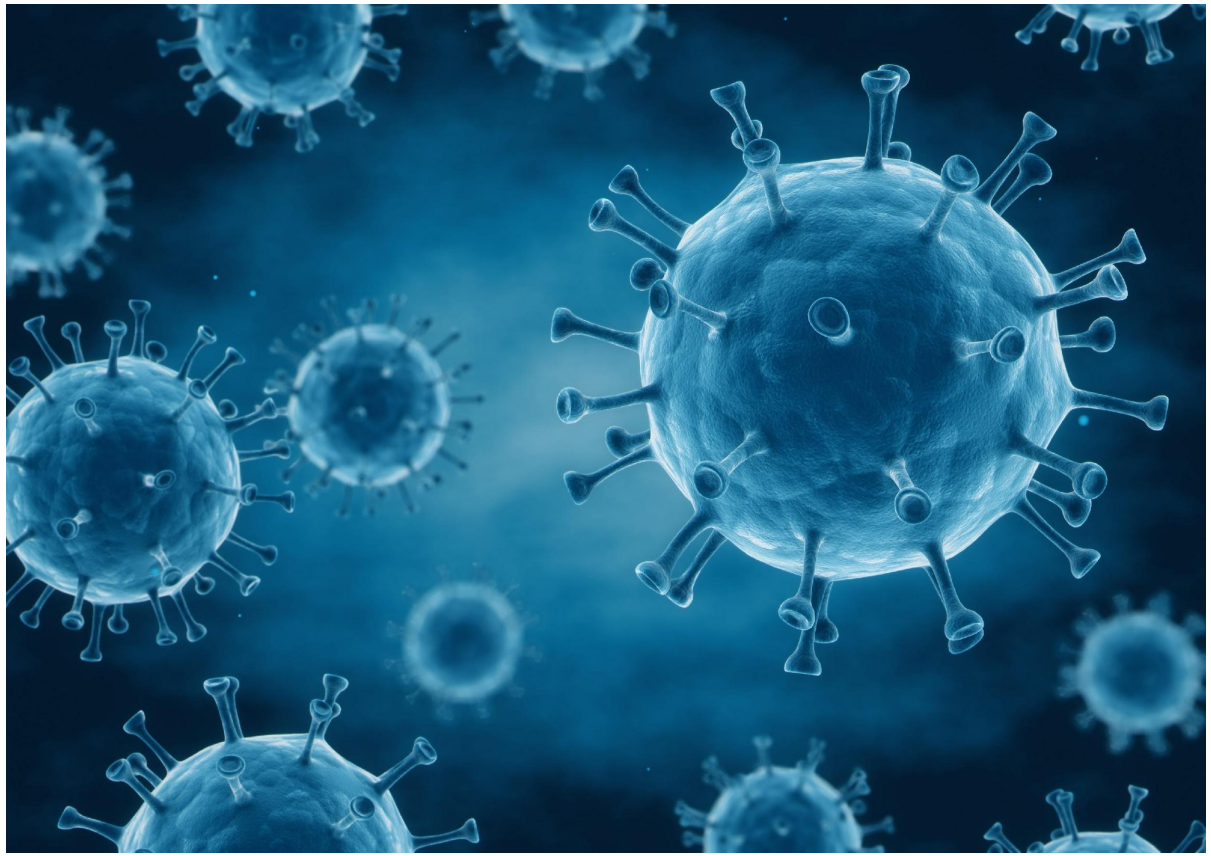

Food Safety and
Climate Change!

Food Safety & Climate Change

- Increased foodborne illnesses (enhance growth conditions for harmful bacteria, fungi, and other harmful microorganisms)

- New possible pathogens (pathogens migration, disease vectors migration)

- Food safety infrastructure disruption (power outages and equipment breakage at establishments that serve food)



