



# Whatcom County Community Food Assessment

*A snapshot of the Whatcom County food system from 2008 to 2009.*

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# Introduction

“In a thriving food system, there is healthy food available to all, so it’s not a class issue. Second, food is produced, processed and distributed in ways that enhance rather than degrade the environment. There must be appreciation for local food traditions. And food must be fair—from the standpoint of those who are growing and processing the food, all the way to those who are purchasing it.” Tom Stearns, President, Center for an Agricultural Economy, Vermont<sup>i</sup>

## **What Is a Community Food Assessment?**

A community food assessment gathers and shares information about a community food system that can be used to improve or develop programs such as farmer education, farmland protection, nutrition programs, hunger reduction, food security initiatives, and policy advocacy. It focuses on assets as well as needs of the food system. With a goal of learning about where and how food is produced, how it is accessed, and where food shortages exist in a community, a community food assessment is inclusive, valuing input from a diverse range of community members. In the process, a CFA promotes community involvement, leadership opportunities for youth and others, collaboration among diverse participants (such as farming groups and health advocates), community discussion about the way food is connected to the community, and education of the public on food related issues.

## **History of the Whatcom Community Food Assessment**

The Whatcom County Community Food Assessment (CFA) began as a journey into the world of local food systems in the spring of 2007. Staff and faculty at the Washington State University Whatcom County Extension office were addressing community food security and were inspired by community attempts in North America to conduct community food assessments. The WSU Extension Faculty for Family and Community Health Programs agreed to convene the community food assessment process in cooperation with the WSU Whatcom County Integrated Pest Management Coordinator and to make it a focus of a multi-state extension leadership program.

One of the gratifying aspects of this process has been the interest in the CFA from the beginning. The nascent Whatcom CFA was given a boost when Heifer International agreed to give Whatcom County technical assistance and to fund a training event for the community on how to begin the CFA process. A group coalesced following a community meeting that included presentations by Colleen Donovan, Heifer International. In the fall of 2007, a two-day training prepared the community to plan the CFA. A newly-formed steering committee further refined the goals and directions for the CFA.

The Whatcom CFA has been a work in progress since its inception. A community-wide event was sponsored in 2008 to further refine the data gathering process. Roles have shifted for many of the original planners, as happens in many communities, and although that slowed the process, the need for the final product has been a force for completing it. We celebrate the tenacity and interest of all those who believed that the Whatcom County Community Food Assessment is worth having!

## **What the CFA is and What it is Not**

The Whatcom Community Food Assessment is a collection of maps, data sets, survey information, and other descriptions that form a snapshot of the community food system and community food security in Whatcom County between 2008 and 2009. The focus areas were determined by the steering committee with public input and are not meant to be a comprehensive description. The Whatcom CFA was conducted by a number of volunteers and staff from a variety of local agencies and institutions. It is a tool that can be expanded as time goes on.

Each CFA is different; there are no universal formulas or rules. The Whatcom CFA is not comprehensive and it is not “perfect.” The team examined as many topics and points of view as possible given the resources available.

There may be omissions that the reader will feel are important. Readers are advised to take from it what they may and use the information as an opportunity to dig deeper.

### **Goals, Assumptions, Indicators**

In early January 2008, the Whatcom CFA Steering Committee met and developed a logic model as a planning tool. The following goal was created:

*To establish a baseline of knowledge of the Whatcom County food system, from field to fork to food disposal, to reflect the current situation.*

The group identified the assumptions that would drive planning the CFA. The assumptions are as follows:

1. There are hungry people in Whatcom County (WC).
2. There is abundant food in WC.
3. There are barriers to accessing food.
4. Some people are eating less desirable (health-related) food.
5. Data is already available.
6. Data may be biased.
7. If we study the food system, we will learn things that will help people.
8. People define healthy food differently – diversity of opinions.
9. WC is becoming food opinionated.
10. Loss of farmland is an important issue for the food system in WC.
11. Ensuring local food production is important in WC.
12. Food is a political topic.

The group identified a vision for the CFA that would help answer why we were doing the work:

*The Whatcom CFA will help ensure a local food system that will sustain the land and livelihoods that provide adequate, nutritious food for current and future generations in Whatcom County.*

The focus of the CFA was selected using a model developed in California. We initially selected indicators to be measured and expressed them in terms of how they would impact the local food system. These indicators fit into 9 categories (detailed indicators can be found in the appendix).

The Whatcom County Food System:

1. Promotes food choices that lead to healthy eating.
2. Provides easy economic and physical access to healthy food from retail outlets for all eaters in Whatcom County.
3. Provides for meaningful livelihoods and opportunities for all farming workers and farmers.
4. Is characterized by many locally owned and operated food and farming businesses.
5. Provides eaters with foods produced as close to home as possible.
6. Encourages eaters to know where, how, and by whom their food is produced.
7. Honors and draws upon the diversity and richness of different food cultures.
8. Conducts farming, ranching, and fishing activities so that water, air, forests, and soil resources are enhanced, biodiversity and wildlife habitat are increased, and food production continues in perpetuity.
9. Provides incentives for waste recycling, reduction of petroleum, and other nonrenewable inputs.

In working through collecting and compiling data for the CFA, a new outline was developed that fit better with the available data and flow of the document. This CFA answers the following questions in separate chapters of the document:

1. Who Lives and Eats in Whatcom County?
2. How Are Food Consumption and Health Related in Whatcom County?
3. Where Does Whatcom County Get its Food?
4. Agriculture Yesterday and Today—How Has it Changed?
5. How Does Whatcom County Agriculture Impact the Environment?
6. What are the Threats and Opportunities for Agriculture in Whatcom County?
7. What Role Do Fisheries Play in Whatcom County’s Food System?
8. What Food is Processed in Whatcom County?
9. Where Does Whatcom County’s Food Waste Go?

### **What Can We Learn from this Document?**

We can learn about the rich variety of food that is produced and processed in Whatcom County. We can learn about the long history of agriculture and fisheries in Whatcom County. We can learn about abundance and access to markets and farms. We can learn about shortages and where and why some people are not able to access farm fresh food. We can learn that our community food system is complex and needs to be viewed through different lenses in order to be fully understood. We can learn where effort is needed to preserve and improve the food system and what more we need to learn. We can learn about how we handle food and agricultural waste and how the links from farm to table to food waste disposal are all integral to a healthy community food system.

This Community Food System is still a work in progress and we offer it to you as a picture of what we found in the last part of the first decade of the 21<sup>st</sup> century. We discovered that there are gaps in the information available about our food system. Conclusions are presented at the end of each chapter that describe lessons learned and pose new questions for an additional level of learning about our food system. We acknowledge that we have more to learn and hope that others will use this work as a framework for more thought, study, and action.

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i Quoted in Goodman, David (2009). “Building a Healthy Food System in Rural America,” *Eating Well*, July/August 2009.  
ii The Whatcom County Community Food Assessment Steering Committee acknowledges The Vivid Picture Project for its inspiration on the indicators. Feenstra et al. (2005, October). *Proposed Indicators for Sustainable Food Systems*. Ecotrust:  
<http://www.vividpicture.net>

## Chapter 1

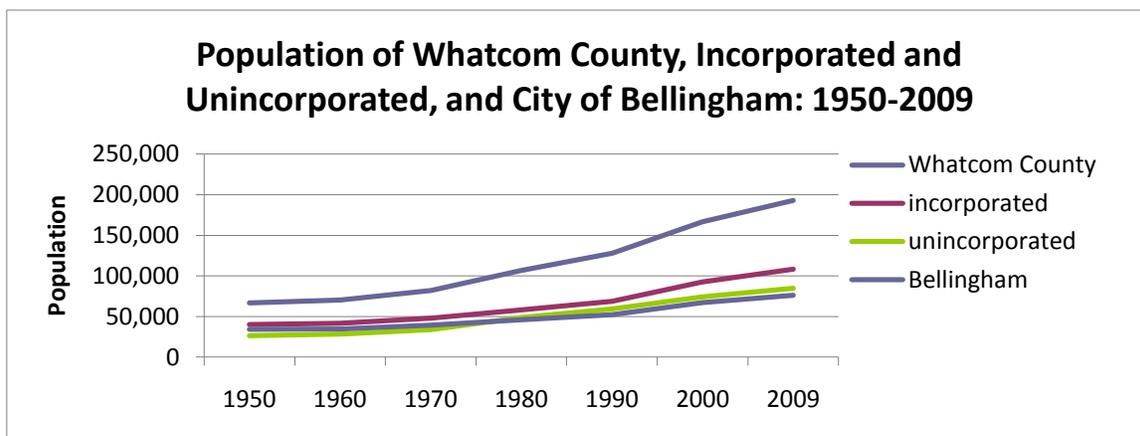
### Who Lives and Eats in Whatcom County?

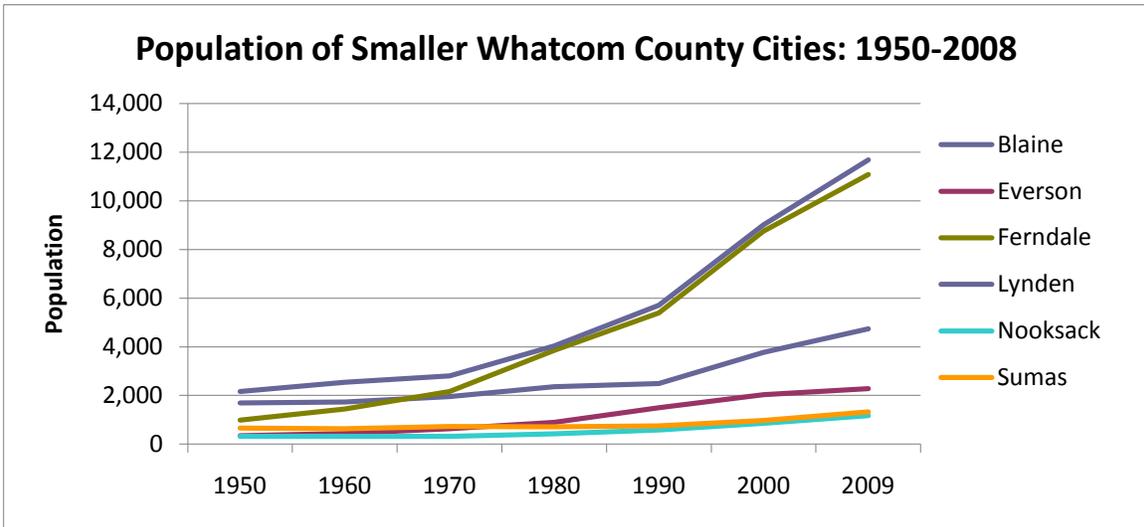
Since 1950, Whatcom County has more than tripled in population. Its economic situation, race demographics, industry, and systems of education have also changed. Directly linked to these changes is an evolution of the County's relationship with food: how food is accessed by members of the population and how it is consumed. This chapter focuses on Whatcom County's residents—the food consumers whose needs, habits, and attitudes are addressed in the other chapters of this CFA.

There is no single source for demographic data on Whatcom County. Exact data exists from the 2000 U.S. Census and many estimates exist for 2008 and 2009. Numbers for the largest centers of population—county, large city, etc.—have been updated by national and governmental entities more recently than for smaller centers and for details such as race demographics of small cities. For the source and year of statistics in this chapter, please follow notes to references at the end of this document. Although challenges exist in comparing data that were recorded over a 9-year span, what is intended in this chapter is an overview of current populations.

#### Population by City and Change over Time

Since 2000, Whatcom County population has grown considerably faster than that of Washington State (17.89% as opposed to 11.1%).<sup>i</sup> That growth has occurred in all areas of the County, including both cities and unincorporated areas. According to the 2000 U.S. Census, Whatcom County had a total of 166,826 residents; estimates from 2009 set the population at 193,100.<sup>ii</sup> Whatcom County's three largest cities are Bellingham (pop. 76,130), Lynden (pop. 11,690), and Ferndale (pop. 11,080), according to 2009 estimates.<sup>iii</sup> The Whatcom County population is split 56% in incorporated areas and 44% in unincorporated areas; this ratio has remained stable since data were first recorded in 1968.<sup>iv</sup>

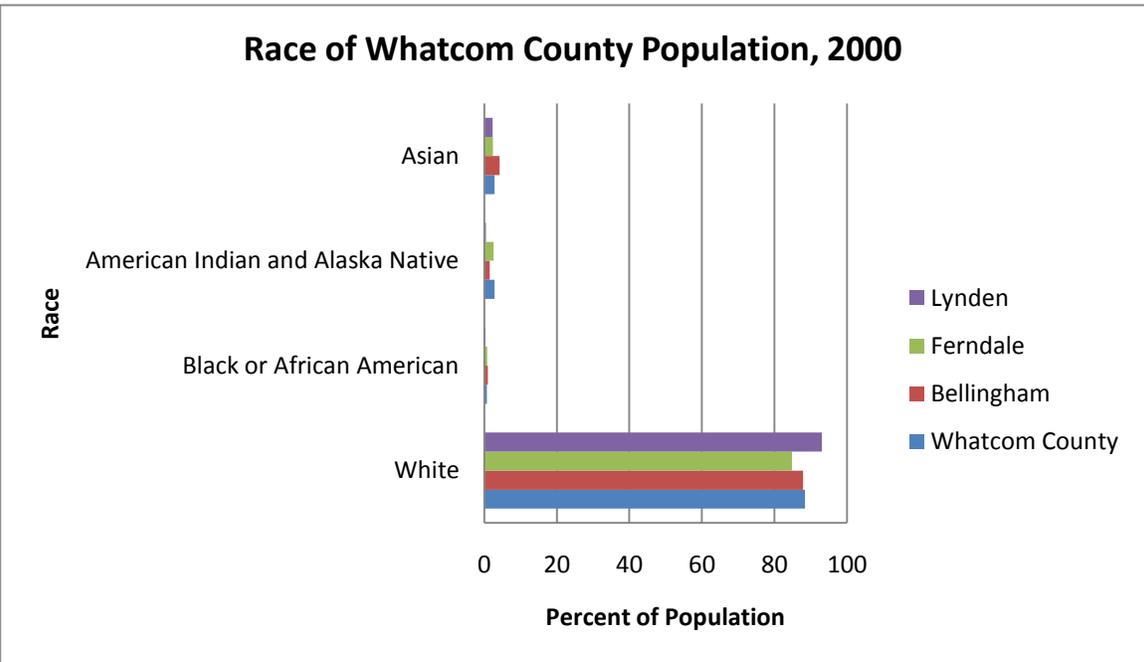




vi

**Population by Race**

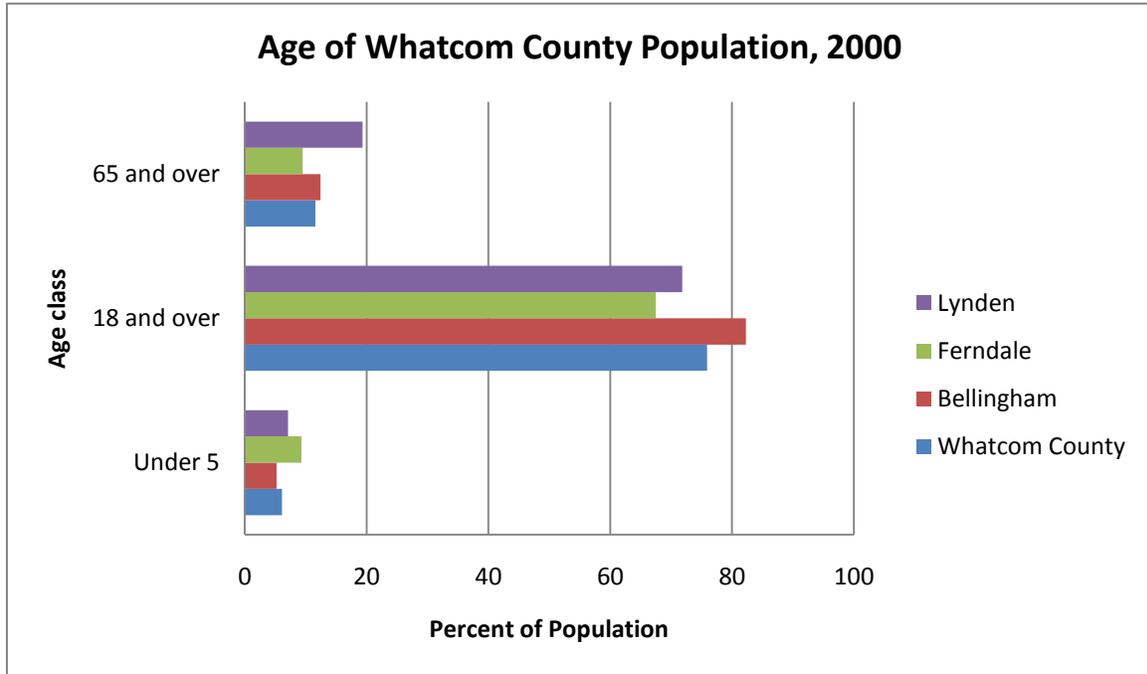
2008 census estimates classified 84% of residents in Whatcom County as “white.” This includes only those who considered themselves non-Hispanic and left the largest “non-white” population in Whatcom County, classified as “Hispanic or Latino origin,” at 6.7%.<sup>vii</sup> Ferndale has the highest number of “Hispanic or Latino origin” residents (9%),<sup>viii</sup> while Bellingham has 4.6%,<sup>ix</sup> and Lynden has 4.7%.<sup>x</sup> The second largest minority group in Whatcom County is “Asian” and the third largest is “American Indian and Alaska Native.”<sup>xi</sup>



xii

### Population by Age

The median age of Whatcom County residents is 34.<sup>xiii</sup> The majority of the population is 18 and over. Bellingham residents have the youngest median age in the County at 30.4 years,<sup>xiv</sup> while Ferndale residents have a median age of 32 years,<sup>xv</sup> and Lynden residents have a median age of 36.9.<sup>xvi</sup>



xvii

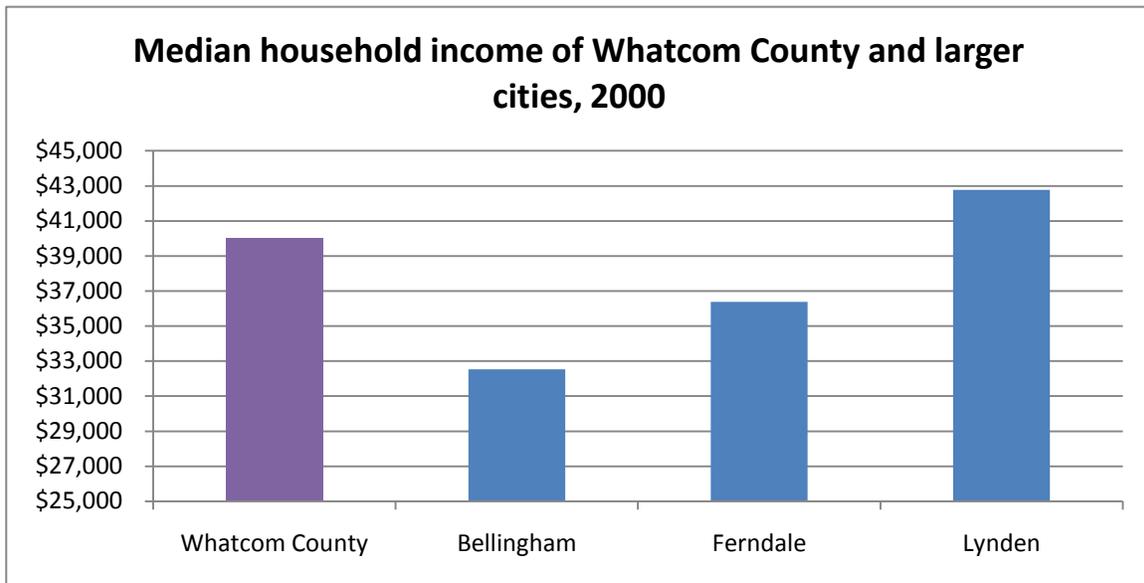
### Labor Force

*Labor force* is defined as the number of individuals—employed and unemployed—in a city, county, etc., aged 16 and over. The *unemployment rate* is the number of unemployed persons divided by the labor force.

According to July 2009 Washington State Employment Security Department figures, Whatcom County has a labor force of 111,710, with 103,170 people classified as employed and 8,570 classified as unemployed, an unemployment rate of 7.6%.<sup>xviii</sup>

### Income

The most recent U.S. Census Bureau statistics by city are from 1999. However, other sources estimate that, in 2008, the median household income for Whatcom County was \$47,521<sup>ix</sup> and for Bellingham was \$37,388.<sup>x</sup> Values for other cities in the County were not available for 2008 estimates. Values from 2000 show Lynden with the highest median household income (\$42,767) and Bellingham with the lowest (\$32,530). Student populations probably impact the Bellingham data.

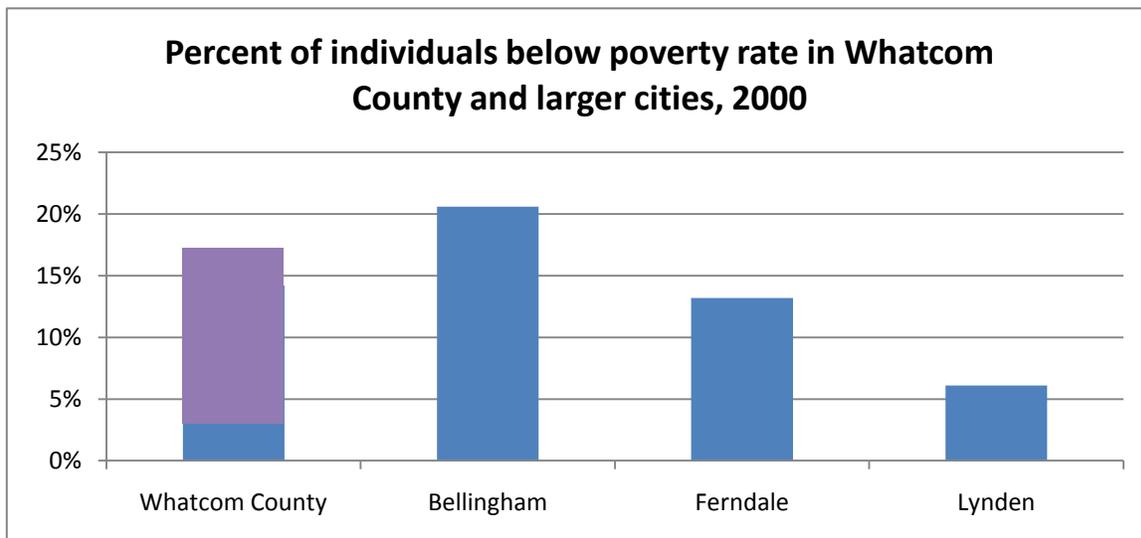


xxi

### Poverty<sup>xxii</sup>

Poverty is an indicator widely used in surveys of population demographics. It has particular relevance to a food assessment. Economic wealth is a determinant of an individual's or family's access to governmental food assistance benefits (as well as cash benefits), the area in which they live, and their access to grocery stores, farmers markets, etc. Terms related to poverty can be confusing. The term *poverty guideline* is relevant to this and other food assessments because it establishes the financial eligibility for certain programs, such as the Supplemental Nutrition Assistance Program (SNAP) (the federal program formerly known as the Federal Food Stamps Program). It is *poverty guideline* to which most people are referring when they use the ambiguous term *poverty line*.<sup>xxiii</sup>

In 2000, the federal poverty guideline for a family or household of four was \$22,050.<sup>xxiv</sup> The number of individuals living below the poverty guideline in Whatcom County averaged 14.2% of the population, with Bellingham at 20.6%,<sup>xxv</sup> Ferndale at 13.2%,<sup>xxvi</sup> and Lynden at 6.1%.<sup>xxvii</sup>



xxviii

## Governmental Food Assistance

The national Supplemental Nutrition Assistance Program, currently known in Washington State as Basic Food, is distributed to individuals and families throughout Whatcom County by way of the Electronic Benefits Transfer (EBT). This system is administered by the Department of Social and Health Services and used by clients by means of a debit card that is re-filled monthly with food assistance dollars that can be spent only on groceries. As of 2008, enrollment was 7.2% of individuals and households in Whatcom County<sup>xxix</sup> and 8.6% of individuals and households in Bellingham.<sup>xxx</sup> Current food assistance statistics do not exist for Whatcom County's smaller cities.

## School Lunch

The National School Lunch Program uses federal poverty guidelines for determining which public and non-profit private schools get free and reduced-price lunches for students. Students are eligible for free and reduced-price lunch benefits if their family earns 185% or less of the federal poverty guidelines. With percentages ranging from 30% to 56% by school district, an average of 41% of Whatcom County students are eligible for free and reduced-price lunches in schools.<sup>xxxi</sup>

## Conclusion

Demographic data tell us who lives in Whatcom County. The population's identity (race, age, employment, income, and level of poverty) provides a valuable framework as we look at food production, access, and other aspects of the food assessment.

From this data, we can see that poverty is a significant issue in Whatcom County.

- 14.7% of Whatcom County falls below the federal poverty guidelines.
- 7.2% of Whatcom County is currently enrolled (not just eligible) in Basic Food.
- 41% of Whatcom County students are eligible for free and reduced-price lunches in schools.

The diet of this portion of Whatcom County's population will likely be determined by the type of food that can be purchased using Basic Food or received through the Free and Reduced-Price Lunch Program in schools. What food is available to individuals via these programs is explored later in this CFA.

While useful as an overview of the population of Whatcom County, the demographic data in this CFA and at this level of analysis does not show nuances of behavior that could be attributed to such things as cultural background, employment type, and education level. Further study of such data would be useful.

