

Sustainability

Root to Leaf, Nose to Tail, Sustainable Fish, and more.

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Introduction

The topic of my findings in this research is all about sustainability – where our food comes from, who makes it, and how we as a society can make a difference in the world, a positive one, rather than continue destroying our environment. When you're inside or outside of a kitchen, reducing the carbon footprint is very important and can happen while we are working. I hope that my findings can inspire you to rethink your current actions, and how you can do more to promote sustainability. These findings greatly influenced my capstone, with concepts such as root to leaf, nose to tail, my own cultural influences, as well as composting and sustainable fishing practices.

History of Food Sustainability

Sustainable food isn't only about the food itself. It's a combination of factors including how the food is produced, how it's distributed, how it's packaged and how it's consumed. When considering the sustainability of food there are many other factors at play, such as resource usage, environmental impact and animal agriculture. For thousands of years, we have practiced food preservation and sustainability to enrich the land and preserve our way of living. In all cases it's how we as humans don't let anything go to waste. It also has to do with how mankind evolved its eating habits back before we became modern. Our country has had many relationships with food, however each one is an important time in history.

For instance, World War I was a time of food scarcity and restriction. During these times, we were more focused on supplying our army with food that was cheap and easy for transport. Soon after the war, ready to eat meals became popular throughout the country because they were convenient and did not take much time to cook. According to Naomi Silverman, "World War II not only changed how food was packaged and consumed but also how it was grown. Farmers found new uses for chemicals deployed in World War II, as nitrate factories quickly shifted from making bombs to making fertilizer. Nitrogen fertilizer - along with phosphorus and potassium fertilizers - suddenly became cheaper and more available. Around the same time, hybrid varieties of corn, wheat, and soy were widely adopted and required large amounts of fertilizer to reach their promised high yields." With the rising use of these chemicals, it did help farmers to yield more crops, however, in the process of it, the air and water were becoming heavily polluted.

At the start of the 70's, there was a movement into organic food. Many people started to realize the negative effects that chemicals, plastics, etc were having on the environment, and

encouraged others to eat healthier, support local farms, and recycle. In today's world, especially with the pandemic, I have noticed a shift in people's mindsets. More people are becoming conscious of what they do, and are trying to make an effort to help the earth. People have gotten into gardening, composting, etc, because during lockdowns there was nothing else to do. However, now people are realizing that sustainable practices are important, and more people are seeking transparency in the labeling of GMO foods, how things are grown, and where they are coming from.

Root to Leaf

In today's world, there are so many uses and kinds of plants for us to consume and enjoy. But one of our biggest problems at this moment is that we tend to throw away what we don't "need", and when we don't use this waste properly, it becomes waste.

When it comes to wasting vegetables, we find ourselves throwing away almost 10% of unusable products. But does that really make it unusable? Composting has always been a way to give our unusable product a purpose, by sending it off to local farms to feed their animals or put into their soil as nutrients. By working with Chef McCarthy and Chef Marylse, the process of composting in the kitchen was simple and easy to understand. The idea of root to leaf is to ensure that every aspect of a vegetable is used. In our culinary labs at Paul Smith's College, we are taught from day one that whatever we don't use, can be used for something else, such as stock.

As for my capstone, I had the BOH staff save any scraps that they had in a separate bowl before putting them in compost. The reason behind this is that this allowed me to take scraps like the ends of an onion, carrots, etc and turn them into a sauce or add it to the braising liquid for my short ribs. Things that would normally be thrown out such as potato skins, were fried and served to the BOH staff for us to enjoy. One of my favorite parts of my capstone was making the components for the ravioli dish. The herb oil that I made was infused with so much flavor, due to utilizing the whole herb, including the stems. I also enjoyed making the butternut squash filling, because I wanted it to be savory, yet still have the taste of butternut squash that we all know and love.

Nose to Tail

Nose to tail is just another way of saying whole animal cooking. This topic just goes into detail about how good we are at using all aspects of an animal. How do you cook a whole animal and what do we do to preserve it? There are so many people that still do whole animal cooking in their restaurants, homes, or villages to feed a large crowd. This is also knowing the animal and how each aspect cooks differently.