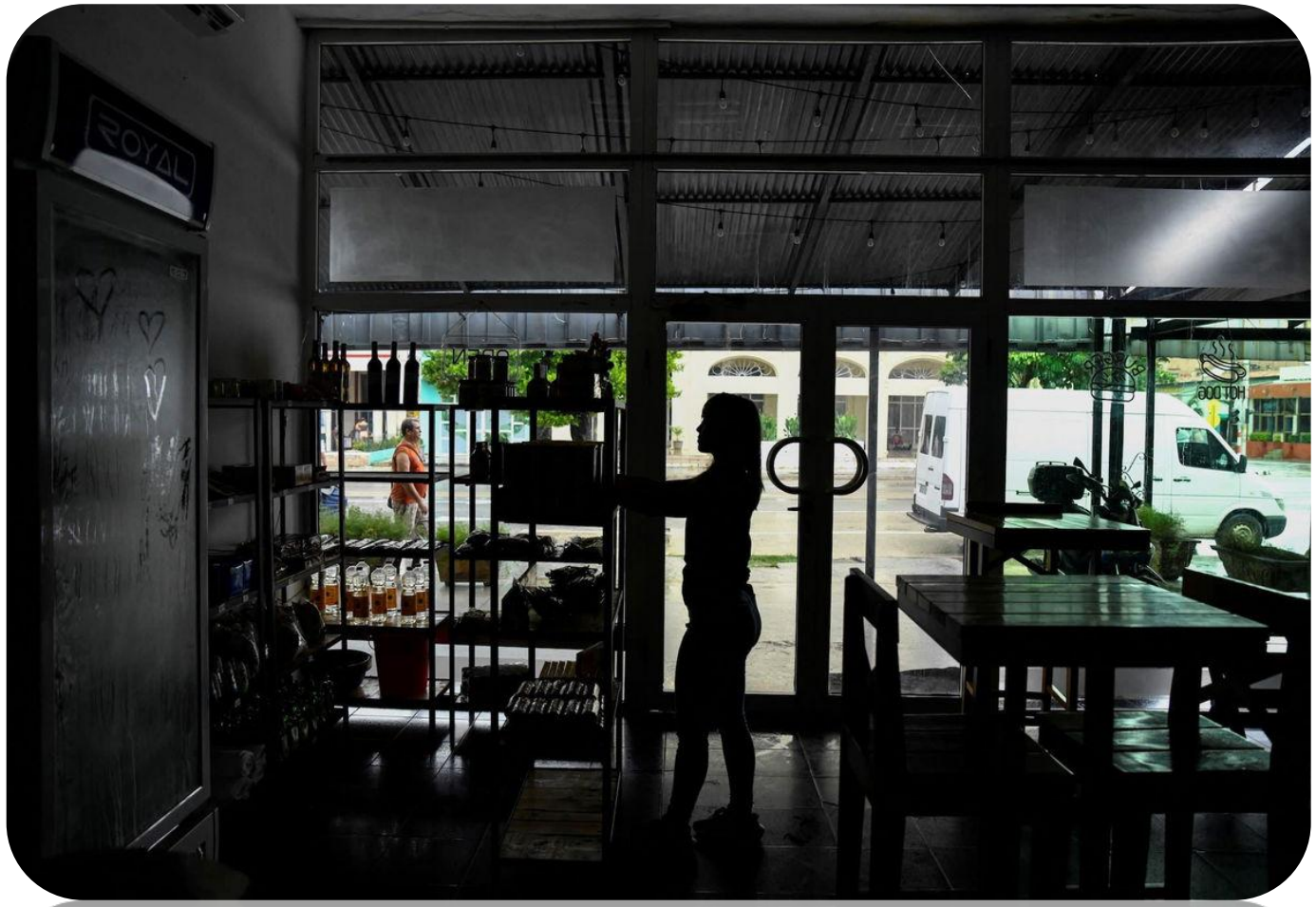
Biological Risks

- Globally increase and intensity of foodborne diseases, such as salmonellosis and campylobacteriosis, waterborne diseases like vibrio, and norovirus in marine water and shellfish
- Pathogens like mycotoxins and toxin-producing fungal pathogens can increase and expand from tropical and subtropical regions into new regions
- As temperatures warm, disease-carrying insects may migrate and infect livestock that may not have immunity

Infrastructure Risks

- Power outages caused by extreme weather events have doubled in severity and frequency over the last few decades.

- Heat waves, extreme storms, and wildfires can cause power outages and equipment and pipe breakage, leaving food products without refrigeration and the climate control necessary to prevent spoilage



Local Public Health Inspections

Public Health
Prevent. Promote. Protect.

- More foodborne illness complaints and investigations
- Overall, more complaints in relation to all inspectional subjects in local public health :
  - Water contamination (Bathing beaches, swimming pools)
  - Septic systems
  - More?
- Our regulations could change due to climate change

What can public health practitioners do?

Notable efforts in Massachusetts and the region

- ResilientMass plan
- Massachusetts Department of Agriculture (MDAR)'s Climate Smart Ag Program
- New England Feeding New England: Cultivating a Reliable Food Supply

Thank you!

Please connect with us!

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