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- i U.S. Census Bureau. (2008). State and County Quickfacts. Whatcom County, Washington. Retrieved on April 4, 2010 from: <http://quickfacts.census.gov/qfd/states/53/53073.html>
- ii Ibid. Both of these numbers account for students residing in Whatcom County who attend Whatcom County institutions of higher learning.
- iii Whatcom Council of Governments. (2009). Current Population Data. Retrieved on April 4, 2010 from: <http://www.wcog.org/Data/Demographic-Data/Data/Demographic-Data/Present/298.aspx>
- iv Ibid. The range of percentage of residents living in incorporated areas from 1968-2009 has been 54-59%.
- v Data for Whatcom County Population comes from Population for Counties by Decennial Census: 1900 to 1990 at: <http://www.census.gov/population/cencounts/wa190090.txt> Data for incorporated, unincorporated, and City of Bellingham from Whatcom Council of Governments: <http://www.wcog.org/Data/Demographic-Data/Past/51.aspx>
- vi Data city populations from Whatcom Council of Governments: <http://www.wcog.org/Data/Demographic-Data/Past/51.aspx>
- vii U.S. Census Bureau. (2008). State and County Quickfacts. Whatcom County, Washington. Retrieved on April 4, 2010 from: <http://quickfacts.census.gov/qfd/states/53/53073.html>
- viii U.S. Census Bureau. (2000). Table DP-1. Profile of General Demographic Characteristics: 2000 Geographic area: Ferndale city, Washington. Retrieved on April 4, 2010 from: <http://censtats.census.gov/data/WA/1605323620.pdf>

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- ix U.S. Census Bureau. (2006). State and County Quickfacts. Bellingham city, Washington. Retrieved on April 4, 2010 from: <http://quickfacts.census.gov/qfd/states/53/5305280.html>
- x U.S. Census Bureau. (2000). Table DP-1. Profile of General Demographic Characteristics: 2000 Geographic area: Lynden city, Washington. Retrieved on April 10, 2010 from: <http://censtats.census.gov/data/WA/1605340805.pdf>
- xi U.S. Census Bureau. (2008). State and County Quickfacts. Whatcom County, Washington [Data file]. Retrieved on April 4, 2010 from: <http://quickfacts.census.gov/qfd/states/53/53073.html>
- xii Data from U.S. Census Bureau American FactFinder (data from 2000 census): <http://factfinder.census.gov>
- xiii State of Washington Office of Financial Management. (2009). Databook. Whatcom County. Retrieved on April 4, 2010 from: <http://www.ofm.wa.gov/databook/county/what.pdf>
- xiv U.S. Census Bureau. (2000). FactFinder, Bellingham city, Washington. Retrieved on April 4, 2010 from: <http://factfinder.census.gov>
- xv U.S. Census Bureau. (2000). Profiles of General Demographic Characteristics, Whatcom County, Washington. Retrieved on April 4, 2010 from: <http://www.census.gov/prod/cen2000/dp1/2kh53.pdf>
- xvi U.S. Census Bureau. (2000). Table DP-1. Profile of General Demographic Characteristics: 2000 Geographic area: Lynden city, Washington. Retrieved on April 10, 2010 from: <http://censtats.census.gov/data/WA/1605340805.pdf>
- xvii Data from Profile of General Demographic Characteristics: 2000, Office of Financial Management: Whatcom County at: <http://www.ofm.wa.gov/pop/census2000/profiles/county/05053073.pdf> Bellingham data at: <http://www.ofm.wa.gov/pop/census2000/profiles/place/1605305280.pdf> Lynden data at: <http://www.ofm.wa.gov/pop/census2000/profiles/place/1605340805.pdf> Ferndale data at: <http://www.ofm.wa.gov/pop/census2000/profiles/place/1605323620.pdf>
- xviii Washington State Employment Security Department. (2010). Whatcom County Profile. Retrieved on April 4, 2010 from: <http://www.workforceexplorer.com>
- xix U.S. Census Bureau. (2006-2008). American Community Survey 3-Year Estimates. Retrieved on April 4, 2010 from: <http://factfinder.census.gov>
- xx City Data. (2008). Bellingham, Washington. Retrieved on April 4, 2010 from: <http://www.city-data.com/city/Bellingham-Washington.html>
- xxi Data from U.S. Census Bureau; American FactFinder: <http://factfinder.census.gov>
- xxii U.S. Department of Health and Human Services. (2010). Frequently Asked Questions Related to the Poverty Guidelines and Poverty. Retrieved on April 4, 2010. <http://aspe.hhs.gov/poverty/faq.shtml#What>
- xxiii U.S. Department of Health and Human Services. (2009). The 2009 HHS Poverty Guidelines. One Version of the [U.S.] Federal Poverty Measure. Retrieved on April 4, 2010 from: <http://aspe.hhs.gov/poverty/09poverty.shtml>
- xxiv U.S. Department of Health and Human Services. (2009). Computations for the 2009 Annual Update of the HHS Poverty Guidelines for the 48 Contiguous States and the District of Columbia. Retrieved on April 4, 2010 from: <http://aspe.hhs.gov/poverty/09computations.shtml>
- xxv U.S. Census Bureau. (2006-2008). American Community Survey 3-Year Estimates. Retrieved on April 4, 2010 from: <http://factfinder.census.gov>
- xxvi City Data. (2008). Ferndale, Washington. Retrieved on April 4, 2010 from: <http://www.city-data.com/city/Ferndale-Washington.html>
- xxvii City Data. (2008). Lynden, Washington. Retrieved on April 4, 2010 from: <http://www.city-data.com/city/Lynden-Washington.html>
- xxviii Data from U.S. Census Bureau; American FactFinder: <http://factfinder.census.gov>
- xxix U.S. Census Bureau. (2006-2008). American FactFinder. Whatcom County, Washington. Selected Economic Characteristics: 2006-2008. Retrieved on April 4, 2010 from: <http://factfinder.census.gov>
- xxx Ibid.
- xxxi State of Washington Office of Superintendent of Public Instruction. (2009). Free and Reduced-Price Meals Eligibility. Retrieved on April 4, 2010 from: <http://www.k12.wa.us/ChildNutrition/Reports/FreeReducedMeals.aspx>

## Chapter 2

### How Are Food Consumption and Health Related in Whatcom County?

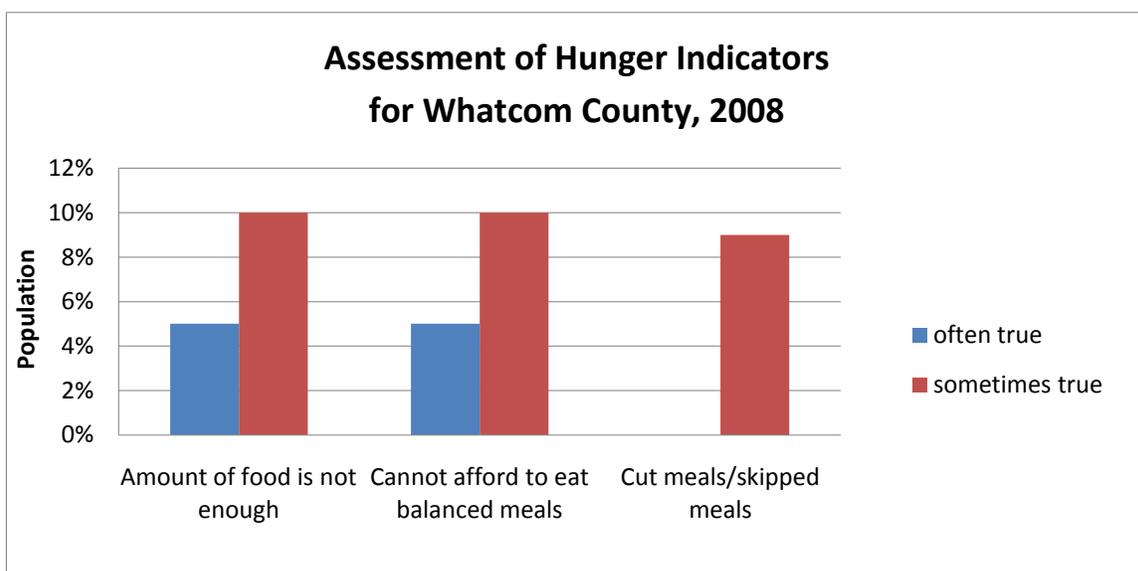
Food consumption and health are inextricably linked, and so it follows that a community food assessment must look at indicators that may relate to individual health within the community population. These indicators include an individual's getting enough to eat, making healthy food choices, obesity, and economic access to healthy food.

#### Behavioral Risk Factor Surveillance System and the Healthy Youth Survey

Two recent surveys have supplied valuable information on individual food and nutrition indicators for Whatcom County. In the first, the Whatcom County Health Department extracted information from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS), a health study conducted since 1984 of adults in every county in the United States. Data specific to issues examined in this assessment were measured in 1996, 2002, and 2008. The second, called the Healthy Youth Survey (HYS), was compiled by the Washington State Department of Health from data collected in 2002, 2004, 2006, and 2008. Seven school districts in Whatcom County and students in grades 6, 8, 10, and 12 participated.<sup>i</sup>

#### Hunger

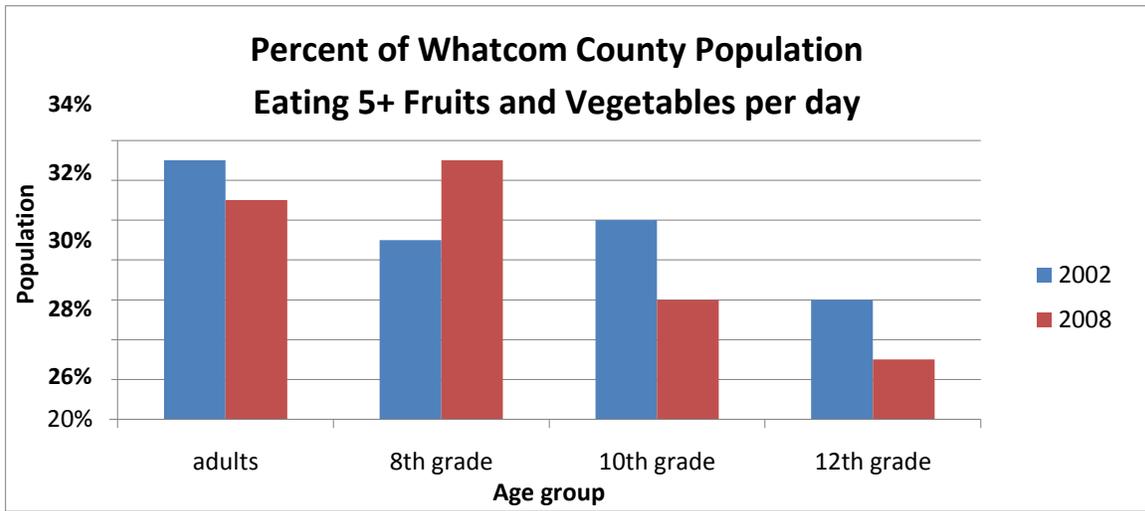
The BRFSS data highlight indicators of hunger or food security in the population. When asked about the past 12 months, 15% of adults surveyed said that the amount of food they had was often or sometimes not enough, 15% said that they often or sometimes could not afford to eat balanced meals, and 9% cut or skipped meals.<sup>ii</sup>



#### Healthy Food Choices

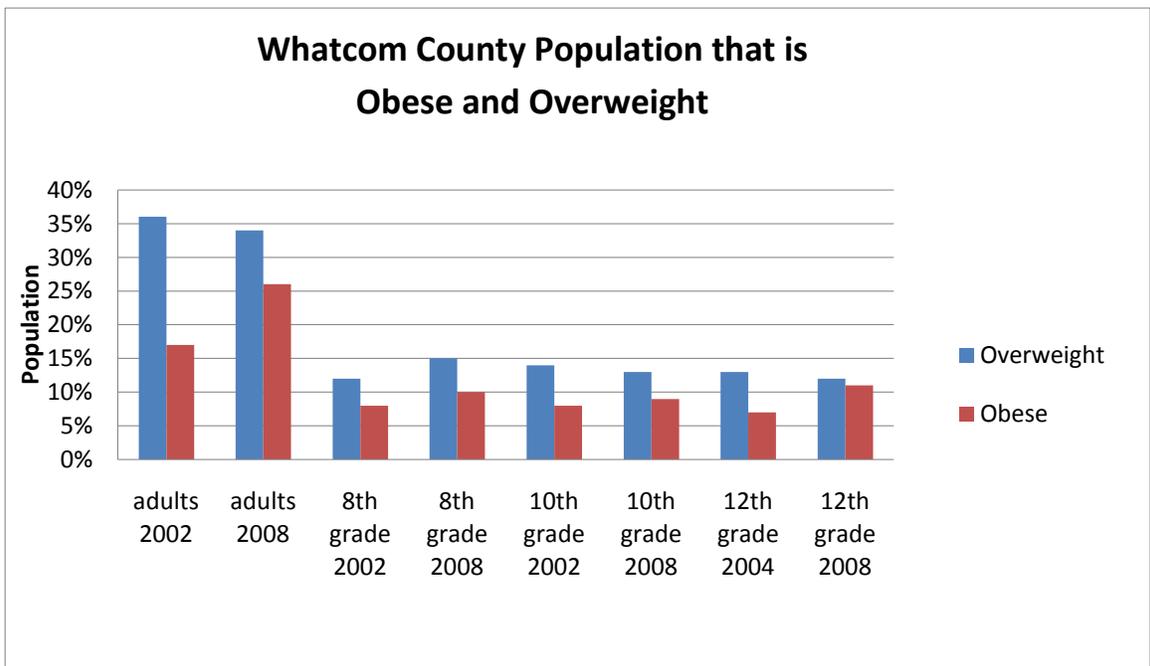
The CDC has recommended that individuals eat at least 5 servings of fruit and vegetables per day. Currently, only about 30% of adults and between 23% and 33% of children in Washington State consume the daily recommended levels.<sup>iv</sup> This is an indicator of healthy food choices made by a population, and it is also an indicator of food access

due to poverty and the general availability of healthy food. In the period between 2002 and 2008, the number of people eating at least 5 fruit and vegetable servings per day decreased in most groups.



**Obesity**

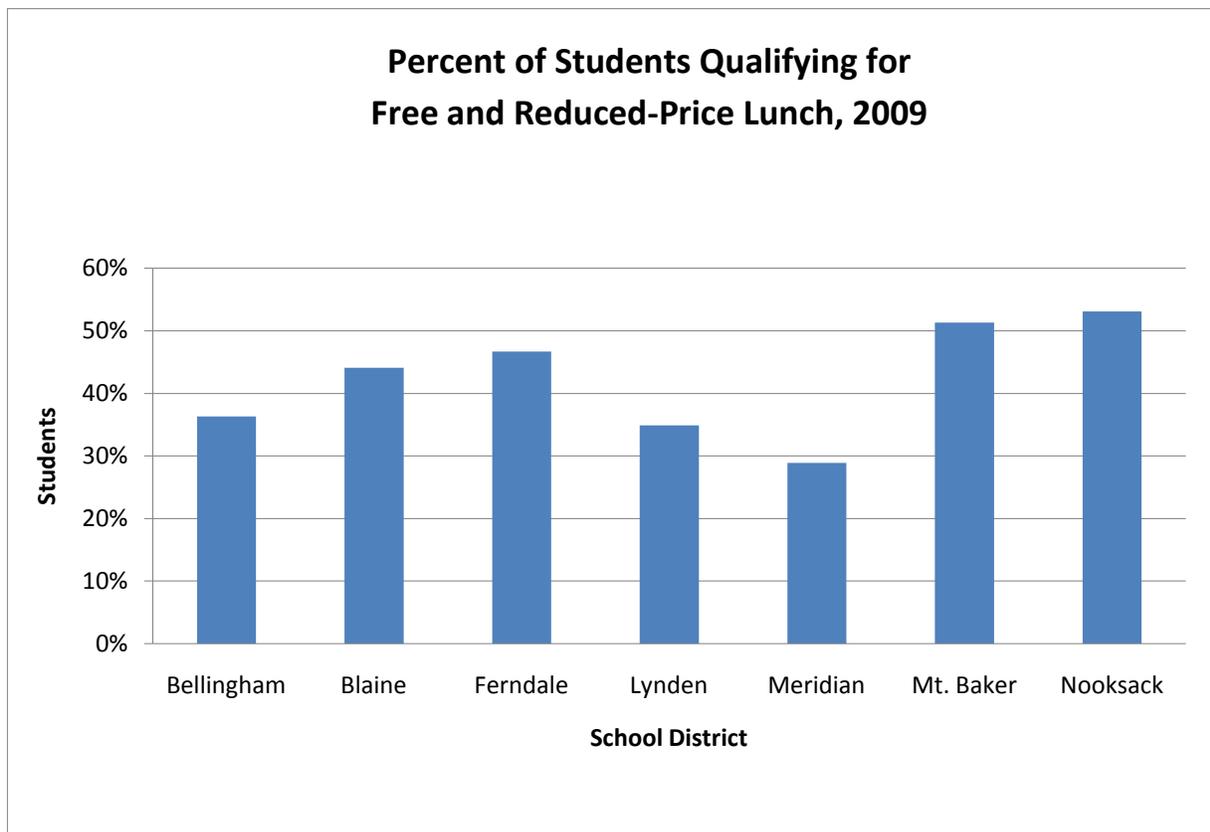
Overweight and obesity rates among Whatcom County residents mirror national trends, which show increasing rates of obesity in all age groups since the mid-1970s. The 2007 BRFSS data indicate that 60% of Whatcom County residents are overweight and/or obese (having a body mass index >30). Rates have increased since 2002 in all age groups measured. Research on obesity clearly indicates that consuming recommended daily levels of fruits and vegetables is critical for weight management and related health.<sup>vi</sup>



## Food Security

As defined by the United Nations' Food and Agriculture Organization (FAO), "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."<sup>viii</sup> In addition to its application at the individual and household level, food security includes the ability of a community to be self-reliant in supplying healthy, affordable, and culturally appropriate food to the residents.<sup>ix</sup>

Other indicators of household food security relate to income and poverty levels. Poverty guidelines are figures used by the federal government to qualify individuals and families for a variety of assistance programs. Published annually, they define current income levels at which individuals and families are defined as being in poverty. In 2009, the poverty guidelines for a family or household of four was \$22,050. For a family or household of two, it was \$14,570.<sup>x</sup> Basic Food, the Washington State food stamp program, identifies an individual or family as eligible for assistance if that individual or family makes 130% or less of the federal poverty guidelines. In 2009, for a family of four, the figure was \$28,665; for a family of two, \$18,941.<sup>xi</sup> As of 2008, 14.7% of Whatcom County residents qualified for Basic Food.<sup>xii</sup> Public and non-profit private school students qualify for free or reduced-price lunches if their household earns 185% or less of the poverty guidelines. The percentage of students qualifying for this benefit ranges between 29% and 53% at County school districts, with a County-wide average of 41%.<sup>xiii</sup>



## **Food and Nutrition Programs in Whatcom County**

Making healthy food choices is an important element of a community's food security. Often, people at risk for making poor choices do not have the knowledge to make wise food decisions or do not have the skills to cook healthy foods. Education programs on food and nutrition are an important part of increasing food security among those at highest risk. Whatcom County has several food education programs.

### *Food \$ense*

Food \$ense programs are offered by Washington State University (WSU) Extension throughout the state. Whatcom County has two programs: one that serves eligible audiences throughout the County and one that serves children and families of the Lummi Nation. Both are coordinated by WSU Whatcom County Extension staff. The Whatcom County programs are both part of the U.S. Department of Agriculture's Supplemental Nutrition Assistance Program (SNAP). SNAP educators (referred to as SNAP-ED) teach youth and limited-income adults skills and behaviors to eat healthfully with a focus on consuming fruits and vegetables, whole grains, low-fat protein sources, and calcium-rich foods. They also teach about making the most of food dollars. The Food \$ense/SNAP-ED program is free to all participants.

### *Community Food Coop Healthy Connections Classes*

Classes offered through the Community Food Coop of Bellingham focus on cooking, health, and well-being. Most classes require payment, but some are free. Classes with a cooking emphasis highlight whole and organic ingredients and, when possible, fresh and local produce. These classes explore cooking meals from many cultures as well as cooking for different dietary needs.

### *Community to Community: Las Margaritas and Cocinas Sanas*

Two programs run by Community to Community (C2C) provide food and nutrition education to the Latino community. Las Margaritas is a farmworker- and women-owned catering cooperative that cooks traditional food with locally grown, organic produce. Cocinas Sanas (Healthy Kitchens) is a new program in which the women from Las Margaritas develop workshops to educate the community on healthy eating for everyday meals and cooking with locally grown products.

## **Conclusion**

Food and health are closely related; several national, long-term surveys demonstrate their interconnectedness among adults and youth in the United States. The data on food access, obesity, poverty, and healthy eating patterns show a number of significant trends both in Whatcom County and in the nation.

- Up to 15% of Whatcom County adults did not feel that they had enough to eat in the last 12 months.
- Only 30% of Whatcom County adults and between 23% and 33% of Whatcom County youth consume the recommended amounts of fruits and vegetables per day.
- 60% of Whatcom County residents are overweight or obese.
- 14% of Whatcom County residents qualify for Basic Food and County-wide an average of 41% of students are eligible for the Free and Reduced-Price Lunch Program.

What these numbers do not show are the connections among indicators. For instance, we do not know what relationship exists between individuals who are hungry and those who may also be obese. A number of factors influence these statistics, and more research is necessary to connect the dots. However, what the statistics do tell us is that there is significant room for improvement in the hunger and health status of Whatcom County's population.

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- xii U.S. Census Bureau. (2006-2008). American Community Survey 3-Year Estimates. Retrieved on April 4, 2010 from: <http://factfinder.census.gov>
- xiii State of Washington Office of Superintendent of Public Instruction. (2009). Child Nutrition. Free and Reduced Lunch Eligibility. Retrieved on April 4, 2010 from: <http://www.k12.wa.us/ChildNutrition/Reports/FreeReducedMeals.aspx>
- xiv Data from Office of Superintendent of Public Instruction, Washington: <http://www.k12.wa.us>

## Chapter 3

### Where Does Whatcom County Get its Food?

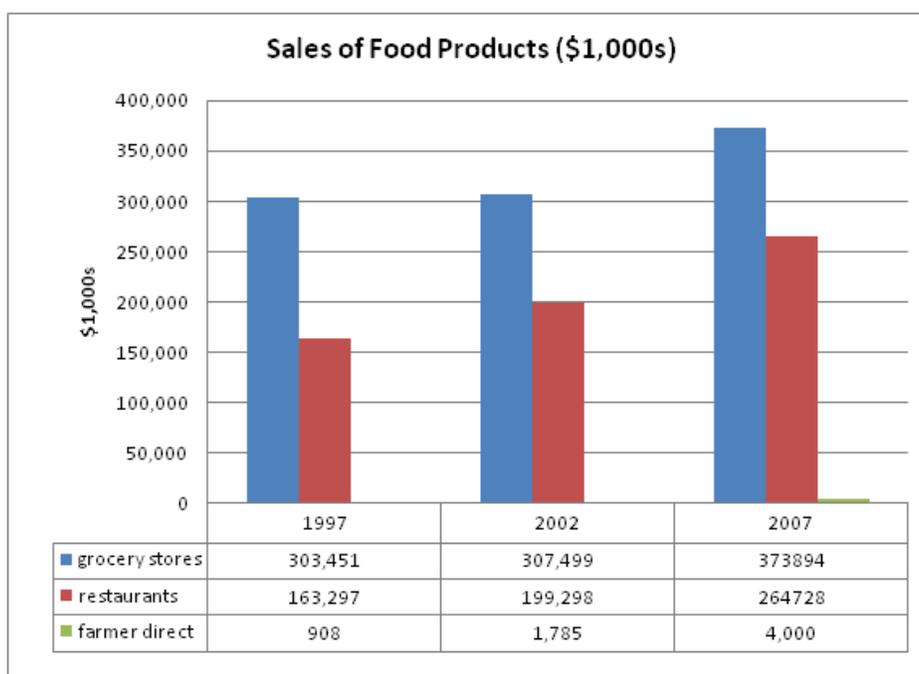
Market surveys spend thousands of dollars trying to discern what, where, and how much people spend on food. Information about trends in consumer food purchasing and farm sales is integral to any CFA because they are the ultimate indicator of the health of the local food economy. Beyond the economic health of the agricultural and food system, the viability of local farms as well as retail and wholesale food businesses has a direct impact upon the availability of food to Whatcom County citizens. By examining where Whatcom County residents are buying their food and what barriers they face to accessing that food easily and affordably, we can begin to determine the localized market potential for farms and also what opportunity exists for the development and strengthening of the entire local food system—from farm to processing facility to food stores to residents' kitchen tables.

This CFA does not use marketing data or provide references to any particular business; the data that is presented describes food-buying practices by source (grocery, restaurant, farm direct, etc.). This CFA also looks at food that people produce in groups and food that can be accessed through emergency providers (such as food banks). While it does not document the number of residents with home gardens, this section describes a variety of community gardens—increasing in number each year—that exist in Whatcom County.

#### How Whatcom County Residents Spend their Food Dollars

In 2007, Whatcom County residents spent over \$642 million at grocery stores, restaurants, and direct from farmers. Such expenditures increased over the past 10 years. While sales of food products direct from farmers is a small portion of food purchased, the value of these sales increased fourfold from 1997 (less than \$1 million in sales) to 2007 (\$4 million in sales).<sup>i</sup>

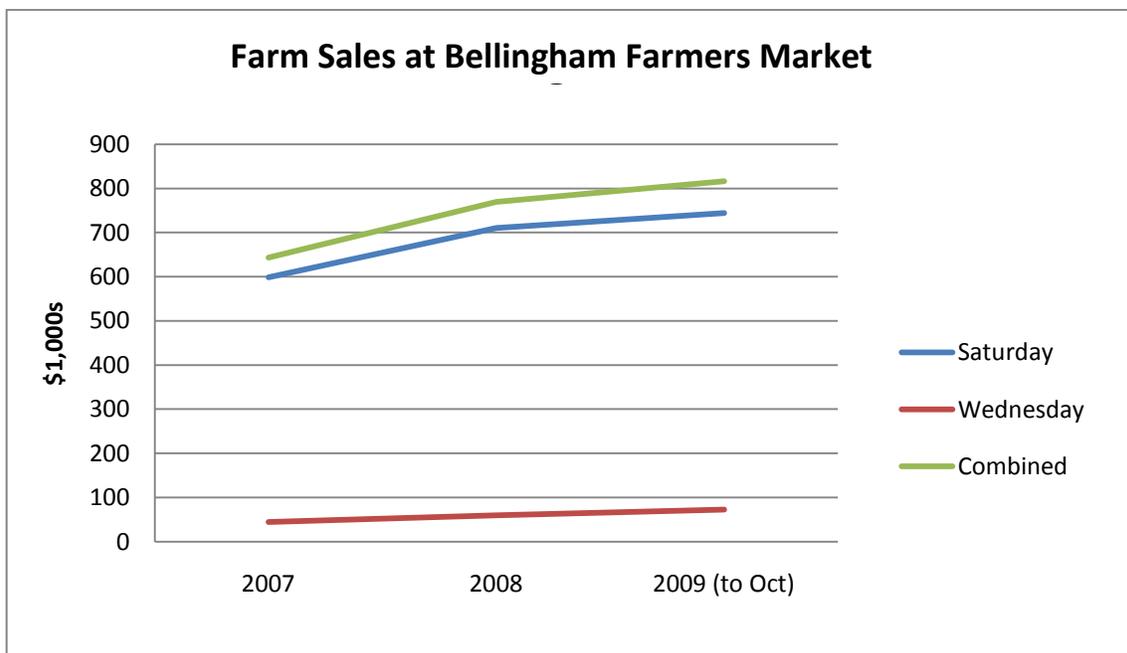
In 2009, Whatcom County was home to 28 supermarkets and 386 restaurants (including fast food restaurants); convenience stores and food outlets attached to gas stations are other options for food purchase.<sup>ii</sup>



### Farmer-Direct Marketing and Sales

Consistent with the national resurgence of interest in knowing where food comes from and how it is grown, growing numbers of Whatcom County residents are looking to purchase food directly from producers who operate within or close to Whatcom County. Farms are finding profitability in this approach to marketing and sales: they skip the intermediary and retain full retail value for their product, they make connections with consumers and establish loyalty, and they can learn about what products are wanted and why. Farmer-direct marketing can happen in a number of ways, such as consumer farm visits, farmers markets, community supported agriculture (CSA), and direct to restaurants and retail stores.

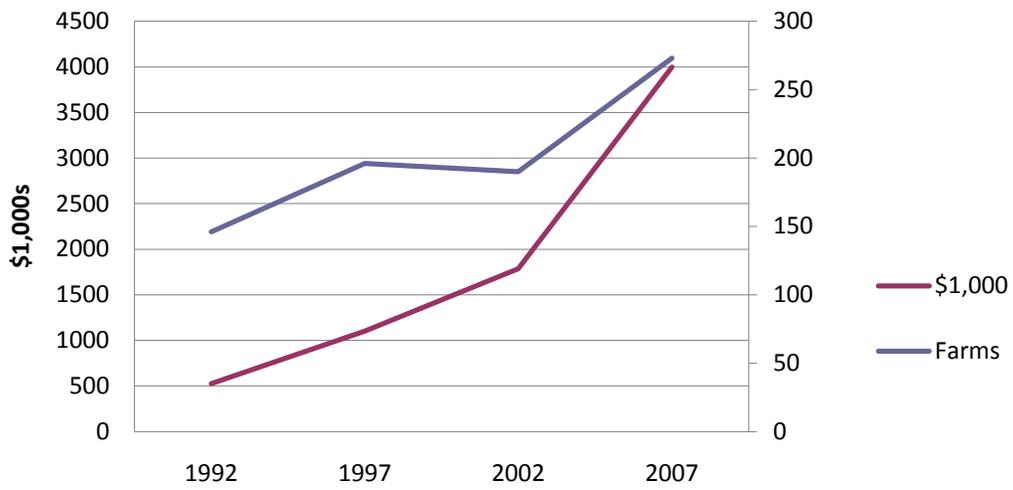
The Bellingham Farmers Market operates twice per week: the Saturday market operates in downtown Bellingham and the Wednesday market operates in Fairhaven. Products for sale include fruits and vegetables; value-added agricultural products, such as honey and apple cider; dairy; and garden plants. Sales in the farm sales category this category have increased over the past two years at both markets. Other regional farmers' markets—in Blaine, Ferndale, Lummi Island, and Lynden—are much younger and have rules and regulations for vendors that differ from those of the Bellingham Farmers Market.