Eating nose to tail means that you are enjoying and using the entire animal, not just prized cuts like chicken breast, beef tenderloin, and so on. This means you eat the delicious organs, fat and unpopular cuts. This is how our ancestors ate before grocery stores were implemented, because they could not afford to waste any of the animal, due to not knowing when their next meal would be, as well as needing those necessary calories to stay healthy. After hunting and killing prey, the most nutrient dense parts were eaten first. These included the organs, bone marrow and fattier cuts. The leaner muscle meats were not as useful because they had too much protein and not enough fat. Fat is needed to absorb vitamins and minerals properly. Our ancestors should be applauded for their abilities to be creative and find new ways of thriving in those hard times. They found ways to use the entire animal, including the necks, shoulders, innards, brains and kidneys, that can greatly benefit us today.

Nose to Tail eating ensures that none of the animal goes to waste, however, as of right now we waste one third of our food. That waste is mostly due in part to the negative stigma around animal organs, because they are seen as not consumable or enjoyable in dishes. This just goes to show that this idea of eating needs to be talked about more, and implemented throughout menus around the country. By doing so, we could make our Carnivore-style consumption more

sustainable and ethical if we let fewer parts go to waste. Eating nose to tail also pays the ultimate respect to the animal who gave their life for your meal.

Following this lifestyle also has health benefits, due to the fact that animal organs are full of vital nutrients such as Iron, B Vitamins, and Choline. According to Blue Bird Provisions, “One serving of liver gives you 50,000X more Vitamin A, over 2X the iron and 100x more B12 than other cuts of red meat. Across the board organ meats give you between 10 to 100 times more nutrients per serving than muscle meats” (2021). Eating these organs can help fight the risks of getting diseases in the future, as well as save money along the way, due to not having to spend as much money. Supply and demand dictates that less popular cuts of meat cost less. Organs such as beef liver, kidney or heart can be found at local grocery stores for a fraction of the cost of most steaks. By incorporating more nose to tail eating in your everyday eating habits, it will save you money, time, and in the long run benefit your health due to feeling fuller and more energized.

The best way to reduce your environmental footprint is to eat nose to tail. Grocery stores throw out tons of products that they deem are not perfect enough to sell on the shelves. Buying meat from a local butcher is the best way to work around the system, because you get to say exactly what you want, and could ask for the organs to be saved for you throughout the year. Buying from local butchers might be more expensive depending on where you are located, however, it pays off in the long run, meaning your health, vitality, and longevity of your life.

For my capstone menu, I incorporated nose to tail throughout it, because it is a way of eating that I have not seen many people doing here in the Adirondacks. For one of my first courses, I used tripe, which is the stomach lining of the cow. From what I found, many people have never even had or heard what tripe was. Thankfully, most people were willing to stretch out

of their comfort zones and try it, and some people stated that they would incorporate tripe in their future meals. As for the other course, I made ceviche, but rather than throwing out the bones and other scraps of the fish, I used those trimmings to make a fish stock. The stock was then used for the ceviche marinade for the dish. The fish stock in my opinion, added much more flavor than I have ever tasted. Usually, the marinade is made out of citrus and acids, but by incorporating the trimmings and bones from the fish itself, that introduced and contributed to the flavor of the dish. In my second course, I prepared short ribs and oxtail by braising them and then incorporated that braising liquid into a jus sauce that had the amazing flavors and aromas of the spices used as well as the flavors of the oxtail and bone in short ribs. The main reason I decided to include tripe and oxtail was because I was inspired by a book titled “Offal Good: Cooking from the Heart with Guts”. This book talks in much detail about how to prepare offal and make it delicious and appetizing.

At one point, I thought about potentially cooking the whole animal as part of my capstone, since this is how it is usually done in Mexico, where my parents grew up. I had seen it done in the past, where my dad would cook a whole pig in a pit to make barbacoa. What my father would do is wrap the pig in cactus leaves as well as banana leaves, and leave the pig to cook in the pit for 24 hours. We would usually only do pit style cooking during special occasions when we had a lot of people to feed, but at my grandma’s house in Mexico, she does this style of cooking mostly everyday. I really enjoy this method of cooking because it is a patient process to be involved in, and it is interesting to see all the hard work that goes into cooking the whole animal.