Community Supported Agriculture (CSA) is a way for buyers to purchase a share of what a farmer produces by paying for it in advance of the growing season. Members of a CSA usually receive a box of produce or other farm products weekly. The shareholders (consumers) take on some of the farmer's risk, the farmer gets much-needed money before the growing season, and relationships are made between farmer and consumer. According to the 2007 Census of Agriculture, 22 farms in Whatcom County had CSA programs.<sup>v</sup> According to a publication by the Community Food Coop of Bellingham, 13 farms are offering CSA programs in 2010. This number may not include some farms with small, non-publicized CSA programs.

Out of 1,483 farms in Whatcom County recognized in the 2007 U.S. Agriculture Census, 18% (273 farms) engage in direct marketing of some kind. That number has grown by 44% in Whatcom County since 2002 (190 farms), far outstripping the Washington State growth rate of 19.7%.<sup>vi</sup>

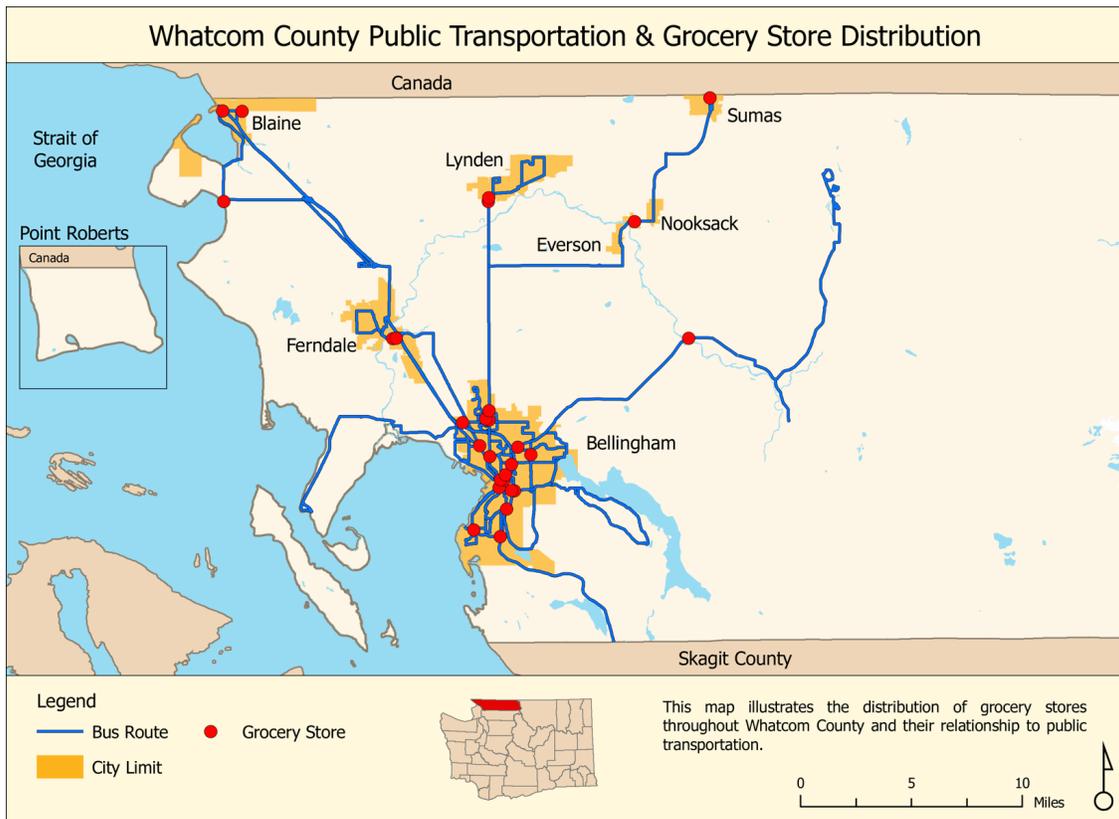
### Farm Direct Marketing: Number of farms and value of sales

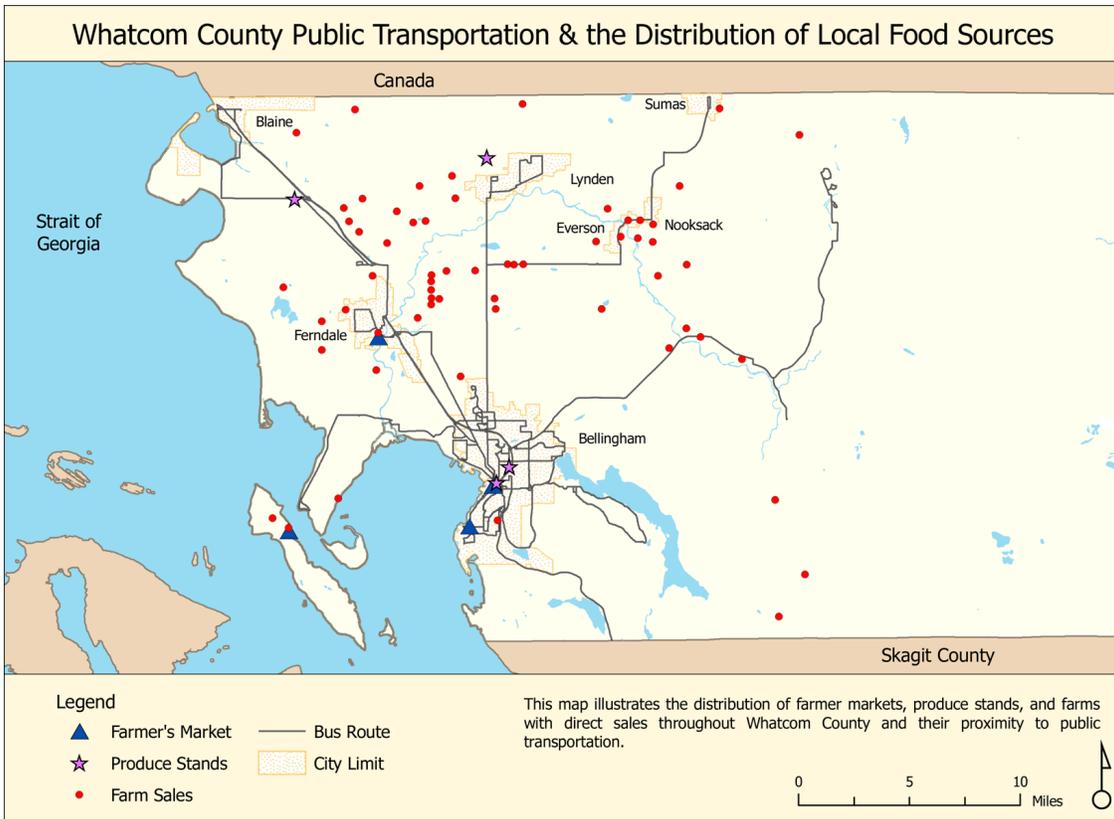
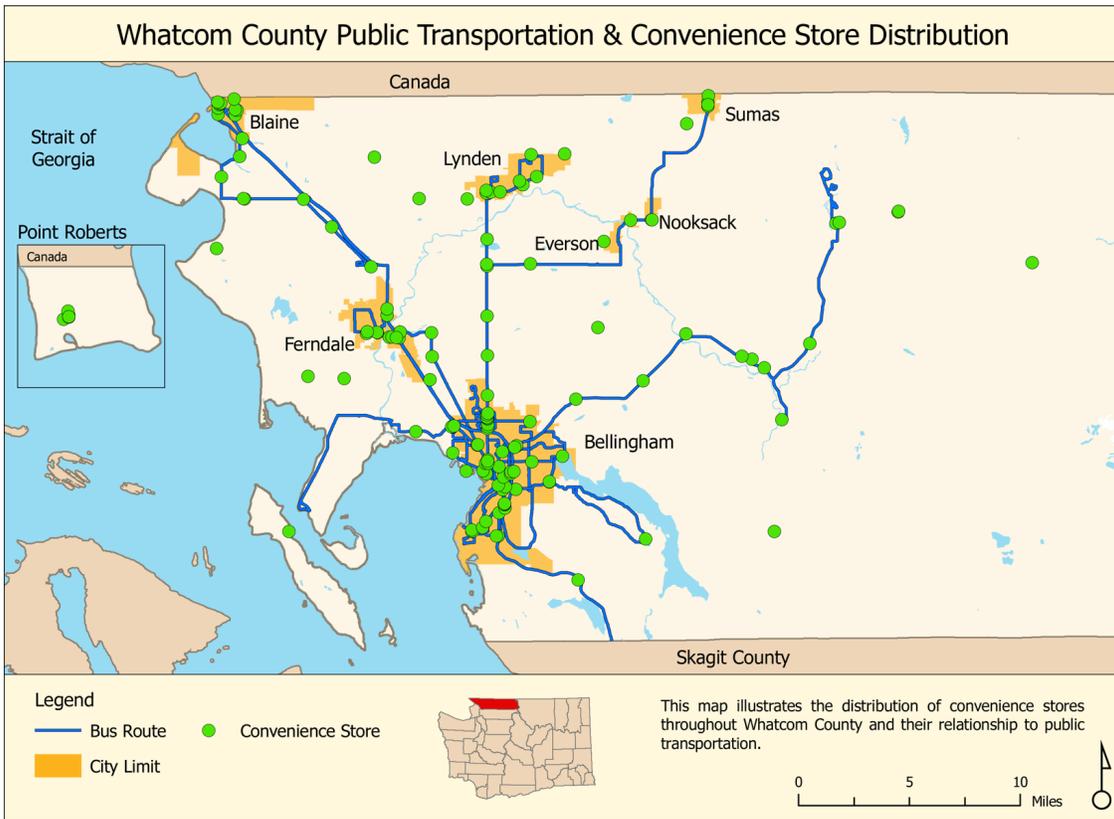


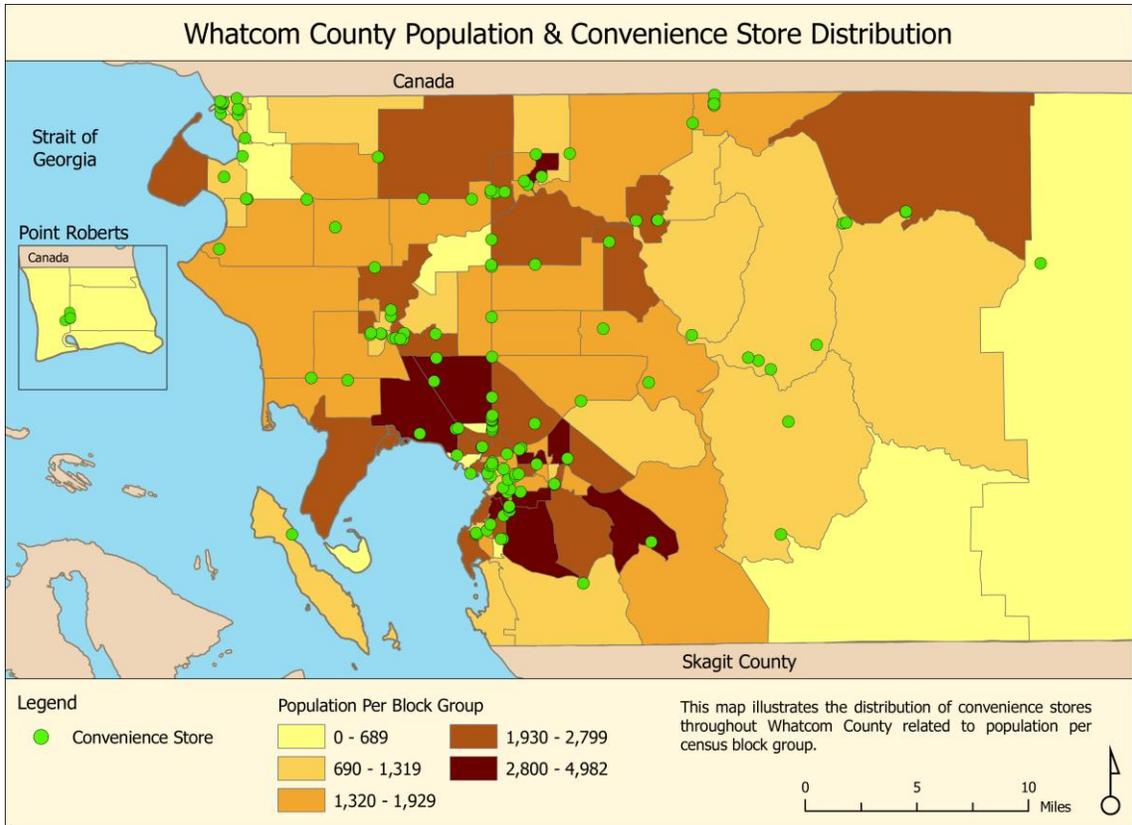
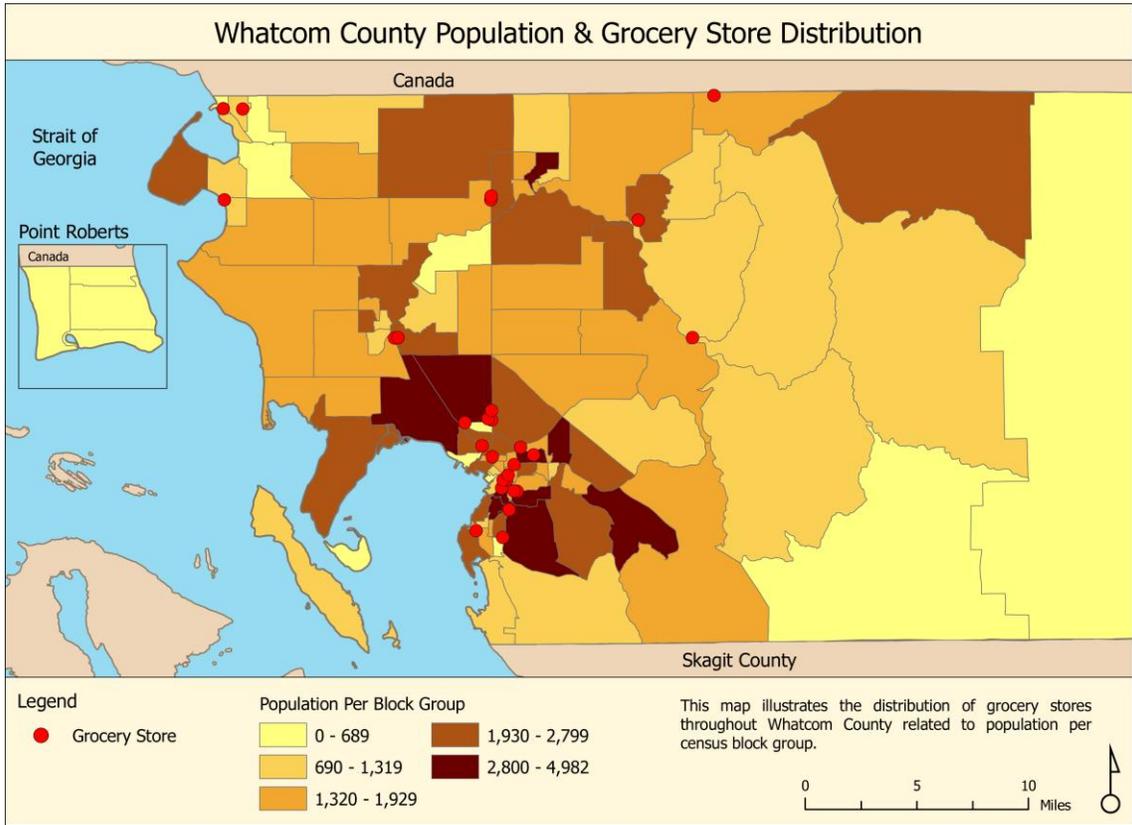
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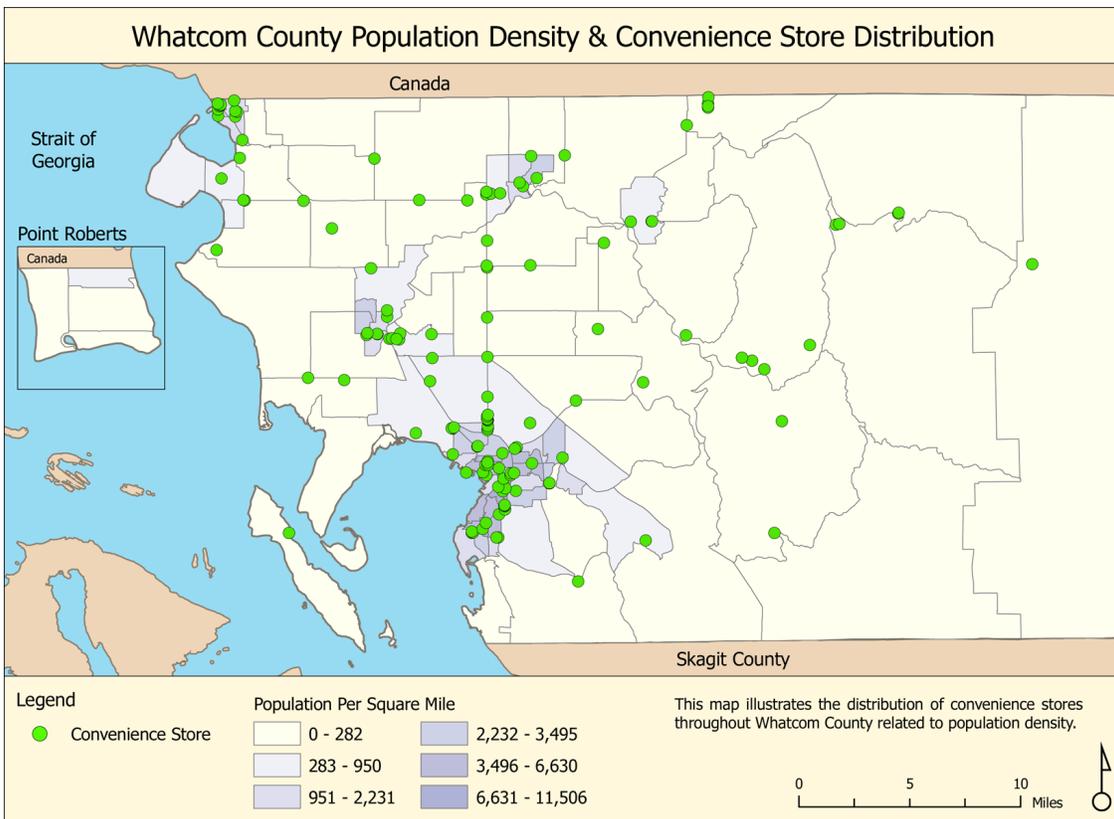
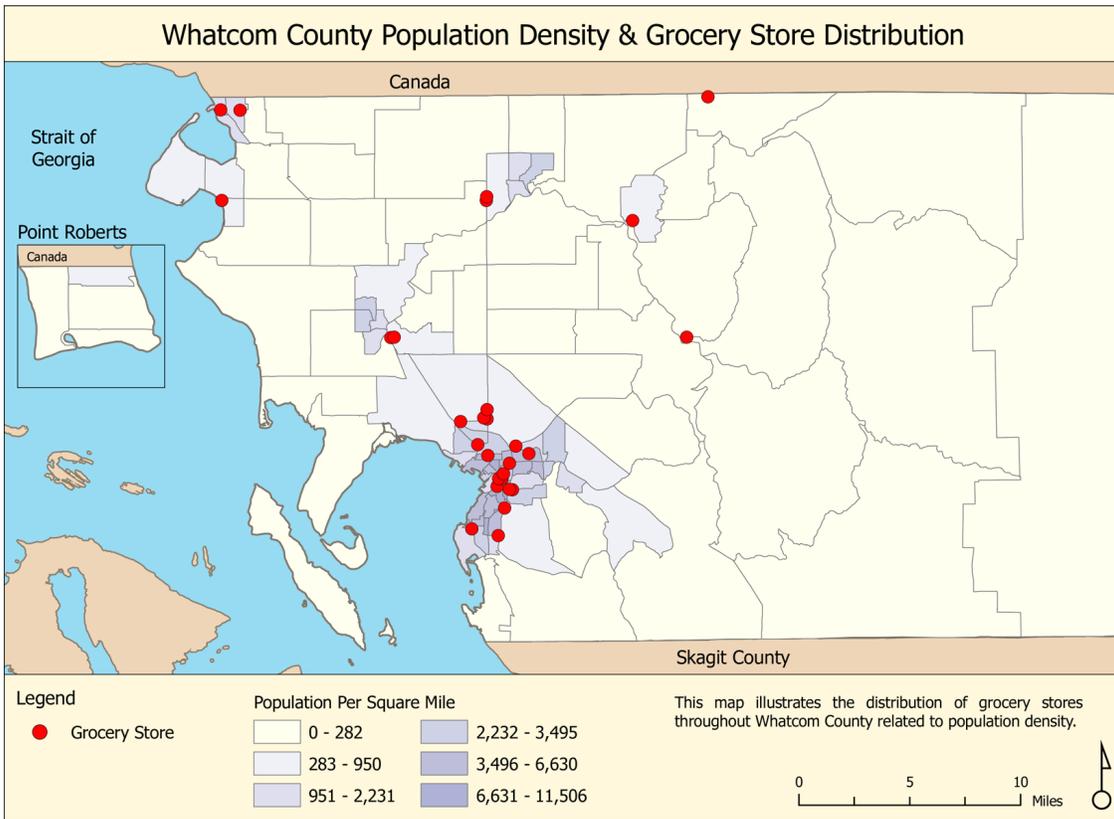
### Access to Food Sources in Whatcom County

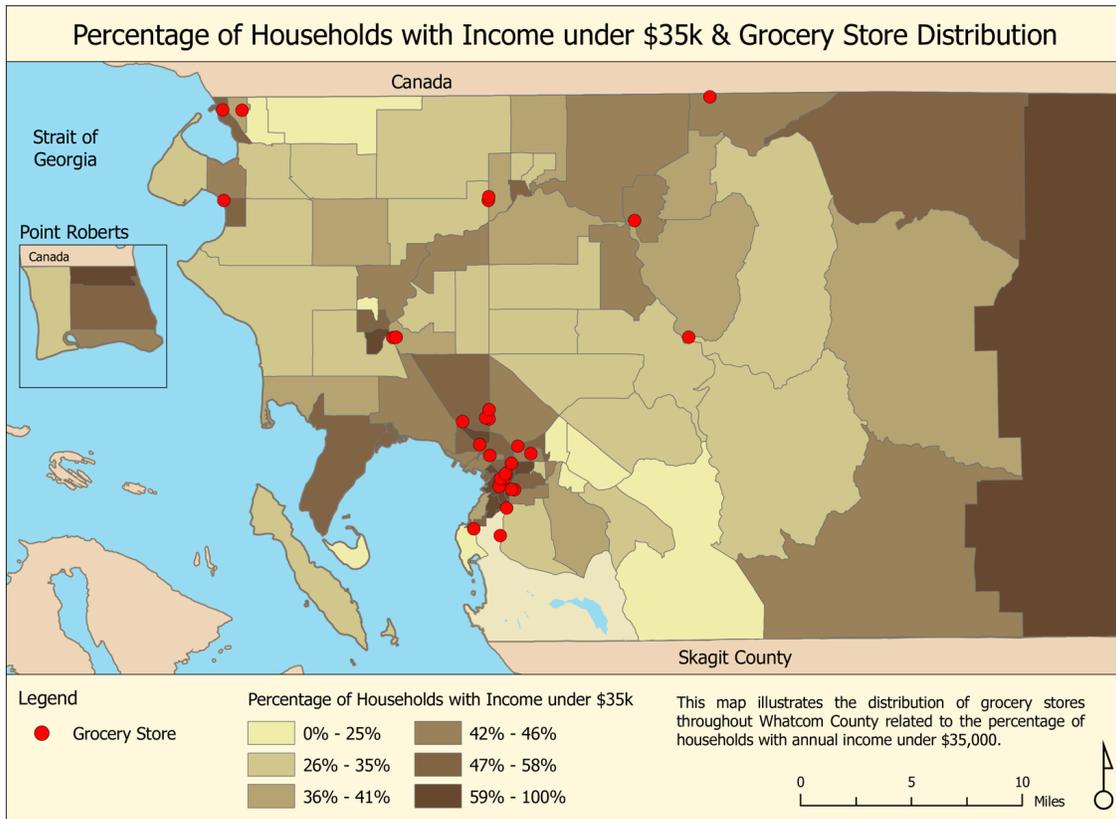
Data relating to physical addresses (of farms, grocery stores, etc.) can be mapped using a GIS System. This is particularly valuable in the context of a CFA because it allows us to identify segments of Whatcom County's population which might struggle to access sources of food adequate to fulfill dietary needs. Data collected from the 2000 U.S. Census as well as numerous other websites and organizations were used to develop a series of maps using ESRI ArcView Software. The following maps illustrate the distribution of Whatcom County convenience and grocery stores as well as farms using direct marketing and their relation to population, income, and proximity to public transportation. Income data were used to identify the percentage of households with annual income under \$35,000 per census block group.<sup>viii</sup>











These food maps have a number of important implications for this CFA. Rural residents (those living in unincorporated regions of the County, accounting for 44% of Whatcom residents) are most likely to have convenience stores as their closest place to purchase food. Similarly, east-County residents who do not have a car and rely upon public transportation have a long way to travel to reach a grocery store.

Farm stands are abundant in Whatcom County, but access can be difficult for people who use public transportation; many farm stands are not located on bus routes. An example of this is the cluster of produce and farm stands on Northwest Avenue, north of Axton Road.

## **Farm-to-School Programs in Whatcom County**

Farm-to-school programs are gaining popularity on a national level, and some limited successes have been seen locally. As part of this CFA, we interviewed food service coordinators and people involved in farm-to-school programs locally to find out about what institutions are currently doing with locally produced food, whether they are interested in purchasing more food from local farmers, and what the barriers are to purchasing locally grown food. All of the answers are given in a table in the appendix to this CFA, and a summary is given here.

All food service directors purchased food from large food service providers, such as Food Services of America or Sodexo. Most school districts also made an effort to purchase some locally grown food throughout the year.

Products included:

- Apples from Bellewood Acres.
- Produce from Growing Washington in Everson.
- Dairy Valley milk from Mt. Vernon.

Many food service directors observed benefits to purchasing food locally:

- Obtaining fresher and higher quality products.
- Supporting local farmers.
- Stimulating the local economy.
- Encouraging connections between students and local farms.

When asked if they are interested in purchasing local food, food service directors replied with a range of answers, including:

- “Yes!”
- “We’d love to buy whatever we can locally.”
- “I’d love to purchase all our food locally if what we needed was available and affordable.”
- “Yes, but it has to be balanced with our economic needs.”
- “Not opposed, if barriers could be addressed. Bellewood Acres works really well.”

When asked what some of the barriers were to purchasing locally grown food, answers fell into several categories:

### *Price of food*

Food service providers struggle to get the best products for the lowest price; many see purchasing from local farms as a benefit to their missions but often cannot justify it financially. Schools and institutions may not have enough money to pay for local products, which can cost more than products purchased through a national distributor. One school noted that it has approximately \$1 to spend on food for lunch per student per day. Federal, State, and local grants can make farm-to-school programs viable, but few such grants have been available

in Whatcom County. Districts also receive volume discounts when purchasing through national distributors; a concern is that if too much local food is purchased, that volume discount would be reduced.

### *Available facilities*

Costs for processing food are a factor, as many institutions do not have the funds to pay for labor or for in-house processing of raw food—the typical state in which food from local farms is delivered (e.g., whole carrots versus carrot sticks). Institutions may also lack the facilities, such as cold storage and preparation equipment. Food service providers worry about using funds to pay for in-house processing when the money could be used for food purchasing instead. The product delivered must be consistent in size for ease of use; this consistency is not always available from smaller farms. Independent schools (those not part of a public school district) have also run into issues with not having kitchen facilities that are up to health department standards and the costs to reach those standards are too high.

### *Seasonality and availability*

The school year does not correspond well with the local growing season. Some crops, such as apples, are an exception, and these products are finding their way into institutional cafeterias. Food service providers surveyed often noted that availability of local produce is a large issue, especially during the winter months. They worried about the ability of local farms to supply enough produce for an entire school or school district. One food service director noted that institutions sometimes need to be able to increase the quantity of food they receive on short notice. One strategy currently being employed by local farms is to join together through the non-profit farm organization Growing Washington to sell produce collectively to Western Washington University (WWU), thus allowing them to meet the University's quantity and availability demands. Both the farms and the University report success in this venture.

### *Delivery*

Food service directors noted that receiving deliveries from many smaller trucks throughout the day can be disruptive to their schedules and that receiving one shipment from a large supplier fit better with the way their programs are run. One food service director noted that Growing Washington (see above) was doing a good job coordinating delivery from several smaller farms, and another noted that one farm from Snohomish County was easy to work with (they did not give a specific reason for this).

### *Food safety liability*

Food service providers are very concerned about food safety and liability issues. Many institutions require high insurance coverage for their vendors that may be too expensive for small-scale, local farmers. For example, WWU's food service provider, Sodhexo, requires vendors to carry a \$5 million liability insurance policy. In addition, products must be traceable to a farm; if several farms are providing one product for cooperative delivery, this kind of traceability may not be possible. One institutional food service director noted the potential food safety risk involved with in-house cutting of produce.

### **Solutions**

Those involved with this CFA talked with people connected to farm-to-school programs, who offered some possible solutions to the above barriers:

- Coordinating several smaller growers to provide smaller quantities of one or two staple produce items and merge the products to have enough to supply a school. This is currently being done by Growing Washington, and significant room exists for expansion of this strategy.

- Introducing local produce one day a week, or every other week, that could be provided by a single farmer.
- Matching one farmer (or more) with a nearby school to provide produce and have the school children get involved with the farm.
- Provide a local cold storage facility to store produce from many farms and make it easier for institutions to pick up products.
- Serve several institutions from a central processing center that would handle and prepare produce from local farms. One delivery per day to each institution from that center would eliminate multiple deliveries by different farms.
- Institutions and farmers work together to plan what, how much, and when to plant so that produce would be available when institutions need it.

### ***Locally funded programs***

Starting in 2009, the Sustainable Whatcom Fund of the Whatcom Community Foundation is supporting a Farm-to-School Initiative.<sup>ix</sup> They are funding a support team and mini-grants of up to \$5,000 each to schools or organizations for pilot programs to bring more local food into schools. Fifteen pilot projects were funded by March 2010: 7 public schools, 6 independent schools, and 2 other organizations. Projects were required to be sustainable once the funding ended. Some examples of these projects are:

- Assisting with the costs of improving the infrastructure of a local farm to grow kiwifruit. The farm would work with the school to have student educational opportunities around growing, training, and harvesting the fruit, and would pay for the infrastructure over time by providing the school with food from the farm.
- Improving kitchen facilities so that local food could be purchased and prepared properly. (Some of these projects ran into hurdles with the health department's standards for commercial food kitchens.)
- Pay for school families to receive CSA shares from a local farm. These families would then give a contribution through the PTA to the "local healthy snacks fund," which would be used to buy snacks for the whole school.
- Serve local healthy snacks to kids after school. In the process, the project team would identify local food producers who could supply products and understand children's food preferences. This information could be passed along to the food service director for incorporation into the meal program.
- The Bellingham School District has formed a Farm to School Advisory Group to help the food service director to bring more local food into the schools. This is a district recognized group and includes parents, students, teachers, kitchen workers, farmers, and community members.

In 2010, the City of Bellingham offered a grant (administered by Whatcom Community Foundation) with the desire to get local, healthy food to school age children. A partnership of the Rebound Program of Whatcom County, Bellingham School District, and Common Threads Farm was the recipient of this funding. The project will provide at-risk children attending the Ray of Hope summer camp with local food, farm field trips, and gardening experiences. School garden curricular materials and a student-run farm stand will also be developed through this program.

### ***Food waste***

Food service directors were also asked about how they deal with food waste and whether they are interested in composting or recycling. All Whatcom County school districts with the exception of Blaine, Ferndale, and Lynden have implemented composting programs. For more information on food waste, see Chapter 10 of this CFA.

### ***A deeper look into WWU food service***

Seth Vidaña from WWU Office of Sustainability gave some insight into the food service program at WWU. Historically, WWU has used very little local food. In the past 3 years, the food service provider, Sodexo, has increased its local food (defined as within 150 miles) purchases to 5.5% of the total amount. Most of this comes as liquid milk (from Edaleen Dairy) and apples (from Bellewood Acres), with additional products coming from other farms in Washington State. Vertical integration of supply chains encourages Sodexo's institutional customers to purchase their food from the Sodexo distributor. However, the company's service at WWU receives high marks from WWU students and staff within Sodexo's corporate evaluation system for efforts to purchase local food. Sodexo is also doing a lot to reduce their waste products, including the introduction of a "trayless" dining hall program, which has reduced food waste generated by diners by 30%, and working with Sanitary Service Corporation (SSC)'s FoodPlus! recycling program to have food waste collected from kitchens, dining halls, and Birnham Wood residences. The result of these initiatives is that approximately 140,000 pounds of food waste per year avoids the landfill.<sup>x</sup>

### ***Other food-related activities at WWU***

Students have organized a couple of groups on campus looking into sustainable food systems. The "Students for Sustainable Food" group is interested in bringing more locally grown organic food into the food service at WWU, and the "Student Co-op" group is pursuing a student-run dining hall. There is interest in creating a farmers market or Community Supported Agriculture program on campus for students and staff to purchase locally grown food to prepare at home. WWU also has the Outback Farm, an area of campus where students have a community garden for producing their own food; other areas are designated for student projects, such as the forest garden and edible weed garden projects.

### **The Emergency Food System**

Poverty is a major factor in the access to food. With 14.7% of Whatcom County residents below federal poverty guidelines, the emergency food system is an important institution for feeding the community.<sup>xi</sup> It consists of many organizations helping to provide food for those in need.

Although not all emergency food providers maintain exact records of clients served and the growing need in Whatcom County, several of the larger organizations do. The number of client visits to the Bellingham Food Bank since 2007 has risen by 39%. Other service providers agreed that they had experienced similar increases.

Programs outlined below are divided into two sections: emergency food providers, such as food banks, and organizations that grow food for emergency food programs and providers. All information is from personal communication with directors or key employees/volunteers of the emergency food programs.

### ***Food Banks and Emergency Food Providers***

*Bellingham Food Bank* is the largest emergency food provider in Whatcom County. Each year the Bellingham Food Bank receives over 100,000 client visits and distributes more than 2 million pounds of food to low-income individuals and families; 35% of clients are children and 16% are seniors. The Bellingham Food Bank also serves as the redistribution center for 9 other Whatcom County food banks and receives USDA commodity food and other bulk food on behalf of the County food bank system.

Bellingham Food Bank works with grocers, bakeries, fisheries and other food producers and retailers to recover any of their edible waste for redirection to its distribution stream.

Working with Growing Washington, the Bellingham Food Bank manages the Small Potatoes Gleaning Project, the Food Bank Farm, and the Farm to Food Bank project (see next section: Food Being Grown for Emergency Food Programs).

Bellingham Food Bank's Victory Garden Program encourages local gardeners to donate their excess produce to the Food Bank. This program yields approximately 15,000 pounds of produce each year.

*Blaine Food Bank* serves about 280 people per week over 3 days. Director Robin Kindle thinks that the Food Bank serves people in need of food but also provides volunteers with a valuable experience. In Kindle's words, "[volunteers] get something intangible to feed their souls. Two of the volunteers are 93- and 94-years-old, and they have been volunteering for 30 years."

*Ferndale Food Bank* distributes food 3 times per week, receiving about 2,000 visits (including duplicate visitors) per month.

*Lynden Project Hope Food Bank* distributes food 3 times per week, serving about 35 families.

*Lummi Food Bank*, on the Lummi Reservation, is open 6 times per week for distribution and serves 180 families each week.

*Nooksack Valley Food Bank* is open for distribution once per week and serves clients in the Nooksack and Everson region.

*Bellingham Southside Food Bank* is housed at the Hillcrest Chapel in South Bellingham and open for distribution the first and third Thursday of each month. It serves about 100 clients during each distribution period.

*Salvation Army Food Bank* in north Bellingham is open for distribution 5 times per week and serves hundreds of clients.

*Foothills Food Bank* is located in Deming and open once per week, distributing food to 130-140 families each week.

*Christ the King Food Bank* is located in the Cascade Business Park on Guide Meridian Road between Smith and Acton Roads (not at the site of the church). It is open for distribution twice per week and serves about 450 clients.

*United Way of Whatcom County* funds programs such as Maple Alley Inn (a hot-meals program), facilitates and funds emergency food and shelter programs, and funds the Bellingham Food Bank and the Food Pantry.

*Opportunity Council's* role within the emergency food system is to serve hot meals that meet an immediate need and also to facilitate families' accessing Basic Food assistance. Serving food is a big part of what the Opportunity Council does, but it also connects people with other services that are available.

The Opportunity Council runs 3 programs connected to the emergency food system: Maple Alley Inn; Basic Food Outreach, an outreach program that assists families applying for food stamps and puts them in touch with other services that can make their lives more sustainable; and the Child Care Nutrition Program, which trains child-care providers in nutrition and reimburses them for meals served in their programs.

*Maple Alley Inn* located at the Faith Lutheran Church and is run by the Opportunity Council and serves a hot meal twice per week.

*The Rainbow Center*, in downtown Bellingham, is a recovery center for mentally ill adults, providing hot meals for more than 100 clients each day.

*Lighthouse Mission*, in downtown Bellingham, is an organization that runs a men's shelter, a women and children's shelter, and a special-needs dorm. It serves 3 meals per day for those within the shelters and to the general population; about 100,000 meals are served each year. It also offers services such as mental health counseling, medical consultation, and other counseling services. The number of people coming through the program and to the meals has increased in the last few years.

*Church on the Street* serves a hot dinner 3 times a week out of its Bellingham location. It also distributes sack lunches, socks, blankets, and other necessities. About 100 meals are served per day.

*Salt on the Street*, hosted by Cornwall Church Ministries, provides a hot meal once per week to approximately 150 people.

*Bellingham Community Meal*, hosted by the Church of the Assumption in Bellingham, serves a hot meal once per month to about 700 people. Organizers see a sense of community develop at the meals among clients as well as with the volunteers; it is as much a social gathering as a time to meet the needs of the community.

*Ferndale Community Meal Program*, based at the United Church of Ferndale; serves a hot dinner twice per month. The congregation also collects non-perishable food items, which are donated to the Ferndale Food Bank. Approximately 100 people are served per meal.

*C.A.S.T. (Coffee And Sandwiches on Tuesdays)* is held at the Interfaith Health Center in Bellingham, it started as a once-per-week event but now runs 4 days per week. Approximately 150-200 people are served per week, the numbers fluctuating nightly.

*Bellingham Senior Center/Whatcom and San Juan County Nutrition Program*, runs the "Meals on Wheels" program and also serves a hot lunch 2-5 times per week at meal sites where participants are served together, known as congregate meal sites. Meals on Wheels serves about 750 people each week. The Meals on Wheels program also serves another purpose for the seniors that are visited: drivers monitor the well-being of the clients and alert family members if there is a significant change, as they are often the only regular visitors some seniors have. Congregate meal sites serve about 2,000 meals per week; 190,000 meals were served in 2008.

*Soup's On*, located in North Bellingham at the Sterling Drive Church of Christ; serves full, hot meals on Tuesdays and Fridays. The number of people served varies between 45 and 80 per meal. Soup's On also offers showers and laundry services which, organizers say, draw many people to their program.

*Department of Social and Health Services*, this Washington State organization runs the Basic Food Program that served 7,862 households in July, 2008, increasing to 11,507 in June of 2009.<sup>xii</sup> This program allows people and families in need to spend electronic benefits in their local food stores, thereby creating economic activity for the region and state.

*Agape Project* is a service project run through the Newman Catholic Campus Ministry at WWU. It includes a food bank distribution held in Lynden every Wednesday for migrant farm workers. During the summer of 2009, over 100 families received food each week. This program may be successful for migrant farm worker families because it is held close to where the families live and because recipients are not asked for identification in order to receive food.

#### ***Gaps or remaining needs in the community food system as described by emergency food providers***

Managers of emergency food providers were asked about needs or gaps that remained that could strengthen the community food system. Comments included:

- A map showing accessible tree and plant food resources in Whatcom County, along with public outreach to make such free food resources are known.
- Utilizing food waste from restaurants and universities – food is being prepared and thrown away.
- Fresh, healthy, local food is expensive and not affordable for much of the population.
- There is a significant amount of food insecurity in Whatcom County. Publicizing this reality is one of the greatest needs. Such awareness could alert other groups involved in the food industry to the need to divert as much food from the waste stream as possible.
- More resources are required to serve low-income residents.
- A home-delivered food bank is needed for those unable to come to the food bank. WTA personal transport is possible, but some people have trouble navigating the system and find themselves unable to access this service.
- Access to transportation to allow non-driving seniors to access food.
- Funding for emergency food programs; demand has risen nearly 40% in the past two years.
- We need and are working toward more coordination and sharing of resources among emergency food programs. We are working on consolidating food storage and distribution to help supply the food banks in rural areas that don't have as much access as urban food banks to food donations from big companies.
- Making seniors comfortable enough to ask for help.
- Migrant farm workers have a difficult time gaining access to culturally appropriate, healthy food. In general, they do not feel that they fit in at food banks and are looking for fresh produce that may not be available at these food banks. Many retail grocery stores are not open when farm workers have time to go shopping.
- Facilities, such as community commercial kitchens, where excess produce can be preserved or through which it can be made accessible to people who need it.
- Food preservation networks or programs through which people interested in learning about food preservation can work with each other, existing resources, and appropriate facilities. Whatcom County WSU Extension coordinated a Master Food Preserver Program in 2008 and 2009, but local funding is limited, and the program may be cut in 2010. Development of this or similar programs could help limit food waste and extend the availability of quality food throughout the year.

### **Food Being Grown for Emergency Food Programs**

Several programs in Whatcom County grow and donate food to food banks, hot meal programs, and transitional housing programs. The programs include entire farms, parts of community gardens, church gardens, gleaning, and farmer donations.

#### *Food to Bank On*

This farmer-incubation and training program is run by Sustainable Connections. In it, new farmers are provided with resources and training and are matched with mentor farmers in order to develop their farming and business management skills. They are also paid wholesale market value for farm products they deliver weekly to food banks and hunger-relief agencies throughout the County. A total of 20 beginning farmers have been supported, and over \$50,000 worth of farm-fresh food has been delivered to food banks since 2003.

#### *Small Potatoes Gleaning Project*

The Bellingham Food Bank runs this project with support from Growing Washington. It has existed since 1999 with

various non-profit organizations providing sponsorship. The Gleaning Project coordinates volunteers to harvest leftover produce from farmers' fields, the Bellingham Farmers Market, and home gardens for delivery to food banks and emergency meal programs throughout Whatcom County. In 2009, the amount of produce harvested was 135,129 pounds: 101,554 pounds from farm fields, 14,733 pounds from farmers market retrieval, and 18,842 pounds from home gardens. Thirty-two farms participated in 2009 and 1,309.5 volunteer hours were clocked to help with gleaning and distribution. Food from the Gleaning Project went to 27 sites throughout the County.

#### *The Bellingham Food Bank Food Bank Farm*

This project is jointly run by Growing Washington and the Bellingham Food Bank. It started in 2007 and has expanded each year, with nearly \$70,000 worth of produce donated to the Food Bank in 2009. Many volunteers, including children from school, recreational, and County programs, are integral to production of the food.

#### *Farm to Food Bank*

The Bellingham Food Bank runs this program, started in 2009, which contracts with local farms to grow food for Whatcom County food banks using funding from Washington State and the Whatcom Community Foundation's Sustainable Whatcom Fund. Farmers are paid wholesale market prices for their products. Growing Washington coordinated this project locally; three identical projects ran in other areas of Washington State.

#### *Just Food CSA*

Growing Washington runs this project, which finds supporters to purchase CSA shares to be donated to individuals chosen by those sponsors. The CSA shares come from the Growing Whatcom CSA (a retail farm CSA program run by Growing Washington). Twenty-five shares were donated in 2008. This program is completely reliant on sponsorship from individuals and groups.

#### *Friendship Community Garden*

This garden is run under the umbrella of the Ferndale Service Community Cooperative. It has several community garden plots as well as a "giving garden" plot where food is produced for the Ferndale Food Bank. In 2008, 423 pounds of food were delivered to the Ferndale Food Bank.

#### *Bellingham Urban Garden Syndicate (BUGS)*

This organization encourages urban farming and currently runs 10 gardens in Bellingham that are maintained by volunteers. Work parties are held where volunteers can work in exchange for produce. BUGS organizes an Urban Farmer Series, bringing in mainly local farmers to teach classes on food production. BUGS is also developing an urban fruit tree stewardship and harvest program.

### **Home, Community, and School Gardens**

With the emergence of the trend to eat locally grown and raised food, with economic pressures of the recent months and years, and with issues of food safety in the media, more people are looking to grow their own food. For many, this means home vegetable and fruit gardens; for others, this means using community gardens where individuals or families can use a plot of land to grow food.

#### ***Home Food Gardens***

Growing food in a home garden can range from using a few pots for growing tomatoes or herbs to using the entire yard to grow fruit and vegetables. Since home food gardens can be so varied, they are very difficult to measure.

In May 2008, students from a WWU Anthropology class set up a "dot survey" at the Bellingham Farmers Market and at a book reading by Mark Winne, author of *The Food Gap*. On both occasions, all participants were

volunteers and were not singled out on account of their affiliation with the event. The students asked 5 multiple-choice questions, and participants were able to answer by placing dots in the appropriate category on flip charts. One of the questions asked was, “Do you grow your own food?” At the Farmers Market survey, 55% answered “yes,” and at the book reading, 83% answered “yes.” Participants were also asked about what they grow and how they grow it. At both venues, most home gardeners grew vegetables, and many produced fruit. At their homes, most grew their food in the ground (versus containers or at a community garden).

These results are not statistically significant, but they do give a snapshot of the food-growing practices of people who visit these events.

### ***Community and School Gardens in Whatcom County***

Below is a description of current community gardens in Whatcom County. These are divided into four sections:

- Community gardens
- Public school gardens
- Western Washington University gardens
- Transitional housing gardens

The number of community gardens in Whatcom County has grown over the past few years, and new gardens are continually being developed. Community gardens are located on public land, church property, and homeowner property, and are managed in various ways. Some community gardens have well-documented rules, and others are managed loosely by a group of families living close to the garden.

No formal community garden system exists in Whatcom County, although there are a few organizations that give support to more than one garden, such as Community First! Gardens, a program of WSU Whatcom County Extension. Some gardens incorporate growing plots used for donation to local food banks. Some homeowner community gardens are planted and open for neighbors to tend and harvest. Community garden sizes range from a few plots for a few families to over 50 plots for community members from a range of neighborhoods.

#### *Community Gardens Publically Managed*

##### Blaine and Birch Bay

- The Blaine Community/Senior Center. G Street between 7th and 8th Streets. This site has hosted a community garden in the past, but it is currently in transition
- A new community garden has been started in Birch Bay.

##### Bellingham

Bellingham Department of Parks and Recreation manages 3 community gardens with a total of 206 plots. Each garden has its own coordinator who works with the Department.

- Happy Valley Garden. 32nd Street between Taylor Avenue and Donovan Avenue. Organic, year-round, owned by the City of Bellingham.
- Fairhaven Garden. 10th Street and Wilson Avenue. Organic, year-round, leased from a private owner.
- Lakeway Garden. Lakeway Drive and Woburn Street Seasonal (May 1-October 1), owned by the City of Bellingham.

## Sumas

The City of Sumas Parks Department coordinates a one-acre garden with 20 plots, located at 399 Frost Rodeo Drive, in H. Bowen Memorial Park. Residents of nearby apartment buildings are the primary users of the garden, which is very loosely managed and has grown in size by word of mouth.

## Ferndale

Friendship Community Garden. Cherry Street, between Cherry and the PUD station. 18 beds of fruits and vegetables fed over 60 people in 2008. There is also a children's garden used by the Boys and Girls Club and a giving garden from which food is donated to the Ferndale Food Bank.

### *Community Gardens on Church Property*

- Immanuel Lutheran Church. 5782 Lawrence Road, Everson. This church grows a garden for the Kendall Food Bank and Maple Alley Inn, a hot meal emergency food provider in Bellingham.
- First Christian Church. 495 E. Bakerview Road, at Deemer Road, Bellingham. Started in 2007 for the use of nearby neighbors in apartment buildings and for growing vegetables to be donated to the food bank. There is a lot of space at this garden, and it is not currently full.
- Congregation Beth Israel Synagogue. Broadway/Lettered Streets Neighborhood, intersection of J and Irving Streets, Bellingham. Beth Israel has plans to increase organization/control of the garden, but they encourage neighbors to continue using it. A portion of this garden is facilitated by the Bellingham Urban Garden Syndicate (BUGS).
- Sterling Drive Church of Christ. 558 Sterling Drive, Bellingham. The Sterling Pas Garden was developed to provide fresh organic vegetables for Sterling Neighborhood families (many of which are connected to farm work) and church members, and as a space for neighbors to meet and work together. No individual plots are available, but sections can be adopted for tending. In 2009, the garden space was about 45' by 85' and 14 rows were planted with various vegetables. Neighbor families harvested throughout the summer and early fall; garden events were held for start-up work, mid-way harvest/weeding, and education. In 2009, the Small Potatoes Gleaning Project harvested 400 lbs. for area food banks.
- Third Christian Reformed Church. 514 Liberty Street, Lynden. Five Loaves Farm. Members garden on 3,300 square feet and produce is donated to the Lynden area food banks. They also manage a food bank farm at Christian Health Care Center in Lynden; some of this food goes to the residents of the center. This project is sponsored by A Rocha, a faith-based organization.<sup>xiii</sup>
- United Methodist Church. Main and 14<sup>th</sup> Streets, Lynden. 15-20 garden spaces for individuals or families to grow food. Organizers hope to have room for more plots in the future. A hoop house is also available.
- Sonlight Community Christian Reformed Church. North City Community Garden, Aaron Drive, Lynden. Built in 2009 with 20-25 plots for community members as well as community plots for potatoes, corn, and squash.
- Duffner Court Trailer Park. Front Street, Lynden. Has about 10 individual plots and a community corn plot. This garden is being assisted by the Third Christian Reformed Church.

### *Community Gardens at Private Residences (Privately Managed)*

- West residence garden located in Bellingham at the residence of Megan West. This 10-bed garden started in about 2002 and works with kindergarten classes at Sunnyland Elementary School. Students help to plant vegetables in the spring and come back in the fall to harvest. Ms. West also has neighbors join in harvesting, and one neighbor tends her own plot. There are plans to build a cold frame to add to the educational experience for the school children.

- Shuravloff residence garden located in Bellingham, at the residence of Trudy and John Shuravloff. This garden has 8 beds and is used by neighbors in the surrounding apartments. Excess vegetables are put out for neighbors to take. Neighbors are also invited to help in the tending and harvest of vegetables planted by the Shuravloffs.
- Miller garden, located in Bellingham, at the residence of Baron Miller. Four or five people in neighboring residences participate in this garden. Mr. Miller is a minister at the Roosevelt Community Church; he built the garden and invited neighbors to participate.
- Parker residence, located in Bellingham, at the residence of Stan Parker. There are about 5 families who use this garden; it is loosely organized and very cooperative. Mr. Parker organizes the beds and coordinates with neighbors to use the garden.
- I and Jenkins Streets. 5 gardeners, representing 4 households, garden on half of a small Bellingham city lot. This garden was in hiatus for the 2009 season.

#### *Community-Managed Gardens on Private Land*

- Cordata Community Gardens. Northern end of Cordata Parkway. Garden has 50 raised bed plots and was started in 2009 with support from the Community First! Gardens Program run by WSU Extension and funded by the Mary Redman Foundation.
- Broadway Youth Center. Corner of Dupont and Broadway Streets, Bellingham, on the property of the Broadway Youth Center. 18 plots rented and tended by neighborhood families.

#### *Community Gardens in Housing Complexes*

- Spring Creek Apartment. 196 E. Kellogg Road, Bellingham. 15 families have used this raised-bed vegetable garden since 1990.
- Old Mill Apartment. 2100 Electric Avenue, Bellingham. For the use of residents of the apartment complex.

#### *Community Gardens in Development*

Birchwood Neighborhood, Bellingham, has formed a committee called “Birchwood Community Victory Gardens” with the goal of developing a community garden in the neighborhood. Potential sites include Birchwood Elementary School grounds, adjacent to the school garden, or on nearby church property.

Sudden Valley Neighborhood, Bellingham, is planning a 100’ x 100’ garden to open in May 2010.

Everson, has a half-acre community garden, located across the street from the library, on Kirsch Road, in Everson. There are currently 8 plots that are being gardened by families and food is grown on the rest of the land for the Nooksack Valley Food Bank.

Maple Falls, located on Mt. Baker Highway, this garden consists of raised beds made from alder trees, and large barrels used to grow potatoes and tomatoes. A compost bin is shared with the neighboring coffee shop and bakery.

#### *School Gardens*

Gardens are also being built in several schools throughout the County. While these may not supply a large

quantity of food for a community, they expose children to the science, art, and skill of growing vegetables and give them a taste of fresh produce. Teachers are incorporating gardens into the curricula of almost all classroom subjects. For a number of reasons, including lack of processing capacity and health regulations, food from school gardens cannot currently be served in school cafeterias. However, students growing food are allowed to eat produce they have grown if they harvest it directly from the garden.

Formed in 2008 as a project of Common Threads Farm, the Whatcom County School Garden Collective is a group of teachers and local food advocates working to start school gardens and introduce students to the nutritional and educational opportunities of food gardening.<sup>xiv</sup>

New school gardens are being added each year and the success of these gardens depends on the involvement of teachers and parents. Gardens vary in what they offer: from one to several raised beds, perennial fruit production, winter production, greenhouses. School gardens that were known in 2010 are listed below.

Bellingham School District

Elementary schools: Geneva, Wade King, Alderwood, Birchwood, Columbia, Parkview, and Roosevelt

Middle schools: Shuksan and Fairhaven

High school: Squalicum

Private schools: Assumption Catholic and Cedartree Montessori

Ferndale School District: Beach Elementary

Lummi Nation: Lummi Nation School

Mount Baker School District: Kendall Elementary School

#### *Western Washington University Gardens*

Western Washington University has gardening locations for students and staff. Gardens on campus offer a variety of opportunities to meet the individual's interest.

Four main garden projects are run through Fairhaven College's 'The Outback Farm Gardens': The Community Garden, the Market Garden, the Herb Garden, and the Forest Garden. They are maintained and coordinated by students and are popular with students and staff. Some classes have activities in the gardens for coursework.

The Community Garden is comprised of roughly 40 small plots, available to students, staff, and faculty, available on a first-come, first-served basis and free of charge. To be eligible for a plot, individuals must commit to tending it throughout the summer or else have a plan to pass on responsibility to a known party. No prior gardening experience is necessary and experimentation (so long as it is organic) is encouraged.

The Market/Educational Garden is an experiment in practical, bio-intensive organic growing. Harvested produce is sold to faculty and staff at Fairhaven College and on the WWU campus and is also donated to the Bellingham Food Bank.

The Herb Garden is located at the entrance to the Outback Farm. A variety of perennial and annual herbs are grown, planted in plots according to their uses: flu and cold remedies, culinary uses, nervines, and women's herbs.

The Forest Garden is located at the southeast corner of the Outback Farm. This long-term installation of various fruit trees and berry plants uses permaculture and biodynamic growing techniques.

### *Transitional Housing Facilities Gardens*

These are gardens for the current residents of facilities. A member of the staff or an outside garden coordinator manages most of these gardens, and residents are encouraged to help with the garden and enjoy the harvest.

Lydia Place Garden has 8 raised beds for vegetables, one 9'-wide, 3-tiered octagonal herb bed, and several fruit trees. The 6 to 8 resident families help with all aspects of garden prep, planting, maintenance, and harvest in 3 month-long sessions; some residents volunteer to care for the garden between sessions. A garden coordinator from WSU Whatcom County Extension works with the residents and conducts garden activities 3 evenings a month during the summer: one with women, one with children, and one with families. These activities give the residents skills to start their own gardens, whether in the ground or in containers, once they transition to their new homes.