Sustainable Seafood

There has been plenty of talk about sustainable seafood, but what exactly does this mean? Sustainable seafood or fishing makes sure that fisheries continue to thrive in marine/freshwater habitats. It also guarantees that there will be an abundant amount of ocean wildlife for the years to come. According to the National Oceanic and Atmospheric Administration (NOAA Fisheries), they stated “ Both wild-capture and farmed fish are essential for ensuring sustainable supplies of seafood are available for our nation and the world”. There are three principles that entities must follow in order to sustainably harvest seafood. They must first fish at a level that benefits the seafood population. Secondly, they must make sure to minimize environmental impact so the ecosystem isn't harmed. Lastly, they must comply with fisheries laws and have an effective fisheries management system in place, so they can adjust to environmental changes. Most of the fisheries are certified with the MSC, known as the Marine Stewardship Council, which is one of the most popular seafood sustainability certifications.

When looking to purchase seafood, there are quite a few sustainable options to choose from. It is important to do background research when choosing, so you know you are buying a product that truly is sustainable. Alaskan Salmon is one of the top sustainably farmed fish, because it is carefully regulated by many agencies. The fishing methods that are used do not cause much harm to the marine environment. Also, there are a large amount of Alaskan salmon populations. A company I personally enjoy purchasing Alaskan Salmon from is called Sitka Salmon Shares. I support this company because their salmon is top quality, and I enjoy the values they have set in place, such as, Accountability and Transparency, and Healthy Fish and Habitat. This company also sells Dungeness Crabs, which is another sustainable option. They are sustainable because the trap restrictions and size limits of the crab are managed. At Sitka Salmon

they state, "...were caught in a small crab-pot fishery in Southeast Alaska's inside waters". Dungeness is also harvested using dip nets, traps and sometimes is hand caught. The last popular sustainable seafood are Farmed oysters, clams, and mussels. They are sustainable if you purchase them farmed, because it will not harm marine habitats. According to the data from Spruce Eats, "Shellfish farms are beneficial to the environment because they filter water. They also provide essential habitat for other marine plants and animals. Farmed oysters account for 95 percent of the world's total oyster consumption. Farmed clams today account for 89 percent of world clam consumption. 90% of mussels are farmed". There is some controversy behind farm fishing. It just depends on what practices the farm uses, as well as their policies and disciplines that are set in place. Farm fishing is essentially aquaculture. The NOAA refers to aquaculture as "the cultivation of aquatic organisms in controlled aquatic environments for any commercial, recreational or public purpose". The United States produces oysters, clams, salmon, shellfish, and so much more. Aquaculture currently produces half of the seafood that we consume globally. The NOAA also states that it serves many purposes, including, Food production for human consumption, rebuilding of populations of threatened and endangered species, habitat restoration and wild stock enhancement. It is important because it reduces overfishing. Over fishing is dangerous because it leaves few fish of species left in the ocean. Aquaculture is necessary because it is a sustainable option for consumers.

Many people are unsure as to where to start, in regards to sustainable seafood. They are unsure as to what to buy, what it is, and what to watch out for. NOAA Fisheries lists FishWatch.gov as a good source of information about harvested and farmed seafood in the United States. When searching the word "Salmon" on their website, it gives you many varieties

of salmon to choose from. It also provides information about the population, fishing rate, habitat impacts, availability, health benefits, and even gives you some recipes to try.

Securing sustainable foods is not always easy. There are many difficulties people may encounter, such as traceability, social concerns, and rising costs. New consumers have a difficult time finding the best options for sustainable seafood, and sometimes stores do not have much of a variety. Consumers want to know where their fish came from, how it was caught, treated, and even how the fishermen are treated. Suppliers are specifically concerned about rising costs, because according to SPINS, “Suppliers are beginning to feel the pressure of sustainable seafood becoming the norm and every retailer demanding it, but it remains to be seen how much more consumers will be willing to pay”. The cost of certifications is expensive, and the cost of seafood could increase dramatically. I believe that there will always be a market for sustainable seafood, because it is becoming more popular, and it is being advertised more. I think that people are becoming more educated about oceans and marine life, and want to help the marine habitats survive for the future.

Chefs play an important part in sustainable seafood. They have a higher platform to educate customers and influence the market by promoting sustainable menu options. chefs can send a strong message to seafood suppliers and the public by purchasing from sustainable places. By supporting sustainable seafood and advertising it on places such as social media, chefs advocate for the well being of the environment. Celebrity chefs also have a huge platform in which they could promote seafood sustainability. They play a critical role in advertising, promoting, and advertising for the industry.