YWCA Garden is coordinated by the YWCA's operations manager. The garden is informally organized and is run to provide food for residents. Community volunteers and residents plant and tend the garden. They focus on growing vegetables that require little maintenance, water, and time. The operations manager will harvest vegetables and leave them in the "free area" of the food supplies so that residents may take what they need.

Dorothy Place Garden has a small garden available for use by residents. Currently, only one resident is using the garden; she coordinates with the operations manager of the YWCA to share seeds and starts.

### **Conclusion**

This chapter paints a complex picture of the many sources from which Whatcom County residents acquire food. It also addresses accessibility of food for residents of Whatcom County and the challenges that exist in some areas on account of poverty and the availability of food stores. It highlights a growing trend of farms marketing their products directly, thereby retaining full retail value for their efforts, and a fast-growing movement among schools and emergency food systems to prioritize local food sources.

Of note among major trends discussed in this chapter are the following:

### ***Food Sales***

Whatcom County residents spend approximately \$643 million on food every year; the majority of that money is spent at grocery stores, although restaurants make up a large portion as well. Food money spent directly with local farms is increasing greatly but still makes up only a small percentage of total food spending.

- 18% of Whatcom County farms engage in direct-to-consumer marketing of some kind. That number has grown by 44% in Whatcom County since 2002.
- Sales volume from farmer-direct marketing totaled almost \$4 million in 2007, an increase of 94% since 2002.
- Access to food in Whatcom County is affected by many factors. Principal among them are:
  - Whether food stores are located long distances from population centers (by car) or if they are near public transportation.
  - The poverty of citizens, 14.7% of whom fall below federal poverty guidelines.

### ***Farm-to-School***

- Food service providers at institutions struggle to get the best products for consumers at the lowest price; many count purchasing from local farms as a benefit to their missions but often cannot justify it financially.
- Institutional food service providers cite several challenges to working with local food:
  - Lack of facilities for processing.
  - Delivery capacity of local farms.
  - Seasonal availability of produce.
  - Food safety liability.
- Of positive note is the work that schools throughout the County have done to increase their local food purchasing from farm cooperatives and their food recycling through composting services.

### ***The Emergency Food System***

- The number of client visits to Whatcom County food banks rose by 39% from 2007 to 2009. 35% of Bellingham Food Bank clients are children, and 16% are seniors.
- Emergency food programs are increasing efforts to provide food from Whatcom County sources in order to be more self-supporting and to increase the freshness and health of the food distributed. Such initiatives include gleaning from local farms, supporting the training of new farmers interested in helping those in need, and actually growing food that will go directly to clients.
- An increasing number of individuals in Whatcom County are using community gardens and the opportunity to grow their own food.

Information about food sales, farm marketing trends, the emergency food system, and efforts to increase our community's food self-sufficiency gives us a lot to go on when we look at areas in which our local food system is improving as well as opportunities that exist to make it stronger. The vast number of ways in which farms can sell products directly makes it very difficult for researchers to track exactly which methods work best. Each farm is different and what works for one may not work for another.

A great deal of further development is possible with regard to farms filling the increasing institutional demand for locally produced food. Initial successes have been seen with smaller farms joining together to supply large quantities of products to institutions, which allows more Whatcom County residents to eat locally produced food. Significant opportunity for innovation within this sector calls for further study and for the creation or re-focusing of existing agricultural businesses.

Food access is a significant challenge for many individuals and families in Whatcom County, based both upon geographic location and poverty. Maps created to show access to food stores throughout Whatcom County provide the basis for continued study into which geographic regions of the County are in need of the greatest support for accessing healthy food. This baseline data suggests areas of opportunity for food businesses and for transportation planners who look at the overall geographic dispersal of a population and the satisfaction of basic needs for those elements of the population that are nutritionally disadvantaged. Of particular note are the regions of eastern Whatcom County, which have both transportation challenges and some of the highest levels of poverty.

A great deal of opportunity exists for grassroots collaboration among organizations and individuals working with the emerging home and community garden movement. As efforts to develop community gardens, emergency

food gardens, and other resources for food self-sufficiency grow in number, Whatcom County will benefit from expanded coordination of those resources.

Whatcom County does not presently have a single organization or entity that counts within its mission the development of or focus upon local food policy or organizing across the spectrum of food issues (farm sales, farmland preservation, hunger, food access, garden education, etc.). Conclusions from this CFA as a whole may help to define the need for a new entity whose focus will be exactly that, or it may help to define challenge areas in which existing organizations can collaborate to enact positive change.

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- i Farmer-direct values from the Census of Agriculture: <http://www.agcensus.usda.gov> Grocery store and restaurant data from U.S. Census Bureau, Economic Census: [http://www.census.gov/econ/census07/www/get\\_data.html](http://www.census.gov/econ/census07/www/get_data.html)
- ii Data collected from LexisNexis Academic Website.
- iii Farmer-direct values from the Census of Agriculture: <http://www.agcensus.usda.gov> Grocery store and restaurant data from U.S. Census Bureau, Economic Census: [http://www.census.gov/econ/census07/www/get\\_data.html](http://www.census.gov/econ/census07/www/get_data.html)
- iv Data from Bellingham Farmers Market (personal communication).
- v Data from Census of Agriculture: <http://www.agcensus.usda.gov>
- vi Ibid.
- vii Ibid.
- viii Washington State University Whatcom County Extension. (2009). [Grocery, convenience, and specialty food store data collected from LexisNexis Academic Website, the North American Industry Classification System (2007), and Whatcom County DEX, Verizon, and Yellow Book phonebooks. Population and income data from 2000 U.S. Census. Farm data from various websites and organizations including the 2009 Whatcom Food & Farm Finder, the Bellingham Herald, Washington Raspberry Commission, Washington State Blueberry Commission, Washington State University Farm Finder, PickYourOwn.org, and Google Maps.] Food Maps of Whatcom County. Retrieved from: <http://www.whatcomcounts.org/whatcom/javascript/htmleditor/uploads/FoodMaps.pdf>
- ix Whatcom Community Foundation: Whatcom Farm to School Program: [http://whatcomcf.org/Farm\\_to\\_School2.html](http://whatcomcf.org/Farm_to_School2.html)
- x Seth Vidaña, Office of Sustainability at Western Washington University (personal communication, March 29, 2010).
- xi For more on poverty guideline information for Whatcom County, see Chapter 2 of this CFA.
- xii U.S. Census Bureau. (2006-2008). American FactFinder. Whatcom County, Washington. Selected Economic Characteristics: 2006-2008. Retrieved on April 4, 2010 from: <http://factfinder.census.gov>
- xiii Note: for information about Five Loaves Farm, visit: <http://fiveloavesfarm.blogspot.com>
- xiv Note: for information about the Whatcom County School Garden Collective, visit: <http://www.commonthreadsfarm.org/content/view/22/36>

## Chapter 4

# Agriculture: Yesterday and Today - How has it Changed?

To get a sense of the current state of agriculture in Whatcom County, we must look at how local agriculture has developed historically. Current use of agricultural land is determined by a number of issues, from the base ecological capacity of soils and climate to the market potential of products that can be produced here. Examining these factors helps us to understand the relative health of the agricultural industry and the economic and geophysical role that it plays in the lives and culture of Whatcom County residents. This chapter examines uses of agricultural land for crops, both historical and current, demographic shifts within the farming community, and Whatcom County organizations and programs that support agriculture.

### **History of Agriculture in Whatcom County**

Agriculture has been a major part of the economy of Whatcom County since before 1900. In the 1860s and 1870s, much of the forested land was cleared and burned for subsistence farming. Soils in Whatcom County have always been high quality, allowing the area to support consistent agricultural production. At some times in history, such as before 1900 and during the Depression, so much food was produced in Whatcom County that even the poorest residents did not go hungry.

Many types of crops have been grown in Whatcom County over the past 150 years, and the importance of each of these crops has changed over time. Farm goods, including seed crops (wheat, corn), potatoes, sugar beets, green beans, and peas were traded locally. Transportation advances changed agricultural production in the second half of the 19th century. Refrigerated train cars, developed in the late 1890s, allowed an increased range of products, including eggs, meat, and milk, to be shipped farther afield, mainly to west coast markets such as Oregon and California.

Much information about the history of agriculture in Whatcom County was supplied by Troy Luginbill from the Lynden Pioneer Museum. Statistical agricultural data is available from the Census of Agriculture; information collected that is comparable to 2007 data is available from 1959.

### ***Poultry and Dairy***

In 1902, a dairy processing plant started in Lynden and produced milk, butter, ice cream, and dried milk. By 1910, most dairy processing in the County was done off-farm.

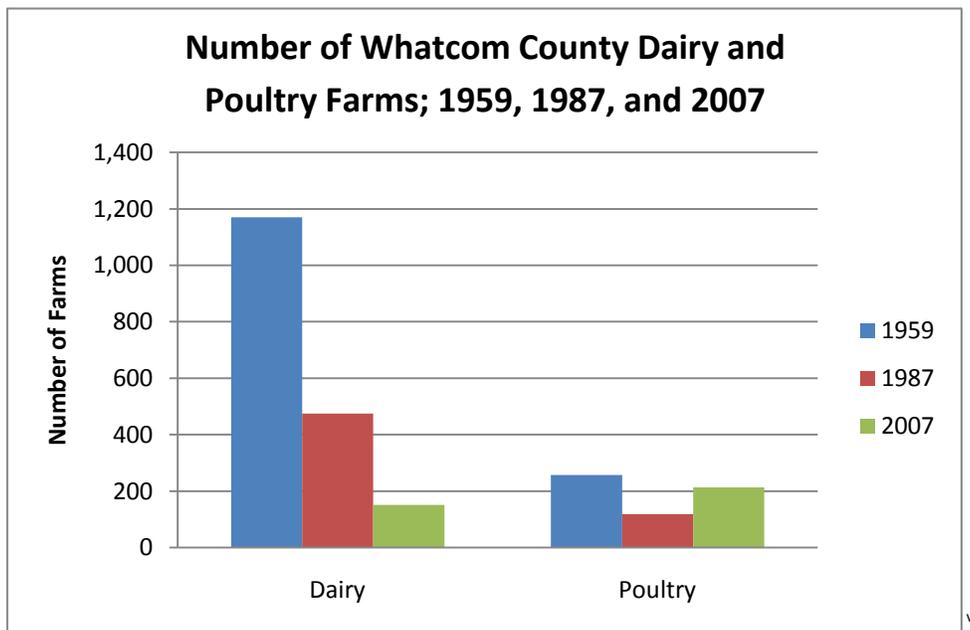
An agricultural and economic boom occurred during World War II. Dried milk from the Lynden cooperative dairy processing plant (today part of the Darigold Cooperative) went to the war effort, as did condensed milk from a Carnation dairy plant in Everson. Poultry and egg production increased, encouraged by facilities in Seattle and San Diego, where dried eggs were processed, again for shipping overseas.

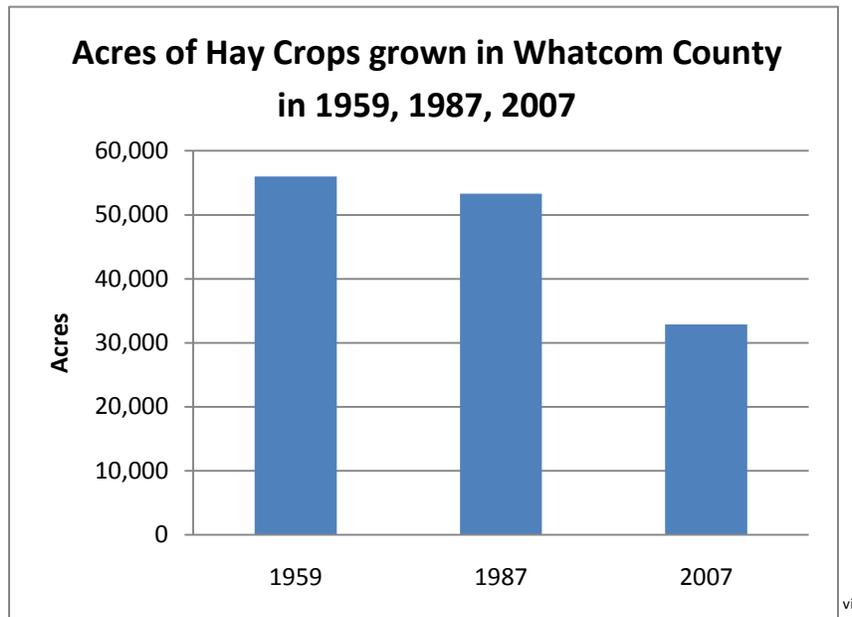
In the 1950s, dairy, poultry, and egg production made up about 90% of agriculture in Whatcom County. At the peak of egg production, over 3 million eggs per day were shipped from Whatcom County to areas all over the nation. Poultry production was so extensive in the County that “Lynden Chicken Noodle Soup” became a popular canned item, sold nationwide.

With lower-cost competition from other areas of the country, the County’s poultry industry collapsed in the 1960s. The dairy industry filled the gap, with about 90% of farms in Whatcom County becoming dairy producers. By the 1970s, the cooperative plant in Lynden limited itself to processing dried milk. Until 2003, it was the largest dried milk plant in the world, currently producing over 1.2 billion pounds of powdered milk annually.<sup>i</sup> Dairy farms are decreasing in number and profitability is difficult; the number of dairy farms dropped from 151 in 2007 to 128 farms in 2009.<sup>ii</sup> This is not unique to Whatcom County. According to the United States Department of Agriculture, “the price U.S. dairy producers received for milk marketed in the summer of 2009 was about half of what it cost them to produce milk.”<sup>iii</sup>

Whatcom County ranks as the #2 dairy producing county in Washington and is among the top 6% of dairy-producing counties in the United States.<sup>iv</sup>

Dairying in the County has traditionally been accompanied by the production of timothy clover, silage, and other feed crops. Acreage of hay crops reflects that of livestock farms in the area; those numbers decreased between 1959 and 2007, with a steep decrease after the late 1980s.<sup>v</sup>



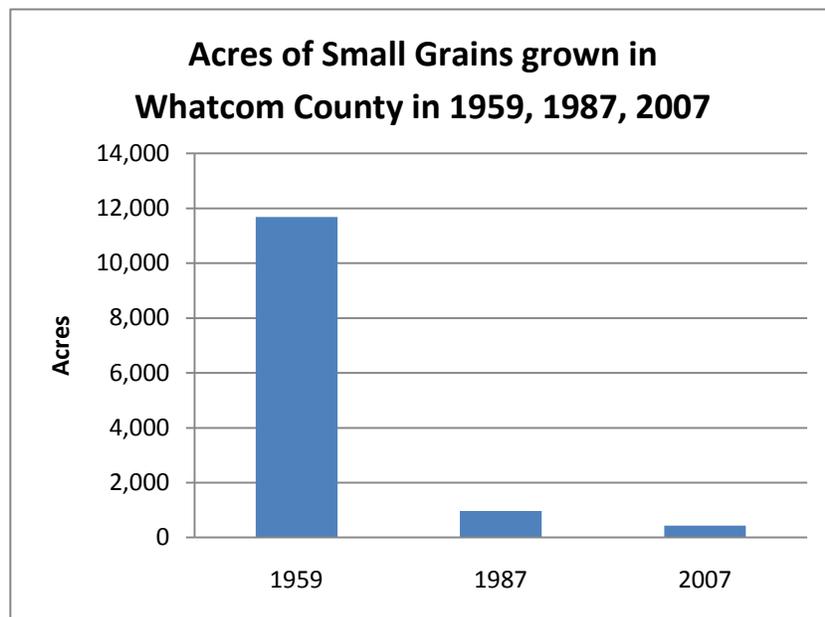


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### **Small Grains**

Small grain crops are those such as wheat to be processed as flour and other products for human consumption. These crops were a common element of subsistence farming during the early part of the 20<sup>th</sup> century.

In the early 1900s large tracts of Whatcom County land supported the growth of small grains. More than 14,000 acres of grains, such as oats, barley, wheat, and rye, were grown in the 1920s; this number decreased to just over 7,000 acres in 1963. As of 2007, negligible acreage was devoted to any grain other than winter wheat, which was grown on 430 acres.<sup>viii</sup> While small grains today account for little acreage or annual production, new interest has arisen in producing these crops in our region. A breeding program for small grains in Western Washington is a new addition to the WSU Mount Vernon Research and Extension Center.<sup>ix</sup>

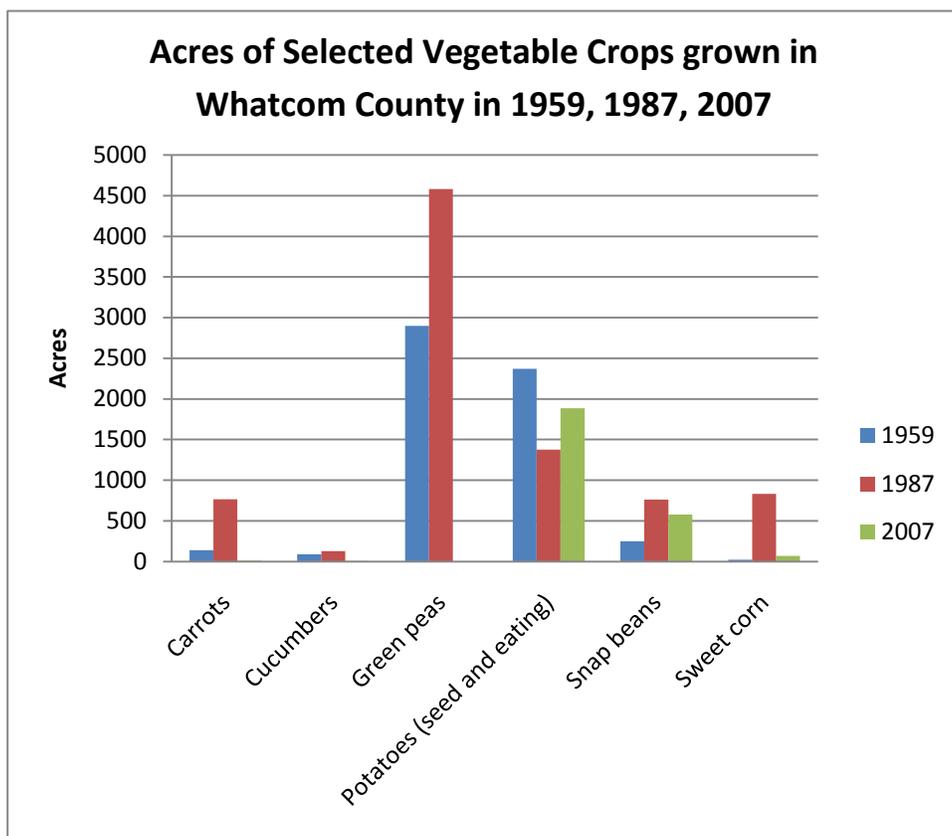


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### Vegetable Crops

Historically, a wide variety of vegetable crops have been grown in Whatcom County, including green peas for processing, sweet corn, snap beans, pickle cucumbers, carrots, and seed and eating potatoes. Processing facilities for fruits and vegetables were available for freezing and canning summer grown vegetables. These facilities have moved to areas with a more consistent harvest of summer vegetables, so vegetable acreages have also decreased.

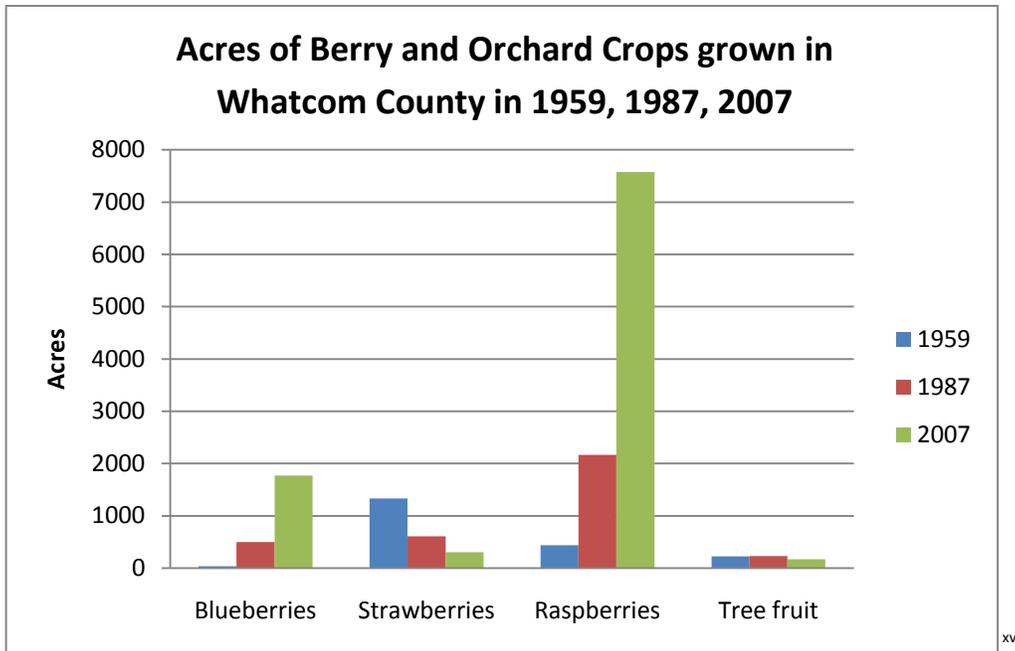
Whatcom County produces an abundance of seed potatoes (potatoes for planting to produce eating potatoes) and it is considered a Seed Potato Isolation District by Washington code.<sup>xi</sup> The production of this high quality crop requires conditions that are free from pests and diseases as much as possible. Production of eating potatoes is restricted to areas less than 1 acre in size; this protects the seed potato industry from insect pests and soil borne diseases. This industry is still strong in Whatcom County.



### Fruit Crops

Berries are currently and have historically been a staple of agriculture in Whatcom County. Strawberries were the first known commercially grown berry crop, in the late 1800s or early 1900s, when growers probably cultivated wild varieties. Strawberry acreages have decreased since the 1950s, but raspberry and blueberry acreages have increased. All types of berries are grown primarily for processing, with several processing facilities operating in Whatcom County. Two mechanical harvester companies have facilities located in Whatcom County; they manufacture harvesters for raspberries and blueberries, as well as for crops grown globally, such as coffee, corn, and olives.<sup>xiii, xiv</sup>

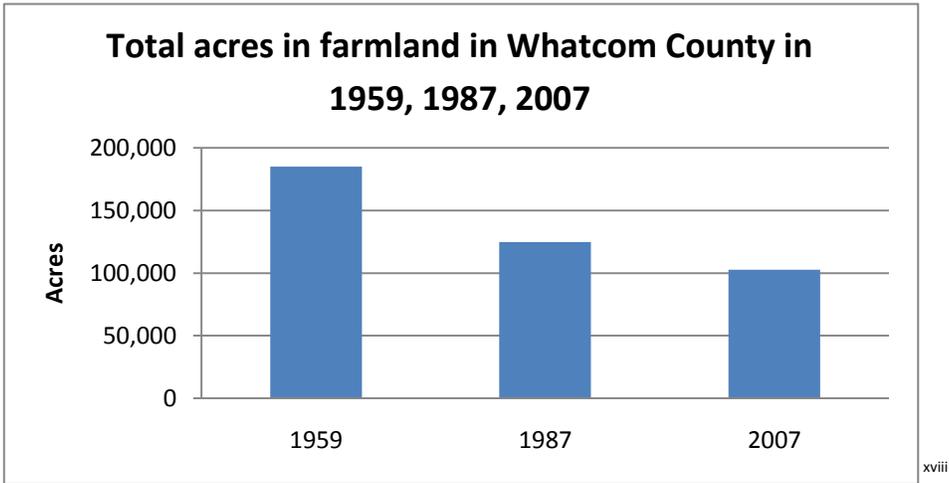
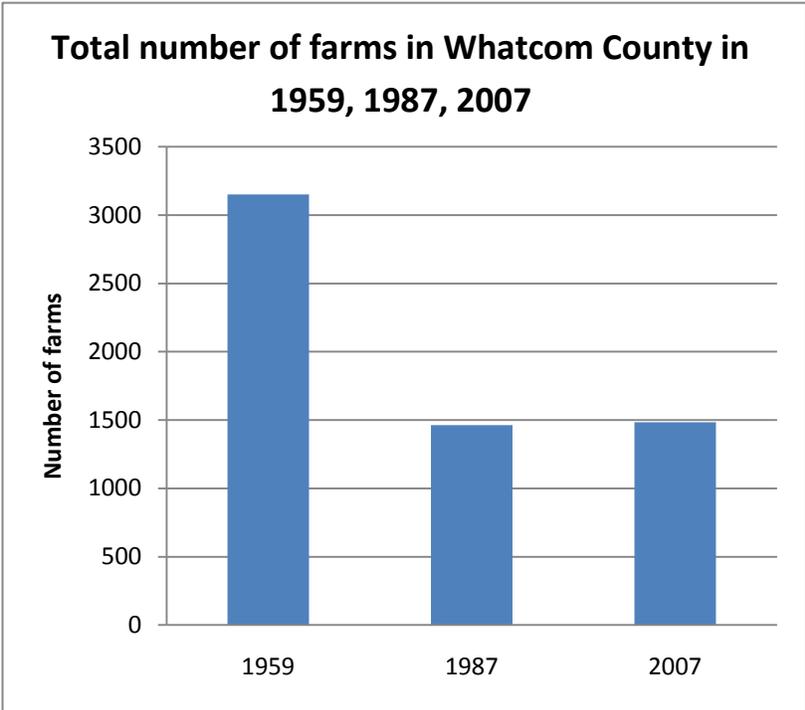
Fruit trees are not a large component of agriculture in Whatcom County, but such orchards do add to the County’s range of production. The majority of orchard crops grown are apples, but smaller acreages of pears, grapes, cherries, peaches, plums, hazelnuts, and walnuts have been grown throughout the County’s history.

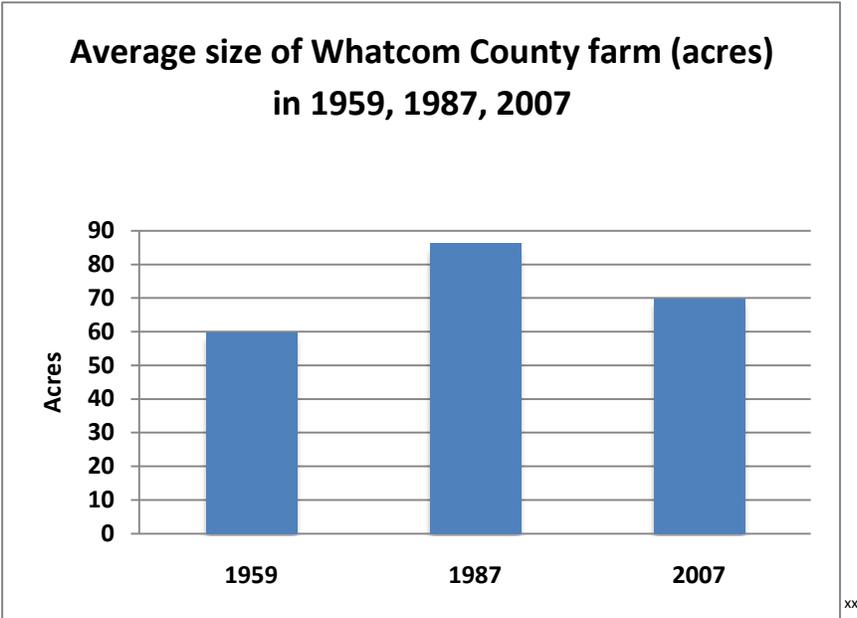
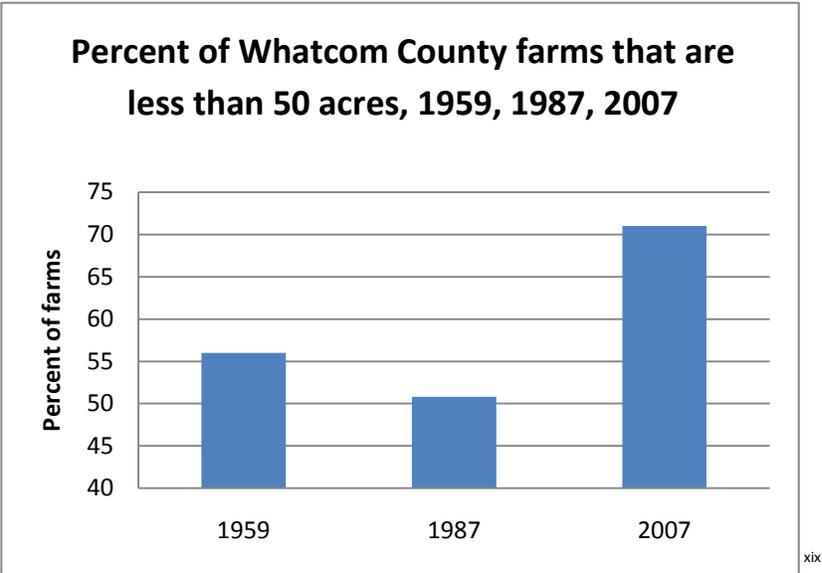


***Change of Farm Scale and Ownership***

Whatcom County’s agricultural landscape and economy have changed significantly since farms began to increase production in the early 1900s. Recent agricultural census data shows that change continues.

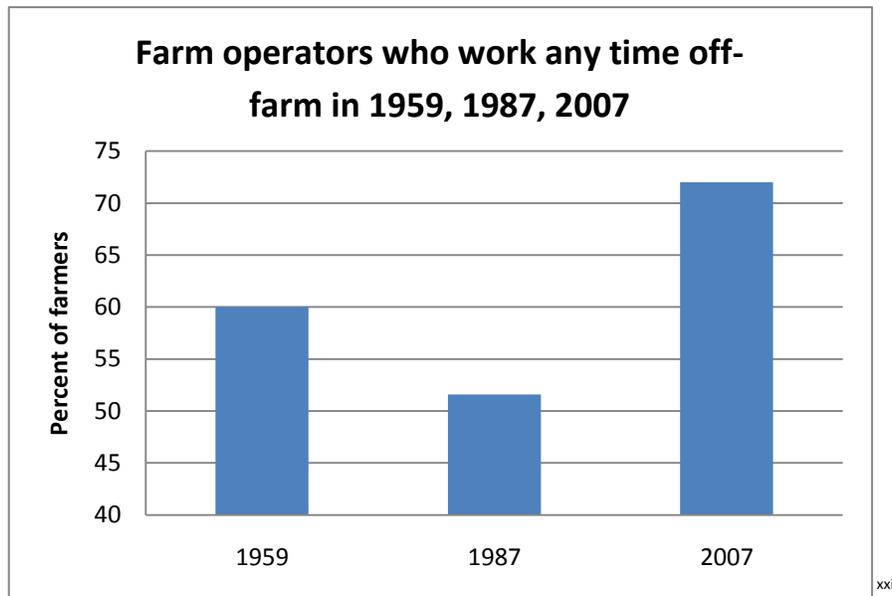
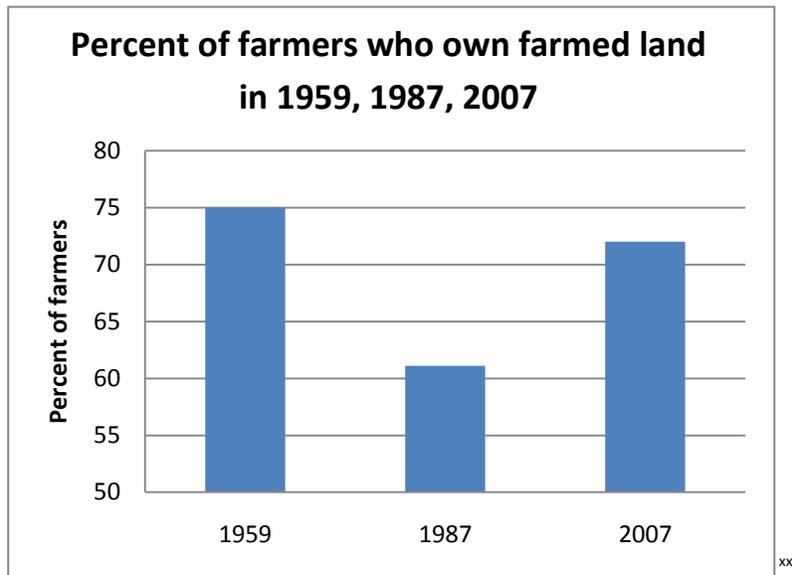
A few major markers illustrate trends in this evolution. Since 1950, Whatcom County’s total number of farms has decreased, as has its total acreage in agriculture. From a high of nearly 210,000 acres in 1950, farmland dropped to just over 100,000 acres by 2007.<sup>xvi</sup> The average size of farms has increased over this period. Since 1950, a limited number of farms have grown much larger, mid-sized farms have all but disappeared, and the County has seen a growth in the number of small farms.





While agriculture has been a major economic feature of Whatcom County for decades, many farm families earn income off the farm. Even in the 1950s, when records about on-farm income were first kept, over one-half of farm families gained more income from off-farm work than they received from on-farm production, and nearly 60% of the principal farmers within a farm family worked off the farm as well. In 2007, 72% of farmers worked off the farm, and 55% of farm families earned their primary income from off-farm sources.<sup>xxi</sup>

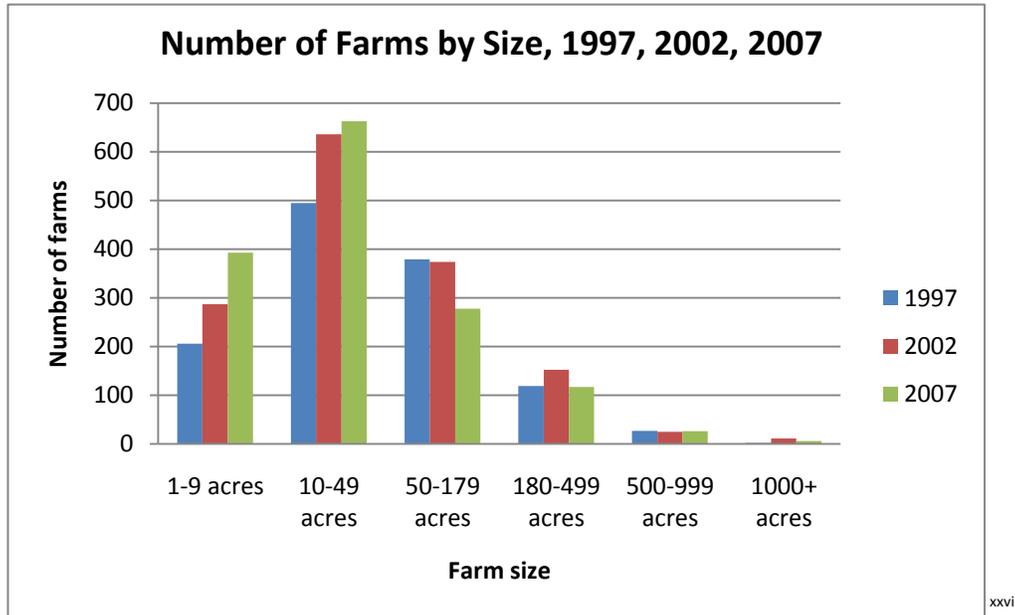
Land tenure (owning land that is farmed) has increased since 1987, but is slightly less than in 1959. Land tenure can indicate the stability of a farm and the farmer’s ability to continue farming.



#### **Current Agricultural Demographics in Whatcom County**

As of the 2007 Agricultural Census, Whatcom County's farm products had a market value of over \$326 million, placing the County first out of 17 counties in Western Washington. Dairy and powdered milk products accounted for \$186,491,000 (57%) of market value; fruits, nuts, and berries accounted for \$66,788,000 (21%). Other important industries include cattle and calves (7%), nursery growers (5%), poultry and eggs (4%), and vegetables (3%), including seed potatoes.<sup>xxiv</sup>

The number of farms stayed fairly consistent from 2002 (1,485 farms) to 2007 (1,483 farms), but the average farm size decreased from 100 acres to 69 acres. In 2007, farm size ranged from less than 10 acres to more than 1000 acres. Most farms fell within the 10-49 acre range; the median farm size was 20 acres.<sup>xxv</sup>



### ***Agricultural Tourism and New Markets***

Some farms in Whatcom County have added value to their businesses by hosting agricultural tourism. Examples of this sort of venture range from apple farms with self-guided tours to pumpkin festivals to animal petting areas to u-pick operations. At least 14 farms in Whatcom County fit within an agricultural tourism category, with more offering activities each year.<sup>xxvii</sup>

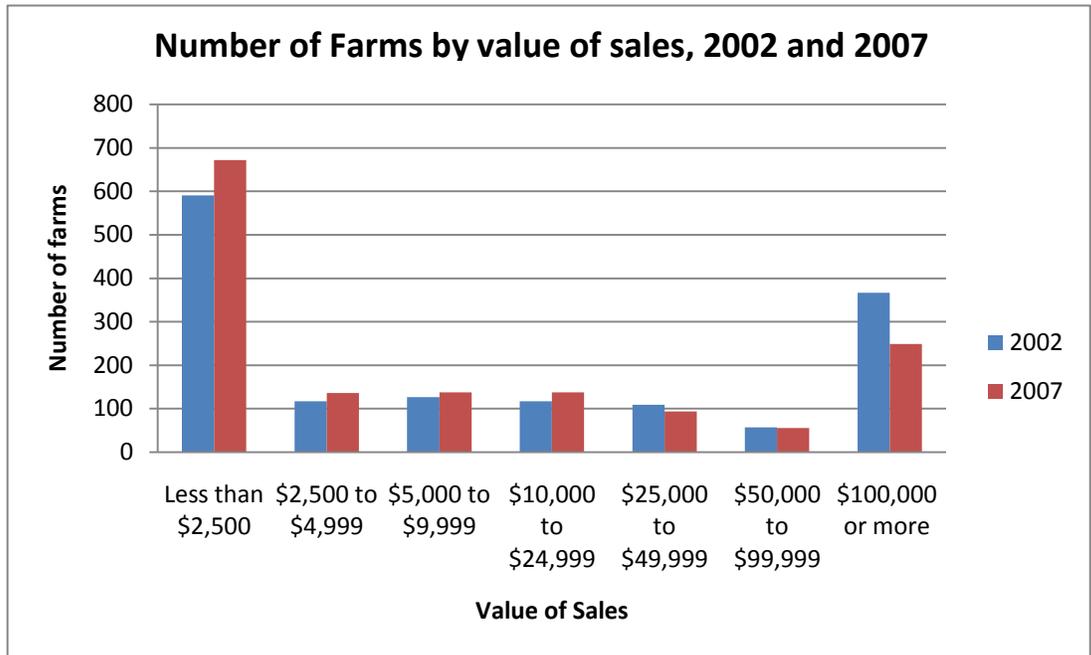
Sustainability certifications have been embraced by some farms to differentiate them within the marketplace. In 2007, 74 farms grew products organically on 2,659 acres, with over \$4 million in sales; 36 farms growing organically had sales over \$5,000, and 31 had sales below that level.<sup>xxviii</sup> Other sustainable practices used by farmers in Whatcom County include energy production on the farm (24 farms), rotation or management-intensive grazing (379 farms), and other conservation methods (396 farms).<sup>xxix</sup>

Direct marketing of farm products increased in Whatcom County from 2002 to 2007. In 2002, 190 farms sold less than \$2 million of product direct-to-consumer; in 2007, 273 farms sold almost \$4 million worth of product directly to consumers. In 2007, 22 farms marketed products through Community Supported Agriculture (CSA) programs and 89 farms produced and sold value-added products.<sup>xxx</sup>

### ***Farm Income***

Of farms in Whatcom County, 37% had net financial gains in 2007 compared with 50% in 2002. The number of farms receiving government payments other than CREP (Conservation Reserve Enhancement Programs) increased

over those 5 years—164 in 2002 and 198 in 2007—but the average amount these farms received was much lower in 2007 (\$4,504 in 2007 vs. \$23,451 in 2002).<sup>xxxii</sup>



The largest category of farms in both 2002 and 2007 was farms with sales below \$2,500; this encompasses many very small farms in the County, including those operated as hobby type farms. The number of farms with sales between \$2,500 and \$24,999 increased from 2002 to 2007, and the number of farms earning over \$100,000 decreased in that period. These figures parallel the increase in quantity of small-scale farms, which may not make large amounts of income, and the decrease in the value of sales from dairy farms, which historically had been those making the most net income.

The average net cash farm income of farm operators in 2007 was \$44,860, only 82% of what it had been in 2002 (\$54,591).

**Farmer Profile**

In 2007 the average Whatcom County farmer was 55.5 years old; 82% of farmers were male, and the overwhelming majority classified themselves as white. Less than half (45%) of these farmers have their primary occupation listed as farming.<sup>xxxiii</sup>

**Labor**

Farm workers in Whatcom County contribute a great deal to the farming community and to the economy of the County. The Census of Agriculture gives numbers for hired farm labor in 2007: 481 farms hired 6,830 farm workers with a payroll of over \$47 million. Eighty-four farms reported using migrant farm labor; none of these farms report using labor contractors. Over 1,500 workers were employed for 150 days or more on these farms.<sup>xxxiv</sup> (Numbers are probably incomplete due to issues surrounding undocumented workers.)

## **Farmer Support Programs and Agencies in Whatcom County**

### *Washington State University, Whatcom County Extension, Agriculture Program*

- Works with growers, who can bring crop samples to agriculture professionals for analysis.
- Employs staff to help resolve crop issues with growers.
- Engages in agricultural research. Current research includes: Spotted Wing Drosophila monitoring and management; cultural control methods for brassica flea beetles on organic farms; apple tip midge monitoring using a novel pheromone; developing scouting guides for small fruit growers; surveying incidence of *Phytophthora rubi* in raspberry plantings; and on-farm energy production. This program also collaborated with researchers throughout the state on agricultural programs.
- Hosts an annual Small Fruit Workshop in December offering approximately 20 talks on topics ranging from insect pest/disease control to marketing issues.
- Hosts the Cultivating Success class, “Sustainable Small Acreage Farming and Ranching,” which has been taught in 2006, 2007, and 2008, with over 70 students completing the program by 2009. Several of these students have started or improved existing small farms.

### *Whatcom Conservation District*

- Works with landowners and farmers to manage natural resources in Whatcom County.
- Manages the Conservation Reserve Enhancement Program (CREP), which provides landowners financial incentives to establish buffers along creeks and ditches.
- Helps farmers create farm conservation plans, dairy nutrition management plans, and best management practices.
- Puts on programs for small farmers, such as the Small Farm Expo and Small Farm Management workshops.

### *Whatcom County Farm Friends*

Organized by the following objectives:

- To foster fair and fact-based public policies for the agricultural industry.
  - To preserve at least 100,000 acres of agricultural farmland in the County.
  - To improve the economics of farm operations to assure sustainability and prosperity.
  - To define succession plans and programs with farmers to assure the continuance of farming and farmland.
  - To build County-wide communities of support for agriculture to create harmony as the County continues to grow.
  - Created the award winning “Farming For Life” Exhibit, which is displayed each year at the Northwest Washington Fair.
- Supports the Farmers Growing Trees for Salmon program.
- Partners with USDA Wildlife Services to control nuisance birds, primarily starlings, in agricultural land.

- Works with other agencies on water rights issues for farmers.
- Partners with Sustainable Connections to produce the annual Whatcom Food and Farm Finder.

#### *Sustainable Connections*

- The Food & Farming Program works on informing, empowering, and providing resources to producers and buyers; making connections between farmers, institutions, retailers, and restaurants; and raising awareness of local farms and helping consumers Buy FRESH!
- The Food & Farming Program produces the Whatcom Food and Farm Finder as a guide to local farm and food products.
- The Food to Bank On program provides new farmers with education, experienced farmer mentors, and pays wholesale market prices each week for a set amount of produce delivered to a food bank.
- Trade meetings are held twice per year to link farmers with buyers from restaurants, cafeterias, and markets.
- Chef Farm Tours introduce chefs to local farms and establish market relationships.
- The Eat Local Every Week Campaign encourages eaters to choose local foods.

#### *Kulshan Community Land Trust (KCLT)*

- A new program called “Affordable Access to Land for Farming” will entail KCLT’s owning farmland and giving very long-term leases to farmers. As with KCLT’s home ownership program, farmers will own their home on a piece of farmland while the Land Trust maintains an easement on the land to guarantee no future development will occur and that the land will remain permanently affordable for agriculture. To acquire land, KCLT will work with willing landowners to exchange the appraised value for a tax break.

#### *Whatcom Farm Incubator Project*

- This is a joint project between Sustainable Connections and Kulshan Community Land Trust to provide land, education, and mentoring for new farmers with the goal of increasing the number of successful sustainable farmers in Whatcom County.
- This project is in the planning stage at this time.

#### *Farm Fund through the Community Food Coop*

- The farm fund gives money to projects that support the growth of sustainable agriculture in Whatcom County.
- Historically, funds have supported the Food to Bank On program, Bellingham Farmer’s Market, Ferndale Farmer’s Market, Whatcom Fresh, Seed Saving Workshops, and the Just Food Program through Growing Washington.
- In 2009, funds have been awarded to: the Bellingham Food Bank Food Bank Farm; Community to Community Development to organize a Latino-based CSA; Kulshan Community Land Trust for seed money for their Affordable Access to Land for Farming program; and Whatcom Community Television and Communications to develop a radio pilot about agriculture in Whatcom County.

## *Community to Community Development*

- The Loomis Trail Road Farm is a cooperative farm for training Latino farm workers in organic production methods.
- Community to Community Development holds culturally appropriate trainings and encourages farm workers to bring traditional methods of farming from Mexico to Whatcom County.

## **Community Education about Agriculture in Whatcom County**

Community members not directly associated with farming in Whatcom County have many opportunities to learn about local agriculture. Organizational outreach targets two populations: school-age children and adults.

### ***School-age education***

- Since 1993, *Whatcom County Farm Friends* holds the “Milk Maker’s Fest” each spring at the Northwest Washington Fairgrounds in Lynden. First graders from all Whatcom County school districts are invited to participate, with an average of 2,000 students attending annually. Students learn about different aspects of a dairy operation, including cow and calf health and the circle of farming, which explains how everything on the farm is interconnected.<sup>xxxv</sup>
- *Common Threads Farm* on Lummi Island provides educational opportunities on the farm for children ages 4-12. Children are involved with all aspects of farm work, including planting, harvesting, weeding, collecting eggs, and feeding animals. The farm also works with a few Whatcom County private and public elementary schools to provide on-farm education.<sup>xxxvi</sup>
- *4-H* is a program coordinated by WSU Extension, with the Whatcom County 4-H program coordinated by WSU Whatcom County Extension. 4-H clubs are supervised by an adult leader who has subject-area knowledge. Livestock is a popular topic, but activities can also include gardening or natural resources stewardship. Students from middle school through high school are involved with 4-H, but the majority are in the 5<sup>th</sup> through 7<sup>th</sup> grades.<sup>xxxvii</sup>
- *Future Farmers of America* (FFA) is a program operated through County high schools with a paid staff position coordinating the program at each school. The students involved in FFA are generally enrolled in agriculture classes. They participate in career development events, community service projects, raising animals, and leadership opportunities. FFA programs are available at Mt. Baker, Ferndale, Meridian, Lynden Christian, Lynden, and Nooksack high schools.

### ***Adult education***

- The award winning “Farming For Life!” Exhibit is a production of *Whatcom Farm Friends* and is displayed each year at the Northwest Washington Fair. The 4,000-square-foot exhibit emphasizes the impact agriculture has on everyone in the community. Photo essays and text panels describe Whatcom County agriculture and the beneficial products it provides, the importance of the economic base it creates, and its contributions to environmental protection and the County’s quality of life.<sup>xxxviii</sup>
- *Common Threads Farm* offers short workshops for adults, including sessions on backyard poultry and how to work with kids in the garden.<sup>xxxix</sup>

- *Sustainable Connections* operates several campaigns to promote consumption of local agriculture. For several years, they have held an “Eat Local Week” and encouraged consumers to purchase from local producers. In 2010, they are promoting “Eat Local Every Week,” with a weekly program in which restaurants offer menu items made entirely from local ingredients.<sup>x1</sup>

## Conclusion

The United States Department of Agriculture provides a great deal of statistical and demographic data about farms, crops, and farmers in Whatcom County. So too do the multitude of not-for-profit and state-based organizations that work with the agricultural industry. By analyzing changes over time (most from data recorded from 1959 to the present), we can learn about the trends that Whatcom County agriculture has followed.

Highlights from this chapter include:

- In Whatcom County from 1900 to 1910 farm processing changed dramatically from almost everything being processed on farms to almost everything being processed off of farms.
- Whatcom County’s staple crops have varied somewhat since the early 1900s, although dairy and berries have been a constant.
  - County farms produced a wide range of crops in the first half of the 1900s, expanding from subsistence growing to production for export.
  - WWII marked a shift in agricultural production, with many farms producing dairy products and eggs for contribution to the war effort. Outside of this production, crop land that had been growing products to be shipped internationally reverted to subsistence agriculture, which had been the norm in the early 1900s.
  - In the 1950s, dairy, poultry, and egg production made up about 90% of agriculture in Whatcom County.
  - The poultry industry’s collapse in the 1960s left room for the dairy industry to expand to 90% of Whatcom County’s agriculture, putting it in the top 3% of dairy counties in the nation.
  - Berry crops have been grown in Whatcom County throughout all other changes, and the berry industry makes up a significant portion of agriculture to this day.
- The number of acres in farmland has decreased significantly in the last half-century, going from 210,000 in 1950 to just over 100,000 in 2007.
- Since 1950, a limited number of farms have grown much larger, mid-sized farms have all but gone away, and the County has seen a growth in the number of small farms.
- In 2007, 72% of farmers worked off the farm and 55% of farm families earned their primary income from off-farm sources.
- The rapidly rising cost of land has likely played a large role in the increasing number of farms that rent rather than own their land.
- The percentage of farms that earned positive net income decreased from 50% in 2002 to 37% in 2007.

Agriculture in Whatcom County has long been a strong and significant element of the local economy and way of life. Challenges with farm profitability on account of external price controls and the rising cost of land have led some farms to reorganize—some shrunk in size, others embraced certifications and methods of growing that led to market advantages, and yet others diversified their products.

What is missing from this CFA is a market analysis of new opportunities for agriculture that would continue to push forward this diversification and give farmers the information they need to create new market strategies. Support for such research is currently growing, and a number of organizations are working to understand what will benefit Whatcom County farms most in the next decade and beyond.

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i Whatcom Farm Friends: Farm Facts Overview: <http://www.wcfarmfriends.com>

ii Ibid.

iii United States Department of Agriculture, News Release, December 17, 2009, “USDA Announces New Dairy Economic Loss Assistance Payment Program to Provide Financial Relief to Struggling Dairy Producers.” Retrieved from: <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2009/12/0619.xml>

iv USDA Census of Agriculture: <http://www.agcensus.usda.gov>

v USDA Census of Agriculture: <http://www.agcensus.usda.gov>

vi Ibid.

vii Ibid.

viii Ibid.

ix For more information about the small grains breeding program, see: <http://plantbreeding.wsu.edu/index.html>

x Ibid.

xi Washington State Legislature, Chapter 16-325 WAC: <http://apps.leg.wa.gov/wac/default.aspx?cite=16-325&full=true>

xii USDA Census of Agriculture: <http://www.agcensus.usda.gov>

xiii Oxbo<sup>®</sup> International Corporation, produces Korvan™ blueberry, raspberry, and blackberry harvesters: <http://www.oxbocorp.com>

xiv Littau Harvester: <http://www.littauhvester.com>

xv USDA Census of Agriculture: <http://www.agcensus.usda.gov>

xvi Ibid.

xvii Ibid.

xviii Ibid.

xix Ibid.

xx Ibid.

xxi Ibid.

xxii Ibid.

xxiii Ibid.

xxiv Ibid.

xxv Ibid.

xxvi Ibid.

xxvii Ibid.

xxviii Ibid.

xxix Ibid.

xxx Ibid.

xxxi Ibid.

xxxii Ibid.

xxxiii Ibid.

xxxiv Ibid.

xxxv <http://www.wcfarmfriends.com>

xxxvi <http://www.commonthreadsfarm.org>

xxxvii [http://whatcom.wsu.edu/4-h/4-h\\_youth.htm](http://whatcom.wsu.edu/4-h/4-h_youth.htm)

xxxviii <http://www.wcfarmfriends.com>

xxxix <http://www.commonthreadsfarm.org>

xl <http://sustainableconnections.org>

## Chapter 5

# How Does Whatcom County Agriculture Impact the Environment?

Agriculture is a vital element of Whatcom County's heritage, current livelihood, and culture, as is the beauty and ecological health of its landscape. Farmers are important stewards of the land, managing the health of its soil, the cleanliness of its water, and the quality of its air. Agriculture may also have a harmful effect on environmental health, so it is important for farmers and non-farmers alike to monitor the effects that industry, development, and agricultural use has on the County's natural resources as well as on its residential areas and human ecological needs.

This section outlines areas in which Whatcom County farmers are using good agricultural practices to reduce impact on the environment and some concerns where agriculture negatively impacts the environment.

### **Certification Programs Used by Farmers in Whatcom County**

Several third-party certification programs exist for farmers to differentiate themselves and their products from others in the marketplace. Such certifications can make a farmer's product stand out and might allow the farmer to charge more for a product or to enter certain markets. Certification types include those relating to environmental impacts (organics, sustainability) as well as for food safety standards.

#### *Washington State Department of Agriculture Certified Organic*

WSDA is an accredited certifier for National Organic Program Standards, which farmers must follow to be certified Organic. Growers must follow the standards for at least 3 years in order to be eligible for certification and are inspected annually. Farms with annual sales under \$5,000 do not require certification to market their products as organically grown.

According to the WSDA website, in July 2010 Whatcom County had 34 Certified Organic farms covering 2,883 acres. These farms comprise numerous types of agriculture, from dairies to produce.<sup>i</sup>

According to the 2007 Agriculture Census, Whatcom County has 74 farms, covering 2,659 acres, using organic practices, and 17 farms, covering 245 acres, in transition to organic production. Of these farms, 31 sold less than \$5,000 of product (thus not required to be certified to sell under an organic label); the remaining farms had combined sales of \$4,102,000. The farms listed that sell over \$5,000 and are selling as "organic" may be farms that are certified under the National Organic Program through a certifier other than the WSDA and so would not be listed on the WSDA website.<sup>ii</sup>

Food processors can also be certified through the National Organic Program. In Whatcom County, four coffee roasters, one flourmill, and one dairy processor are certified organic.

#### *Food Alliance Certification*

Food Alliance is a nonprofit organization that certifies farms, ranches, and food handlers for sustainable

agricultural and facility management practices. Certification covers 3 categories: safe and fair working conditions, humane treatment of animals, and good environmental stewardship.

One 23-acre orchard in Whatcom County is certified through the Food Alliance program.<sup>iii</sup>

#### *Salmon Safe Certification*

Salmon Safe is a certification process that evaluates practices that may influence local salmon-bearing streams. Riparian and wetland area management, irrigation use, erosion and sediment control, fertility and pest management systems, animal management, and biological diversity conservation are all part of certification. Four farms are certified as Salmon Safe in Whatcom County: one orchard (23 acres), two fruit and vegetable farms (28 and 137 acres), and one organic dairy (417 acres).<sup>iv</sup>

#### *Certified Naturally Grown*

Peer farmers are the inspectors for farms wishing to be Certified Naturally Grown. Certified farms have signed a contract agreeing to certain terms with regards to pesticide use, fertilizer use, and other sustainable agriculture practices. Three farms in Whatcom County are currently Certified Naturally Grown: one 3-acre orchard, one livestock farm, and one 5-acre poultry/egg farm.<sup>v</sup>

#### *Food Safety Certification*

Several third-party certifications exist for food safety standards. Most have similar requirements but some are more stringent than others. Aspects such as worker hygiene, water quality, manure management, pesticide application, adjacent land use, and harvest are covered. Programs that are commonly used in the region are USDA Good Agricultural Practices (GAP) certified by WSDA, GlobalGAP, and PrimusLabs. Data on the number of certified Whatcom County farms is not available.<sup>vi</sup>

### **Agricultural Impacts on Water**

Whatcom County has both fresh and marine water resources that support a wide variety of beneficial uses. Rain and snowfall ranging from ~35 inches at the coast to over 150 inches in the mountains provide water to ground and surface water systems such as aquifers, rivers, streams, and lakes. In turn these ground and surface water sources provide water supplies to homes, businesses, industries, agriculture, and hatcheries. They also provide water for instream values/needs such as fisheries, recreation, transportation, and cultural/aesthetics. With over 130 miles of marine coastline, Whatcom County shorelines also provide habitat for numerous species essential to the economic, cultural, and environmental health of the area.