Composting and Farms

Composting has been a topic that I have been interested in since Elementary School. In 5th grade, I did a science project on how fast worms could compost materials such as coffee, paper, etc. This is what first got me into the composting world, and now I am helping my aunt with her first compost bin.

So what is composting exactly and why is it important? Composting is the natural process of recycling organic matter, such as leaves and food scraps, into a valuable fertilizer that can enrich soil and plants. According to the United States Environmental Protection Agency, “Composting these wastes creates a product that can be used to help improve soils, grow the next generation of crops, and improve water quality. EPA estimates that in 2018, 2.6 million tons of food (4.1 percent of wasted food) was composted. In 2018, Americans recovered over 69 million tons of MSW through recycling, and almost 25 million tons through composting. This is 1.16 pounds per person per day for recycling and 0.42 pounds per person per day for composting”. Composting is a fairly easy process to do, and can be done in two different ways. The first method is called cold composting, which is where the organic matter breaks down. This composting method does require the most patience, because it will take at least a year to get usable compost. However, this method is the easiest in regard to effort and maintenance. The second method of composting is called hot composting. Hot composting is a faster, but more managed, compost process. This method requires attention to keep carbon and nitrogen in the optimum ratio to decompose organic waste. Hot composting is considered to be more tricky, because the right balance of air and water are required to attract organisms that thrive in oxygen-rich environments. However, when the hot compost method is properly done, compost can be ready in as little to four weeks.

When starting your first compost box, a 3-foot cube is the ideal size for a compost bin or pile. You need a large volume of waste to be able to produce a high enough temperature for aerobic organisms to thrive. This bin should be placed in a dry shady area outside. A pile of scraps needs to be saved, which can be egg shells, fresh grass clippings, coffee grounds, etc. In addition to that, a pile of brown materials, such as branches, paper and dead leaves needs to be saved as well. To start your pile, add alternating thin layers of greens and browns, ending with a layer of browns. Wet the compost pile as needed per layer. Next, leave the pile to set for at least four days to allow the decomposition to begin, and then aerate as needed and check the moisture level. One of the best things about composting today is that now companies make compost bins that will aerate the compost as well as keep a log on the moisture levels as needed, so you don't have to keep opening the compost bin.

So, why is composting so important? Composting is important because it is one of the many ways we can help the planet thrive. By composting, wasted food and other organics, methane emissions are significantly reduced. Composting also eliminates the need for chemical fertilizers, because the compost is so rich in nutrients itself that nothing extra is needed. Compost can help aid reforestation, wetlands restoration, and habitat revitalization efforts by improving contaminated, compacted, and marginal soils. Lastly, "compost can provide cost savings over conventional soil, water and air pollution remediation technologies, where applicable" (EPA). Composting is one of the ways we can help save the earth for future generations to come, which is why I chose sustainability as my topic. We composted two bins (32 lbs) of compost during the week of my capstone service. This is great because it was sent to local farms in the area to help feed their livestock and make soil for their crops. I am excited to see where composting takes us in the future, especially now, seeing as though California recently added a law that states

Californians must save their household scraps and separate them into a bin for pick up. This is fairly new, however, many other states are now looking into the idea of having their citizens do the same.

Conclusion

During my capstone week, I enjoyed being able to show everyone what I came up with. It also brought me joy to see how many people showed up to support me and my colleagues. With this project, one of the important things I have learned is that sustainability comes in many forms. However, it is up to us – the consumers, to make the effort to change the world.

Since starting my degree at Paul Smith's College, I have learned many valuable skills and met many important people here. During freshman year, the thought of having to complete this capstone seemed quite intimidating. Back then, I did not have as much confidence in myself as I do now. During the week where I was able to be executive chef of the kitchen, it showed me that I can make a successful career out of this, I just have to believe in myself. I would also like to thank Chef McCarthy for guiding us all through these 3 years. He has taught us that the degree at the end of the day is just a piece of paper. What matters most is what we learn from one another, and how we work in a kitchen environment.

Work Cited

- Bricas, N., et al. Food System Sustainability: Insights from Dualine. Cambridge University Press, 2013.
- Burger, Mia. "Major Moments in Food & Agriculture: 1900's until Now." Sustainable Food Center, 13 May 2020, <https://sustainablefoodcenter.org/latest/blog/major-moments-in-food-agriculture-1900s-until-now>.
- Fearnley-Whittingstall, Hugh, and Nick Fisher. The River Cottage Fish Book: The Definitive Guide to Sourcing and Cooking Sustainable Fish and Shellfish. Ten Speed Press, 2012.
- Fisheries, NOAA. "Understanding Sustainable Seafood." NOAA, <https://www.fisheries.noaa.gov/insight/understanding-sustainable-seafood>.
- Flowerdew, Bob, and Alison Clements. Composting. Kyle Cathie Limited, 2018.
- "Goodfishbadfish in the Media." Good Fish Bad Fish, 14 June 2021, <https://goodfishbadfish.com.au/goodfishbadfish-in-the-media/>.
- Henderson, Fergus, and Justin Piers Gellatly. Nose to Tail. Echtzeit-Verl, 2014.
- Hilde M. Toonen and Alice M.M. Miller. "Social Media and Celebrity Chefs: Promoting Sustainability in Fisheries." The Solutions Journal, 8 July 2020, <https://thesolutionsjournal.com/2017/04/29/social-media-celebrity-chefs-promoting-sustainability-fisheries/>.
- Meakin, Connor. "Why You Should Eat Nose to Tail (and How)." Bluebird Provisions, Bluebird Provisions, 15 Oct. 2019, <https://bluebirdprovisions.co/blogs/news/eat-nose-to-tail>.
- National Geographic Society. "Sustainable Fishing." National Geographic Society, 9 Oct. 2012, <http://www.nationalgeographic.org/encyclopedia/sustainable-fishing/>.
- Ng, Andrew. "Early Human Diets." California Academy of Sciences, <https://www.calacademy.org/explore-science/early-human-diets>.
- "Order Premium Wild-Caught Alaska Seafood Online." Sitka Salmon Shares, <https://sitkasalmonshares.com/>.
- Pijawka, K. D., and Martin A. Gromulat. Understanding Sustainable Cities: Concepts, Cases, and Solutions. Kendall Hunt Publishing Company, 2012.
- R., Ferreira Isabel C F, et al. Phytochemicals in Vegetables: A Valuable Source of Bioactive Compounds: A Valuable Source of Bioactive Compounds. Bentham Science Publishers, 2018.
- Silverman, Naomi. EPA, Environmental Protection Agency, <https://www.epa.gov/sustainable-management-food/reducing-impact-wasted-food-feedin>

g-soil-and-composting#:~:text=Composting%20is%20the%20fifth%20tier,scraps%20can%20also%20be%20composted.

Spins. “The Challenges and Triumphs of Sustainable Seafood.” SPINS, 21 Jan. 2019, <http://www.spins.com/the-challenges-and-triumphs-of-sustainable-seafood/>.

Stratton, Mackenzie. “The Best Sustainable Seafood Choices.” The Spruce Eats, The Spruce Eats, 3 May 2021, [http://www.thespruceeats.com/sustainable-seafood-choices-1665724#:~:text=Oysters%2C%20Clams%2C%20Mussels%20\(Farmed\)&text=Fresh%20oysters%2C%20clams%2C%20and%20mussels,environment%20because%20they%20filter%20water.](http://www.thespruceeats.com/sustainable-seafood-choices-1665724#:~:text=Oysters%2C%20Clams%2C%20Mussels%20(Farmed)&text=Fresh%20oysters%2C%20clams%2C%20and%20mussels,environment%20because%20they%20filter%20water.)

“Sustainability.” FishWatch, 19 May 2021, <http://www.fishwatch.gov/>.

US Department of Commerce, National Oceanic and Atmospheric Administration. “What Is Aquaculture?” NOAA's National Ocean Service, 2 Apr. 2019, <https://oceanservice.noaa.gov/facts/aquaculture.html>.

“What Is Aquaculture, and Why Do We Need It?” Global Seafood Alliance, 8 Sept. 2021, <http://www.aquaculturealliance.org/blog/what-is-aquaculture-why-do-we-need-it/>.

“What Is Aquaculture?” What Is Aquaculture? | National Oceanic and Atmospheric Administration, <https://www.noaa.gov/stories/what-is-aquaculture>.

“What Is Sustainable Fishing.” MSC International - English, <https://www.msc.org/what-we-are-doing/our-approach/what-is-sustainable-fishing>.