In Whatcom County there are many monitoring programs, studies, and reports conducted/written documenting water quality and quantity problems associated with fresh and marine waters. While the sources of these problems can be varied, agricultural practices have been identified as (at times) a significant contributor. Several of the inputs, waste products, and practices of agricultural production have the potential to impact fresh water (surface and ground) and marine water. These include the use of fertilizers and pesticides, the production and management of manure products, and land use changes associated with farming, including land clearing, reduction/elimination of riparian areas, and tilling the soil.

Examples of some of the key problems/challenges that have been associated with agricultural practices are listed below:

- *Nitrates in groundwater.* Nitrate concentrations in many lowland areas in Whatcom County exceed naturally occurring levels and in many cases exceed levels considered safe for drinking water. A study by the United States Geological Study in the mid-1990s concluded that nitrate concentrations exceeded the EPA standard in 15% of all Whatcom County wells sampled. The primary sources of nitrate in the shallow groundwater include the storage and application of barnyard manure, and the application of nitrogen fertilizers to crops.<sup>vii</sup> A more extensive evaluation of nitrates in groundwater was conducted as part of the WRIA 1 Project in the late 1990s – 2000s. The study was an independent compilation and evaluation of data collected over many years throughout the County. It also concluded that nitrate concentrations in many cases exceeded safe drinking water levels – the extent varying with the year and location.<sup>viii</sup> High nitrate levels are considered a health issue contributing to “blue baby syndrome.” Removal of nitrate from water supplies through treatment can be costly.
- *Fecal Coliform.* Fecal coliform has been detected in both surface and groundwater, with surface water concentrations in the Nooksack River and many lowland tributaries exceeding water quality standards. Key uses affected by high fecal coliform counts include potential (and actual) closures of commercial/recreational shellfish harvesting areas, and increased treatment costs associated with drinking water supplies. High fecal coliform counts led to the establishment of a total maximum daily load study for the Nooksack River and Lake Whatcom in recent years. The major source of fecal coliforms is from the intestinal tract of warm blooded animals including agricultural animals. The Nooksack Total Maximum Daily Load response strategy, and to a lesser degree Lake Whatcom’s strategy, have targeted agricultural practices to address impacts of high fecal coliform counts.<sup>ix</sup>
- *Pesticides.* Agricultural practices rely on the use of pesticides at various stages of crop production. A number of these pesticides have been detected in both surface (fresh/marine) and groundwater.<sup>x</sup> From a groundwater perspective, a 2002 groundwater evaluation by Utah State University as part of the WRIA 1 Project indicated that in the past more than 12 pesticides had been detected in groundwater. A particular focus was placed on evaluating 3 soil fumigants of concern: Ethylene Dibromide (EDB), 1, 2-Dichloropropane, and DBCP. These pesticides are no longer allowed for use in agriculture but some, such as EDB, can take many years to degrade/leave the system. Alternative water supplies had to be found for a number of people living in areas with levels high enough to pose a health concern. More recent studies have shed additional concern on the potential adverse role of pesticides in surface water systems.<sup>xi</sup> Recent studies by NOAA and WSU researchers have shown adverse synergistic effects at substantially lower levels than previously identified. Efforts to reevaluate use of a number of these pesticides are underway by EPA with long-term implications to the agricultural industry uncertain.<sup>xii</sup>
- *Other.* Other water quality and quantity problems associated with agricultural practices include increased temperatures, nutrient (phosphorus/nitrogen) loading, sediment loading, and low dissolved oxygen. Refer to the WRIA 1 Watershed Management Plan – Phase 1 for more details on these issues, including their occurrence in various geographic areas. High temperatures, low dissolved oxygen, and increased sediments adversely affect habitat for sensitive species such as Chinook salmon and bull trout (listed as endangered). Excess nutrients can exacerbate these conditions in fresh and marine water systems by promoting algal growth which ultimately can consume oxygen in the decomposition process.

### **Regulations**

Produce farmers (including berry farmers) are required to impose a buffer zone when applying pesticides in close proximity to a salmon-bearing stream. This buffer zone is 20 yards for ground applications and up to 100 yards for aerial applications from Pacific salmon bearing streams.

Dairy farms are required to have a nutrient management plan: a practice of utilizing on-farm nutrients (manure) to maximize forage and crop growth, protect natural resources, and increase farm efficiency.<sup>xiii</sup> Manure can be used as a nutrient, but can also impact surface and ground water if not managed correctly. Proper nutrient management includes systems for collecting, storing, and applying manure, nutrient analysis, record keeping, and adaptive management. The Whatcom Conservation District works with dairy farmers to develop these plans.

### **Fertilizer Management**

In order to reduce fertilizer runoff, crop farmers can pre-determine the exact amount of irrigation that is required by a crop at a given time, thus ensuring that fertilizers applied to fields actually remain with crops. A tensiometer inserted into the ground can monitor the amount of plant-available water in the soil and help the grower determine when a crop needs irrigation. With tensiometers positioned in several parts of a field where soil conditions differ, a grower can cater irrigation to specific soil types. At least one Whatcom County raspberry farmer utilizes this technique and notes that he saves water as well as costly fertilizer that may be washed away with excessive irrigation.

### **Integrated Pest Management**

Integrated Pest Management (IPM) is a decision-making process used to manage pests using the least toxic methods. Growers monitor pest levels, understand the pest life cycle and behavior, determine thresholds for treatment, and make decisions on the appropriate treatment to use.<sup>xiv</sup>

Most farmers use IPM techniques for at least some of the potential pests and diseases their crops face. Detection and assessment of pests and diseases happens at regular intervals through specific scouting or general observation at times when challenges are likely to appear. Some examples of IPM in Whatcom County agriculture include:

- One farmer noticed an infestation of cutworms in a single region of his blueberry field, but it was not a problem throughout his farm. He treated the small area of the field with insecticide to control the pest instead of treating the entire farm.
- Apple farmers regularly monitor for codling moth using pheromone traps and treat crops only when the pest is an issue.
- Raspberry farmers regularly monitor for two-spotted spider mite during late-harvest and post-harvest periods. If populations are low, predators will manage the pest; if populations are high, growers will apply pesticide. There is a risk that the spider-mite may become resistant to the available pesticide, so limiting applications is important to keep use of pesticides as a viable option for control.

### **Conclusion**

Farms are important stewards of the environment in Whatcom County; they can also have a great impact upon it. Whatcom County farms use a number of certification programs to supplement and promote their ecological knowledge and sensitivity. Each certification measures the environmental practices of a farm but it also differentiates farms within a larger marketplace and allows farmers to differentiate their own philosophies about land management. Many farms follow practices very similar to certification standards but choose not to pursue certification on account of cost, administrative challenges, or other individual reasons. Environmental certification programs currently in use in Whatcom County include:

- Washington State Department of Agriculture Certified Organic.
- Food Alliance.
- Salmon Safe.
- Certified Naturally Grown.

The number of farms that have pursued certification of any kind is very small compared to the overall acreage in agriculture in Whatcom County (e.g., just over 3% of farms in Whatcom County are currently Certified Organic; just over 6% follow organic growing methods). Similarly, sales from farms using these certifications amount to only 1.3% of sales from all farms in Whatcom County.

As known at present, agricultural impacts on water are mostly a matter of rising nitrate and phosphorus levels from manure and other fertilizer runoff as well as pesticide contamination. These environmental hazards can and in some cases are being addressed with the use of scientifically precise methods of irrigation, fertilizer, and pesticide application. Integrated Pest Management (IPM) helps farmers to understand the signs and cycles of infestation and to minimize use of toxic pesticides.

Research currently underway at the Department of Ecology, the Whatcom Conservation District, Washington State University Whatcom County Extension, and other institutions will continue to provide data on the current and future environmental costs and benefits to farms in Whatcom County. Animal manure management and pesticide research will likely be the areas of greatest focus with regard to harmful impacts on the environment.

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iii Food Alliance: <http://foodalliance.org>

iv Salmon Safe: <http://www.salmonsafe.org>

v Certified Naturally Grown: <http://www.naturallygrown.org>

vi WSDA GAP: <http://agr.wa.gov/Inspection/FVInspection/GAPGHP.aspx> GlobalG.A.P.: [http://www.globalgap.org/cms/front\\_content.php?idcat=9](http://www.globalgap.org/cms/front_content.php?idcat=9) Primus Labs: <http://www.primuslabs.com>

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xiii Whatcom Conservation District: <http://www.whatcomcd.org>

xiv For more information about IPM in Whatcom County, see the WSU Extension site: <http://whatcom.wsu.edu/ipm/>

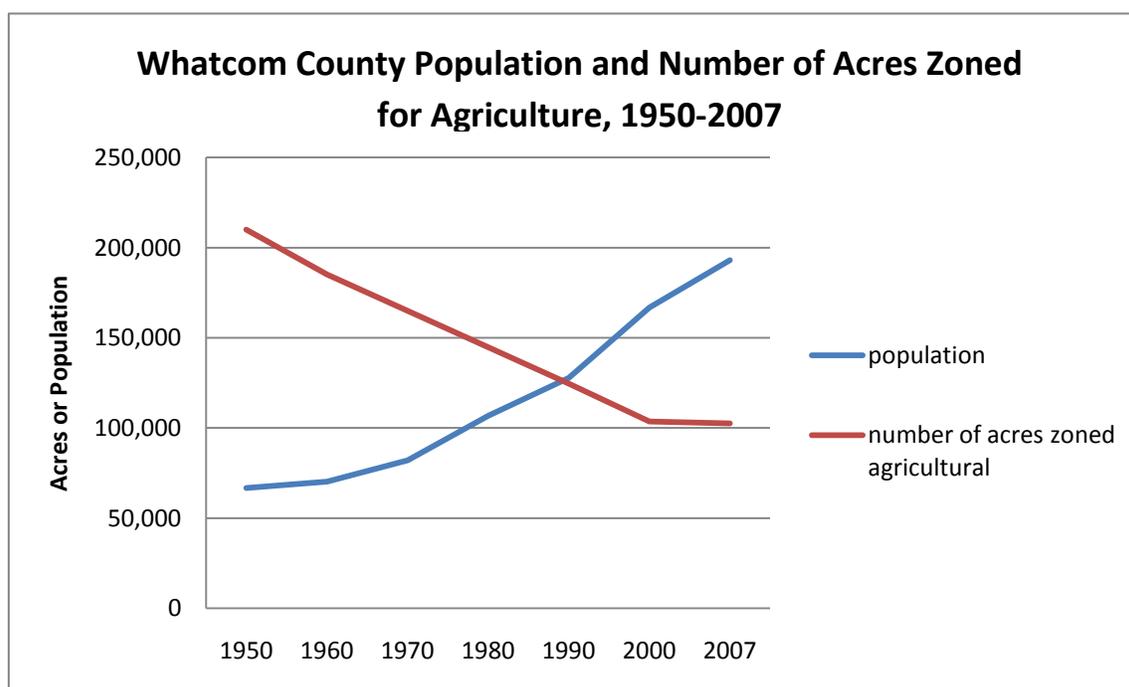
## Chapter 6

### What are the Threats and Opportunities for Agriculture in Whatcom County?

Over the course of Whatcom County's agricultural history, certain factors, such as the need to clear land, outside disturbances, such as WWII, and an increasingly global food system have played a strong role in defining the direction that farming has followed. Today, land development, fragmentation of Whatcom County's agricultural economy, and access to water each pose a threat to the future of viable farming here. Increasing costs of fuel and the energy consumption inherent in agricultural practices and products are also threats to farming in the County and elsewhere. However, some threats can also be construed as opportunities; challenges such as high energy demand can lead to innovation and the substitution of on-farm energy for that previously purchased from external sources. Agricultural land development presents an opportunity for better management and planning, thereby maximizing the use of natural resources and actively laying the foundation for the kind of community that satisfies citizens' desires.

#### Land

The amount of land that is zoned for agriculture in Whatcom County has decreased steadily since the late 1950s. Whatcom County's growing population has increased pressure to develop that agricultural land.



In order for agriculture to remain productive and profitable in a region, a stable, minimum agricultural land base must be maintained. This allows for the retention and health of essential efficiencies, services, and products. Contiguous farmland must be available for efficient siting and use of outbuildings, transport between farm fields, and livestock feeding areas. To allow for efficient transportation of agricultural goods, farmland must be

concentrated without the interspersal of too many non-agricultural residences and uses; an abundance of roads and non-agricultural infrastructure can impair the work of a farm.

The County's comprehensive plan states a goal of keeping a base minimum of 100,000 acres in agricultural land.<sup>ii</sup> County zoning regulations around farmland can dictate what is done with land and can help to keep farmland connected in economically and ecologically viable pieces. Land zoned agricultural (AG – permitted uses in agriculture only) covers about 68,000 acres in Whatcom County. Rural-zoned land designated as R10 (one dwelling per 10 acres) or R5 (one dwelling per 5 acres) accounts for approximately 30,000 acres that are currently being used for agricultural activities. An Agricultural Protection Overlay district has been designated to a total of about 98,000 acres (comprised of land zoned AG, R10, and R5) and is used to protect farmland in the long term by restricting use exclusively to agriculture. Protections made through the Agricultural Protection Overlay are initiated when a property is subdivided.

A regional agricultural base must maintain a threshold size to sustain related labor, industries, and businesses. These businesses include processors of raw agricultural products (farms), implement suppliers, fertilizer and chemical suppliers, and trucking firms. Without a large enough agricultural economy, these businesses can no longer be profitable and will leave the community, leading to further loss in farming activities.

Conflicts can arise between farmers and non-farmers who reside in areas of agricultural production; the noise, odors, dust, spraying, and heavy machinery commonly found in agricultural areas can be at odds with the notions of rural living held by non-agricultural homeowners.

Farm land prices have increased greatly over the past few decades and currently range from \$10-30K per acre, depending on soil type, location, and availability of water rights.<sup>iii</sup> These high costs are due to two factors: non-agricultural development opportunities on farm land and land purchases made by farmers who sell higher valued land in British Columbia to purchase Whatcom County farmland.<sup>iv</sup> These increases in land price make it difficult for new farmers to purchase land and require the land be used to produce high value crops.

### ***Farmland Preservation Programs***

In the last decade, Whatcom County has explored two programs that could be used to manage development pressures on farmland. The feasibility and details of these programs are still being evaluated.

The Purchase of Development Rights program (PDR) was initiated in 2001 as a voluntary tool for farmland owners to sell their rights to develop land to the Whatcom County government. As part of the program, once the development rights are owned by the County, a conservation easement is placed on the land deed to allow farming but restrict other development. This allows the land owner to gain financial benefits from the development rights and to preserve the land as farmland. As of the end of 2008, 11 PDR purchases had been made, encompassing 641 acres and the retirement of 84 development rights. The PDR program has targeted about 7,034 acres in both agricultural and rural zoned land. The program is moving forward, but with limited funding and its voluntary nature, the conservation of farmland by this means is slow and scattered.<sup>v</sup>

Working at a slightly different angle on the issue of farmland preservation is the Transfer of Development Rights (TDR) program. TDR allows developers to purchase development rights from areas such as agriculture or open

space and transfer them to areas where more development is desirable, such as closer to city centers. Once development rights on farmland have been sold, that land may no longer be developed.<sup>vi</sup>

Two recent surveys indicate that Whatcom County residents value farmland and want to see it conserved. In one survey, conducted by the Whatcom Legacy Project, 72% of respondents thought that protecting working farmland should be an urgent or high priority for government planning, and 49% thought that farmland was the most important land to conserve over the next 50 years.<sup>vii</sup> In the other survey, conducted by the Whatcom County Agricultural Land Program, the majority of respondents were in favor of using regulation to preserve farmland, and a strong majority was in favor of using regulations to ensure any development adjacent to farmland was compatible with agricultural practices.<sup>viii</sup>

## **Water**

Water is essential for 3 major activities associated with agriculture – stock watering, facility washdown, and irrigation. Stock watering and facility washdown demands are year-round with irrigation required during the dry summer months. Irrigation demands are by far the largest agricultural water need.<sup>ix</sup> 2001 estimates indicate just over 29,000 acres of crops are irrigated, with hay/pasture, berries, corn, and potatoes being the dominant crops. Both surface and groundwater are used to meet these needs, with groundwater filling approximately 75% of demand.

There are a number of significant challenges associated with ensuring current and long-term supplies of water for agriculture. These challenges are related to both the physical and legal availability of the resource, with legal issues currently being foremost. From a physical availability perspective, there is no current mechanism to objectively evaluate if/when water sources drop below well levels or stream/river intakes. Limited evaluation of well levels as part of the WRIA 1 Project does not indicate a decreasing trend in annual aquifer levels over time. However, evaluation of climate change impacts by the University of Washington Climate Impacts Group indicates that existing baseflows of streams in the Puget Sound area are expected to decrease by 50% or more due to longer, dryer summer periods. These lower baseflows may also lead to lower groundwater levels; the extent to which this could pose a problem is unclear.

From a legal perspective, the agricultural community faces significant challenges. It is beyond the scope of this document to provide more than a cursory overview of the challenges. Refer to the WRIA 1 Watershed Management Plan Phase I for a more detailed analysis of legal issues associated with water use. An abbreviated snapshot of some of the key challenges is provided below:

- *Unpermitted Users.* With few exceptions, agricultural water use requires authorization from the State Department of Ecology. The authorization is in the form of a permit/certificate/claim which specifies when, where, how much, and for what purpose the water will be used. A significant number of agricultural users either do not have authorization to use water or are not in compliance with the requirements.
- *Inability to Obtain New Authorizations.* In Whatcom County, the Department of Ecology is not currently processing applications for new water, and over 700 applications are on file; moreover, most of these filed applications would be denied if they were processed. All sub-basins are closed for new water rights, and water from the Nooksack River is limited at times of low flow.<sup>x</sup> Water rights can be transferred within the same body of water (lake, river, etc.); such changes of water rights *are* being processed currently and can give farmers a legal way to get water to crops.

- *“Use It or Lose It.”* Current water law dictates that water rights are relinquished if not used to their full potential when checked over a period of five years. As a result, if a farmer uses water-saving techniques such as drip irrigation and uses less water than the maximum allotted, the farmer may lose some water rights.<sup>xi</sup>
- *“First in Time, First in Rights.”* Water rights are issued associated with a particular date. This date becomes important in times when inadequate supplies exist; users with an earlier date take precedence in use over more recently permitted users.
- *Tribal/Federal Reserved Rights Undetermined.* In general, a federal reserved right has a priority as of the date the land was withdrawn and the reservation created. However, for tribal lands, uses that predate the reservation (e.g., fishing) have a “time immemorial” date and uses that originated with the reservation have a priority date of when the reservation was created. Because of this, most Indian communities have very senior priority dates compared to state water rights holders. Tribal rights in Whatcom County have not yet been legally determined and uncertainty regarding the outcome of such a determination further exacerbates agricultural supply predictability.

In summary, water in Whatcom County is used in varying degrees of legal compliance. Some farmers are using it without water rights, some are using less of it than they are allowed with their water rights, and some are using more of it and on a larger acreage than is allowed by their water rights. The vital role that water has in agriculture and problems with the current system of managing water rights creates a disincentive for farmers to even talk about how much water they use, lest they be found out of compliance.

Farmers who are using water without a water right can be investigated by the Department of Ecology if an outside party complains. Such a complaint may come from an agricultural neighbor who is losing some water, a concerned citizen, or another agency that is working in the area. A complaint may lead to the farmer being required to stop using the water.

Finding solutions to water supply challenges has been the subject of many different management efforts and substantial resource allocations over the last 20 years, the most recent being the WRIA 1 Watershed Management Project. Actions emanating from the WRIA 1 Project aimed at helping solve the supply challenges include the Instream Flow Pilot Project and efforts to establish a Natural Resources Marketplace. Both actions are currently in progress and it is not yet clear the extent to which their implementation will prove successful.

### **Food Safety**

With recent outbreaks of food-borne illness from agricultural products such as peanuts and peppers, the public is becoming more aware of food safety issues. Many farmers are changing their farming and processing practices to lower risks of food-borne pathogens. Two recently created national third-party certification programs, USDA’s Good Agricultural Practices (GAP) and Good Handling Practices (GHP), are designed so that farms can assure buyers that their products are safe; WSDA performs these certifications. Other US based and international certifications are available for those producing for markets that require them.<sup>xii</sup>

### **Opportunities for Agriculture in Whatcom County**

Several opportunities are developing for agricultural producers, especially with the public’s focus on food and health.

Residents of Whatcom County and the surrounding region are becoming more aware of the concept of differentiating locally produced food and are seeing value in buying from local producers. Results from a “Think Local First” survey completed for Sustainable Connections in 2006 indicates that 55% of Whatcom County residents think that purchasing food produced locally is extremely or very important.<sup>xiii</sup>

Many agricultural crops are only available during certain months of the growing season. With the increase in demand for locally produced food, growers can extend the season on many of their farm products by using protective structures, such as greenhouses or hoop-houses. Products grown in early or late season can be marketed at a premium price due to their relative scarcity in the marketplace.

Many certification programs exist for farmers to differentiate themselves so that they can charge more for a product or enter into certain marketplaces. Programs such as WSDA Certified Organic, Salmon Safe, USDA Good Agricultural/Handling Practices (GAP/GHP), and Food Alliance can certify farms for following certain practices. These farm and product certifications (as outlined in Chapter 6 of this CFA) can give an edge to one product over another.

In the coming years, energy production from farm waste or products grown on marginal farmland could encourage maximum use of available land and zero-waste use of products. A growing number of energy conversion facilities are being developed around the world that can make use of such inputs. As fossil fuel costs increase, these may offer viable and economical ways to power our communities.

## **Energy on the Farm**

Direct energy from the sun allows market and feed crops to grow, but farmers also use energy in the form of electricity and fuel to power heaters, coolers, tractors, and other farm equipment. Indirectly, they are consumers of fossil fuel energy embodied in the manufacture of the fertilizers and chemicals that they use. Energy consumption, both direct and indirect, can be a significant portion of costs of farm production. According to the 2007 Census of Agriculture, fuel, fertilizers, and chemicals accounted for 7.6% of Whatcom County farmers’ production expenses. A 2007 cost of production study for red raspberries suggests that fertilizers (indirect energy) make up over 28% of the total variable production cost.<sup>xiv</sup> Nationally, the energy portion of the cost of production was 19% for vegetables and fruits and 6.7% for dairy cattle and milk (2002).<sup>xv</sup>

There are three ways in which farms can increase on-farm energy efficiency and thereby become more financially sustainable:

### **1. *Increasing energy captured by the sun***

Protective structures, such as greenhouses, hoop-houses, high-tunnels, and cold frames can be used to capture heat energy from the sun and thereby produce crops that require higher temperatures for maturation, such as tomatoes, eggplant, cucumbers, and melons. They can also be used to achieve higher prices for high-value crops before and after peak season. Such structures are being used more frequently in Whatcom County, but there is opportunity for further development. Protective structures are used extensively in other regions of the United States and the world, with a diverse range of crop types and methods of growing.<sup>xvi</sup>

## **2. Increasing efficiency of energy use on the farm**

Farmers can reduce their energy costs by increasing efficiency of current energy consumption practices. Efficiency can be gained in almost every aspect of farming, from tractor use to heating and cooling to transportation.<sup>xvii</sup>

Fuel consumption by tractors may be reduced by employing reduced tillage practices and by matching tractors to the use that best suits them; for example, using low horse-power tractors for low horse-power needs.<sup>xviii</sup>

Heating and cooling are often important components of Whatcom County agriculture, and they can consume a great deal of energy. Greenhouses, work spaces, and animal confinement facilities are often heated; these can be optimized by using efficient heating sources, insulating properly, using programmable thermostats, and minimizing air leaks. Refrigeration facilities are used to cool products after harvest, such as vegetables, fruits, dairy, and meat. Refrigeration motors and compressors should be sized correctly for the unit they cool. A three-phase electric motor for a cooler can be the most efficient and economical way to supply power. Reducing heat loss from coolers increases efficiency; insulation can also be increased, and drop curtains can be used when people are frequently entering and leaving a cooler.

Most farmers in Whatcom County irrigate fields. Irrigation practices can be evaluated for efficiency; type of irrigation, amount of irrigation required, and pump motor efficiency can be tailored to farm needs to reduce energy used to supply water.

Synthetic fertilizers are dependent on natural gas feed-stocks; the cost of these products varies with fuel prices and is closely tied to the energy efficiency of their production. To reduce the amount of synthetic fertilizers required on a farm—no matter how they were produced—farmers can use precision agriculture methods. For example, using global information systems (GIS), a harvest can be automated, and a farmer can determine areas of a field that have the highest productivity zones (presumably due to optimal soil or environmental conditions). Fertilizer use can then be optimized to target high productivity zones, thus reducing costs. Tensiometers and other soil moisture monitoring devices can be used to irrigate efficiently and avoid fertilizer run-off and waste.

Farmers can also look for alternative means of fertilizing to replace some or all synthetic fertilizer. This may come from neighboring farms, in the form of manure or composts, or from products grown on the farm, such as cover crops.

Transportation of products, services, crops, etc., to and from the farm can have a high energy cost. Trucks should be energy efficient and sized to the load that they are carrying. Tires should be properly inflated, and the truck should be maintained to increase energy efficiency.

## **3. Producing energy on the farm**

The first anaerobic digester in Washington was located in Whatcom County at the Vander Haak Dairy in Lynden. It converts dairy waste to energy and other bioproducts that may be re-used in agriculture systems. The energy produced is used as electricity on the farm and sold to utility companies.<sup>xix</sup>

On-farm energy production can make sense but must be carefully considered. A waste processing facility is well suited to animal-based agriculture, but many facilities are capital intensive and may be difficult for smaller farms to afford. Grants and low-interest loans may be available. There may also be greater economy in multiple farms

supplying feed-stock to a single digester. Transporting the material has high energy costs if the farms are located a significant distance from the digester, so proximity and general access to appropriate infrastructure must be available.<sup>xx</sup>

Energy producing facilities must be sited near other facilities that transport power; for example, methane producers need to be near a large transport pipeline, and electricity producers need to be near a grid that has capacity for the electricity. Before starting an energy producing project, a power purchase agreement must be made to ensure that the power can be sold for a known time for a known price; this allows the project to qualify for capital loans.

The Pacific Northwest is one of the largest biomass-producing regions in the world, so it may be economical to grow and use biomass for energy. Technologies are rapidly developing that enable the conversion of biomass to energy. Under-producing or marginal agricultural land might be used to produce high biomass plants, such as hybrid poplar or willow, which can be used for energy production. In Northern Europe, it is common for short-rotation timber, sugar beets, and grains to be used in CHP (combined heat and power) facilities.

Another option for on-farm energy production or substitution is the use of ground-based heat pumps, which convert in-ground heat energy to energy that can power refrigeration needs for milk tanks and other cold storage. This system of conversion requires a large land base from which to draw heat. Fortunately for Whatcom County, many dairy farmers own or have access to such a land base.

Waste materials from farms and other nearby industry may be good sources of “free” energy. Such waste materials may be used as substitutes for synthetic fertilizer or they may be used in the conversion of biomass to energy.

Creative ways to use energy efficiently and to produce energy on a farm are being developed in Whatcom County and around the world. These technologies will continue to develop and make energy production from biomass a more viable option for local farmers.

## **Conclusion**

The future viability of farming in Whatcom County will depend upon the ways in which threats to agricultural land, agricultural service providers, and water are construed as opportunities for sound resource planning, the support of changing market strategies, and a shift in the way farms think about energy use. Several major threats currently face Whatcom County’s agricultural viability:

- The amount of land that is zoned for agriculture in Whatcom County has decreased steadily since the late 1950s. Whatcom County’s population has increased since this time, creating pressure to develop that agricultural land.
- A regional agricultural base must maintain a threshold size in order to sustain an agriculturally related labor force, industries, and businesses. This base is threatened by the fragmentation of farmland and farming service providers.
- The vital role that water has in agriculture and the regulatory system of managing water rights creates a disincentive for farmers to discuss how much water they use. No new water rights applications are being reviewed, making it difficult for new farms to establish themselves legally.

These threats are being met by some who see challenges to agriculture as an opportunity for innovation:

- Residents of Whatcom County are becoming more aware of the concept of differentiating locally produced food and are seeing value in buying from local producers, thus gaining awareness of the issues facing local farms.
- Numerous farms are extending their growing season to satisfy local demand.
- With rising fuel costs, farms are increasing the energy efficiency of their operations and are beginning to look at energy production on their own or nearby farms, thus protecting themselves from external fluctuations in costs.

It is clear from recent surveys that citizens of Whatcom County care about the region's agricultural tradition and the viability of its agricultural economy. These and other sentiments have lent themselves to the adoption of farmland preservation programs such as PDR and TDR. However, serious challenges to the widespread effectiveness of these programs require further attention. Similarly, water challenges necessitate re-thinking the ways in which water use is regulated and made available to agriculture. Great technological strides are necessary in order for farms to use energy more efficiently and increase the amount of energy that can be produced locally.

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- xx Craig MacConnell, Director and Agriculture Extension Educator, WSU Extension (personal communication).

## Chapter 7

# What Role Do Fisheries Play in Whatcom County's Food System?

Fisheries have been and still are an important component of the economics and food system of Whatcom County, a coastal community. At least 12 processors collectively handle more than a hundred million dollars worth of fish each year, creating year-round and seasonal jobs, economic stimulus for the region, and an important element of the County's culture. Fish landed at Whatcom County ports come from two of the nation's eight regional fisheries—the North Pacific and West Coast Fisheries. Once landed in Whatcom County, the fish is shipped globally.

### History of Fisheries in Whatcom County

Fishing has been a way of life for tribal residents of Whatcom County for hundreds of years and for European residents since the earliest days of settlement in the mid-19<sup>th</sup> century. Founded in Bellingham in 1898 and growing to the peak of its influence in the early 20<sup>th</sup> century, Pacific American Fisheries (PAF) was one of the largest salmon canning operations in the world. Over the lifespan of the company (1898-1965), PAF was a major innovator within the fisheries world, pioneering the establishment of floating canneries for its operations from Washington to Alaska, the mechanization of fish processing, and ship building for the industry. Facilities sprawled over what is now Fairhaven in southern Bellingham and paved the way for much of the maritime development that Bellingham sees today. After the company dissolved, its principal facilities were sold to the Port of Bellingham in 1966 to become the Alaskan Ferry Terminal.<sup>i</sup> Bellingham Cold Storage, and its on-premises companies, has conducted its seafood processing and storage business since 1946. Today, it is one of the largest seafood cold storages on the West Coast.<sup>ii</sup>

### Fisheries Today

Fisheries today are far more regulated than they were in the time of PAF. The Magnuson-Stevens Fishery Conservation and Management Act, passed by Congress in 1976, governs all fisheries in the United States.<sup>iii</sup> U.S. fishing territories are divided for regulation into 8 regional councils—vessels from Bellingham and Blaine can fish in both the North Pacific Regional Council and the Pacific Council—that have jurisdiction over fish and shellfish harvested in each region. The different fish and shellfish types are also called fisheries; in this CFA, to avoid confusion, we refer to the fish-specific fisheries in lower-case (e.g., salmon fishery) and Council-specific capitalized (e.g., North Pacific Fishery).

The most recent data that were available for fisheries information in Whatcom County (2000) list the two regional fisheries in which vessels participate as the **North Pacific Fishery** (still existing) and the **West Coast Fishery** (not the Pacific Fishery, which is the regional body in 2010). This CFA will consider quantities and values of fish and seafood from each of these two fisheries separately. Collectively, the figures show the magnitude and importance of fisheries in Whatcom County, although there may be other significant sources of fish and seafood processed here that is not accounted for in the following discussion. All data come from 2000. The term “landed” indicates that a fishery product (e.g., salmon, groundfish, etc.) has been transferred from a fishing vessel to a port of processing. Thus, vessels may catch more fish in a season than they land at processing facilities in Whatcom County.

Fisheries are significant to three communities in Whatcom County: Bellingham, Blaine, and Ferndale. Most of processing is done in Bellingham, where 9 processors operate (see Chapter 9 for description of Bellingham Cold Storage). Blaine has two fish processors and Ferndale has one. In 2000, the 9 processors in Bellingham employed

676 people, many of whom were Hispanic.<sup>iv</sup> Data were not available for employment in processing facilities in Blaine and Ferndale.

Statistics are a bit murky with regard to the actual number of people involved in fisheries in Whatcom County owing to the seasonality of the industry, the decentralized nature of commercial fishing, and unattributed data available for the North Pacific and West Coast Fisheries. Each fishery independently records the number of vessels and permits issued but not whether vessels were involved in just one or both fisheries. Cross-reference was not possible for this CFA.

While the exact number of individuals involved in fisheries in Whatcom County may not be available, we do know the number of vessels involved, and this at least gives a picture of the industry's participants. In 2000, 1,268 unique vessels (224 owned by Bellingham residents) delivered landings to Bellingham and Marietta (immediately north of Bellingham, counted as part of Bellingham processing for the purposes of this CFA); 735 of these were tribal commercial vessels, 375 were commercial vessels, 175 were personal-use vessels, and 1 was for aquaculture. Adding to this total, 471 unique vessels (41 owned by residents of Blaine) delivered landings to Blaine in 2000; 236 of these were non-tribal commercial vessels, 165 were tribal commercial vessels, and 70 vessels were for personal use.<sup>v</sup>

There are a number of local fishermen in Whatcom County that sell part or all of their catch direct to the public. The Port of Bellingham has designated docks that fishermen can use to sell to the public from their fishing vessels. Seafood handling and processing requirements are strictly regulated by the Whatcom County Department of Health. Products sold include fresh and frozen salmon, live spot prawns, live Dungeness crab, and fresh bottomfish such as dover sole, rex sole, and flounder. Lummi tribal fishermen also sell crab and other shellfish and smoked salmon from outlets on the Lummi Nation.

### **Tribal Fishing**

Judging by the number of tribal commercial fishing vessels participating in regional fisheries, tribal fishing has a large role to play in the region's food system. Historically, tribal fishing grounds encompassed a large region in Puget Sound, from the Fraser River in British Columbia south to an area just north of Seattle. Bellingham Bay was particularly important.<sup>vi</sup> One of the 4 hatcheries in Whatcom County is run by the Lummi Tribe, which cultivates geoduck clams, manila clams, and oysters.<sup>vii</sup> Additionally, subsistence fishing has been an integral part of life for coastal tribes for many hundreds of years. This continues to be the case, although specific data on quantities of fish landed are not available.

### **Sport Fishing**

Not insignificant in Whatcom County's fisheries, the National Oceanic and Atmospheric Administration (NOAA) reports that in 2003, Bellingham had at least 2 salmonid charter fishing businesses and 9 licensed agents who sold fishing permits, accounting for 20,090 sportfishing license transactions valued at \$339,527. Blaine had one salmonid charter fishing business (as of 2000), two licensed agents who sold fishing permits (as of 2005), and 5,332 sportfishing license transactions that occurred (in 2003), valued at \$66,343.<sup>viii</sup>

### **Fisheries Products**

The main types of seafood landed in Whatcom County are salmon, groundfish (including rockfish, flatfish, roundfish, sharks, and skates), shellfish (including Pacific oysters and manila clams), crab, and shrimp. Students at Western Washington University conducted a survey of the species landed commercially in Whatcom County. The following is an excerpt from their research, which also includes a description of fishery methods:

Species with an asterisk (\*) following the name are processed in the County at a fish processing plant but harvested elsewhere, mostly caught in Alaskan waters. Each description is followed by the common methods that West Coast fishers use to catch the species and the season during which it is caught.



Spiny Dogfish\* (*Squalus acanthias*): Exported to Europe and Asia for use in fish and chips. The dogfish is a type of shark with a gray to brown dorsal side, white belly, and distinguishable tail that is longer dorsally than ventrally. It has fan-shaped pectoral fins and large, glassy eyes.

Method: set net

Season: year-round

Size: 3 to 4 feet long



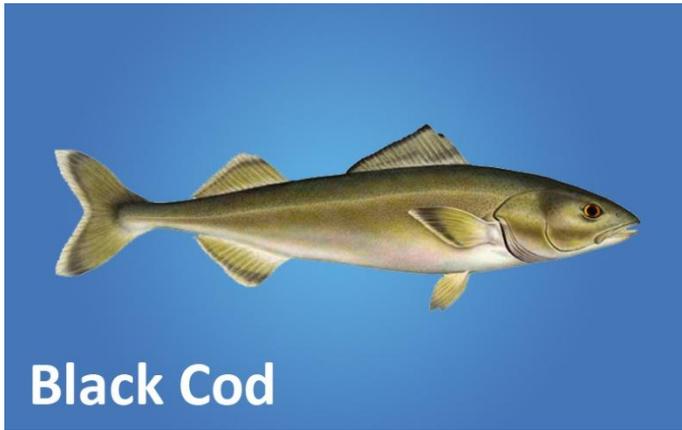
Rockfish (*Sebastes sp.*): Although there are 70 species of rockfish on the Pacific Coast, only a dozen are harvested commercially. The flesh is mild and sweet-tasting with a flaky, medium-firm texture.

Red-fleshed Rockfish (Canary, Red, Yelloweye): Marketed as red snapper, these varieties of rockfish command a premium price due to their longer shelf life and lower oil content.

Method: jig, pot, trawl

Season: year-round

Size: up to 8 inches



Black Cod\* (*Gadus macrocephalus*): The classic whitefish, cod has been used in fish sandwiches at fast-food restaurants and is a staple food in Portugal, Italy, Spain, Brazil, and Asia. As cod becomes more valuable, Alaska Pollock is replacing it in fast-food recipes.

Origin: Alaska accounts for 60% of the catch

Method: trawl, longline, and pot

Season: year-round

Size: 11–26 lbs, up to 220 lbs

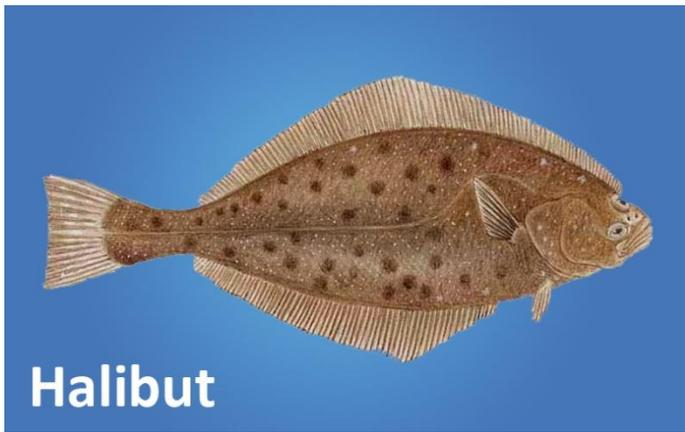


Lingcod (*Ophiodon elongates*): Found near rock piles and kelp beds, this fish has a large mouth and an impressive set of teeth. The lean, white flesh is similar to halibut.

Method: trawl and longline bycatch

Season: year-round

Size: 35 – 50 inches, up to 70 lbs



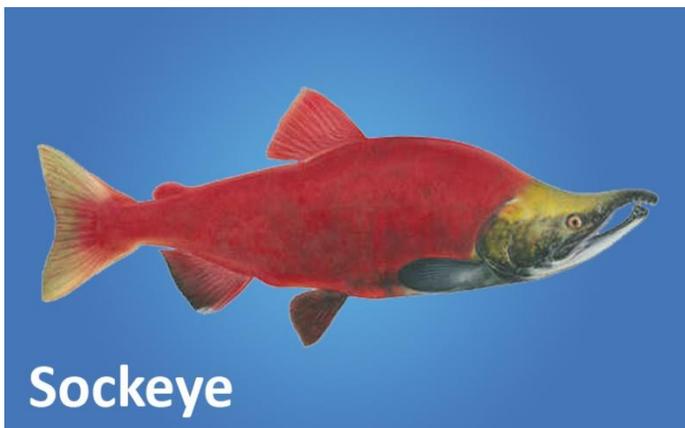
Halibut (*Hippoglossus stenolepis*): This flat fish is mottled brown in color, with two eyes on one side of its head. “Whale” halibut grow to 8 feet long and 700 lbs., but most fish are less than 20 lbs when harvested. The flesh is noted as being thick, meaty, and firmer than most other whitefish. Exported to Seattle and overseas.

Origin: Alaska furnishes 80% of the catch

Method: longline

Season: year-round

Size: 24–30 lbs, up to 700 lbs



Sockeye (*Oncorhynchus nerka*) : With the brightest red meat of any of the types of salmon and more Omega-3s per gram than any other type of fish, this fish sells at a premium in the marketplace.

Method: gill net, purse seine, reef net, trawl

Season: May to August

Size: 5-8 lbs, up to 15 lbs



King or Chinook (*Oncorhynchus tshawytscha*): This salmon grows to be the largest in size of any of the salmon.

Method: gill net, purse seine, reef net, trawl

Season: May to September

Size: 10-15 lbs, up to 135 lbs



Chum (*Oncorhynchus keta*)

Method: gill net, purse seine, reef net, trawl

Size: 10-15 lbs, up to 33 lbs



Coho (*Oncorhynchus kisutch*)

Method: gill net, purse seine, reef net, trawl

Size: 6-12 lbs, up to 31 lbs



Pink (*Oncorhynchus gorbuscha*)

Method: gill net, purse seine, reef net, trawl

Size: 3-5 lbs, up to 12 lbs

Shellfish harvested or farmed in Whatcom County:



Pacific oyster (*Crassostrea gigas*): Thick, yellow-white layers of shell yield to a plump and savory flesh. 75% of the oyster production on the West Coast comes from Washington State.

Method: farmed (suspended and on-bottom culture)

Season: year-round, but quality declines during the summer spawn

Size: about 6 to 8 inches

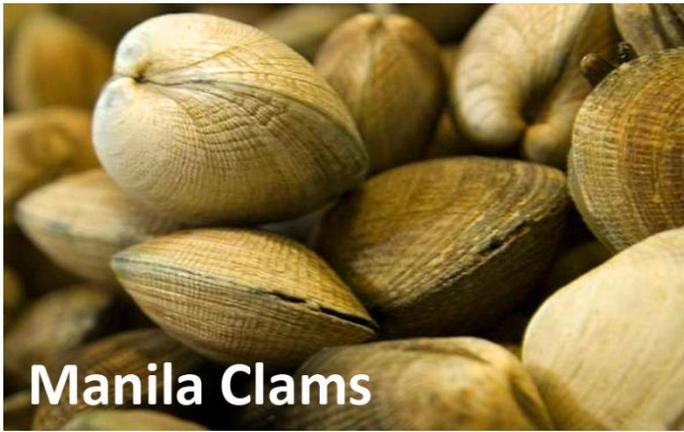


Mussel (*Mytilus trossulus*): These smooth, fan-shaped black bivalves filter about 24 gallons of seawater a day in search of microscopic plankton. Females have orange meat and males have white meat. They are perceived as gourmet, but usually sell for less than clams.

Method: mostly rope-grown, also bottom cultured and dredged

Season: year-round, but declines during the summer spawn of the blue mussel and winter spawn of the Mediterranean and greenshell mussels

Size: 2 to 3 inches



## Manila Clams

Manila Clams (*Venerupis philippinarum*): Popular in pasta dishes, chowders, and steamed as an entrée.

Method: dredged, dug, cultured

Season: all year, but quality decreases in the summer when the clams spawn

Size: 3 to 4 inches in length

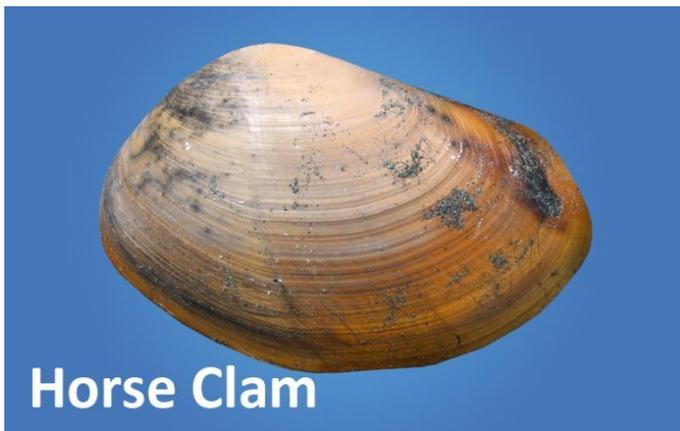
Other clams that are harvested recreationally:



Geoduck clam (*Panopea generosa*)

Method: recreationally harvested

Size: 2 pounds, up to 6.5lbs



Horse clam (*Tresus nuttallii* and *T. capax*)

Method: recreationally harvested

Size: 3 to 4 inches



Softshell clam (*Mya arenaria*)

Method: recreationally harvested

Size: up to 6.75 inches



Manila littleneck clam (*Mercenaria mercenaria*)

Method: recreationally harvested

Size: up to 2.5 inches

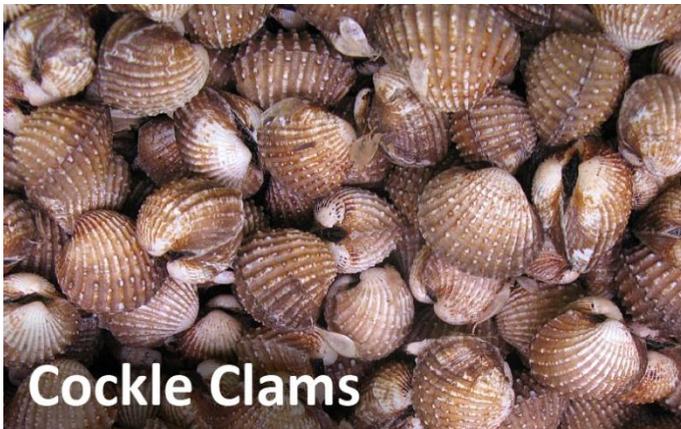


## Native Littleneck Clam

Native littleneck clam (*Protothaca staminea*)

Method: recreationally harvested

Size: up to 3 inches

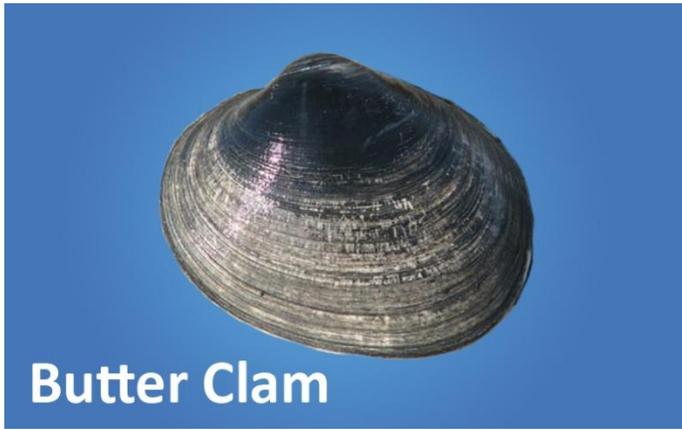


## Cockle Clams

Cockle clam (*Cerastoderma edule*)

Method: recreationally harvested

Size: up to 2 inches



Butter Clam (*Saxidomus giganteus*)

Method: recreationally harvested

Size: up to 4 inches in length and range from 1.5 to 2.5 inches in height



Coon Stripe Shrimp (*Pandalus hypsinotus*): Mottled reddish-brown in color with some white patches on the head and tail. The head and snout are tipped by 17 to 21 spines.

Method: shrimp pot attached to a line and buoy

Size: up to 6 inches



Spot Shrimp (*Pandalus platyceros*): Have a deep red-pink body with three white lines on the head and two pairs of white spots on the tail.

Size: up to 7.5 inches



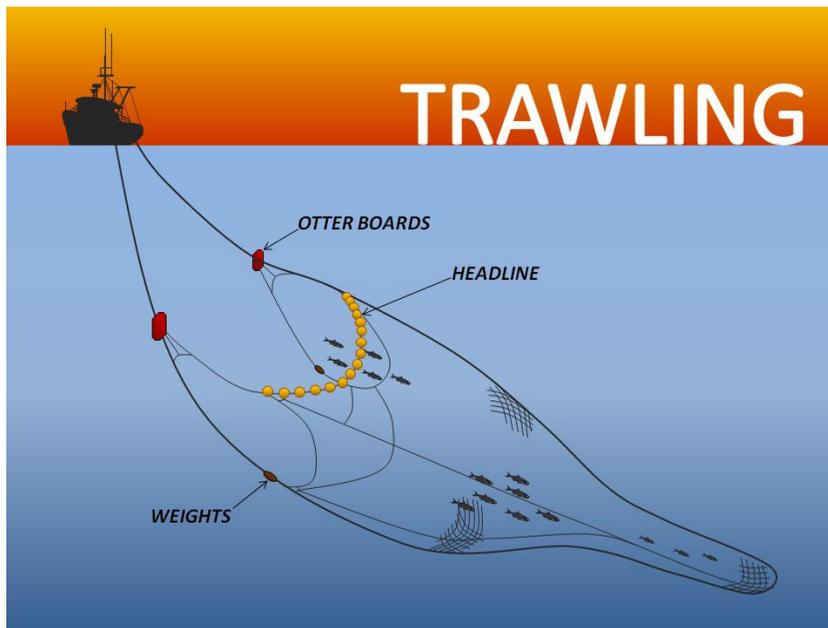
Dungeness crabs (*Cancer magister*): The crab of choice for food aficionados, this red-orange crab can reach three pounds in size. The flesh is sweet and clean-tasting. The Chinese translation for Dungeness is “very valuable crab.”

Method: crab pot, ring net

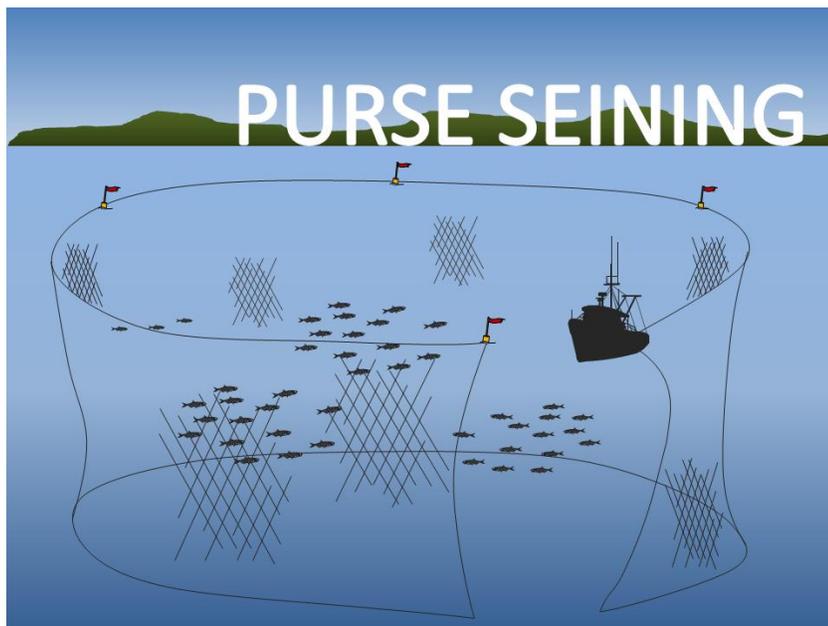
Season: Dec. 1 to Sept. 15 in Washington

Size: up to 9 inches

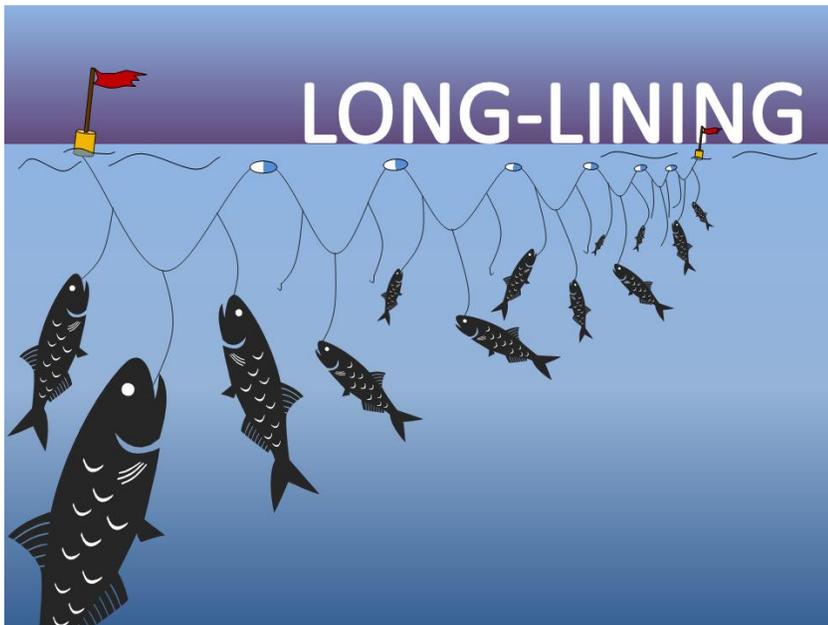
Harvest methods:



Trawl: A funnel-shaped net with a wide, horizontally-stretched opening is dragged behind a boat.



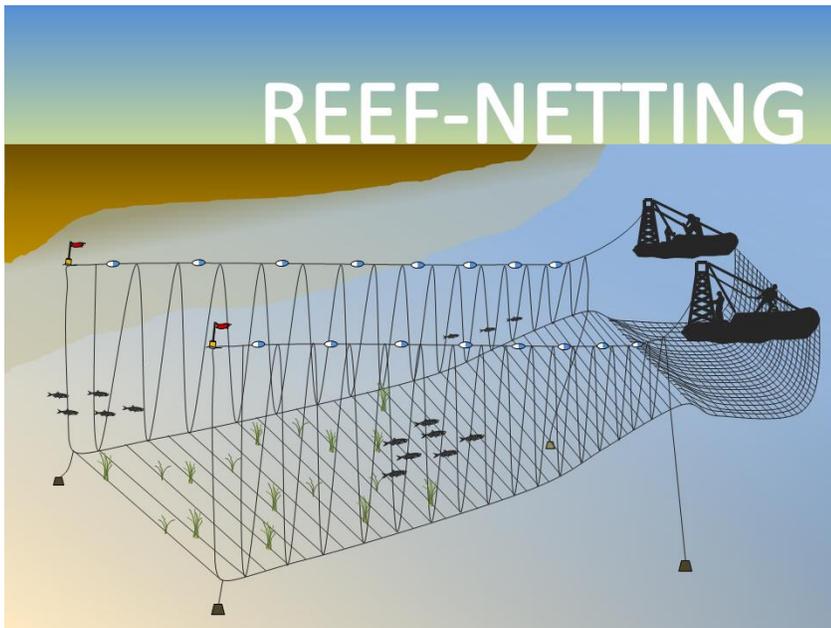
Purse seine: A wall of net is deployed to encircle the school of fish, and pulled together so that the webbing forms a false bottom. The pond containing the fish is gradually made smaller until the net is pulled aboard the boat.



Long-lining: A line of several miles in length is set out, with shorter lines spaced along it every 2 to 6 feet. A baited hook tips the end of each shorter line.



Gill-net: Consists of a large wall of netting that traps fish by their gills. The top of the net is attached to a float and the bottom is attached to a leadline. When fishing for bottom species like lingcod and rockfish, enough weight is added to keep the leadline on the seabed.

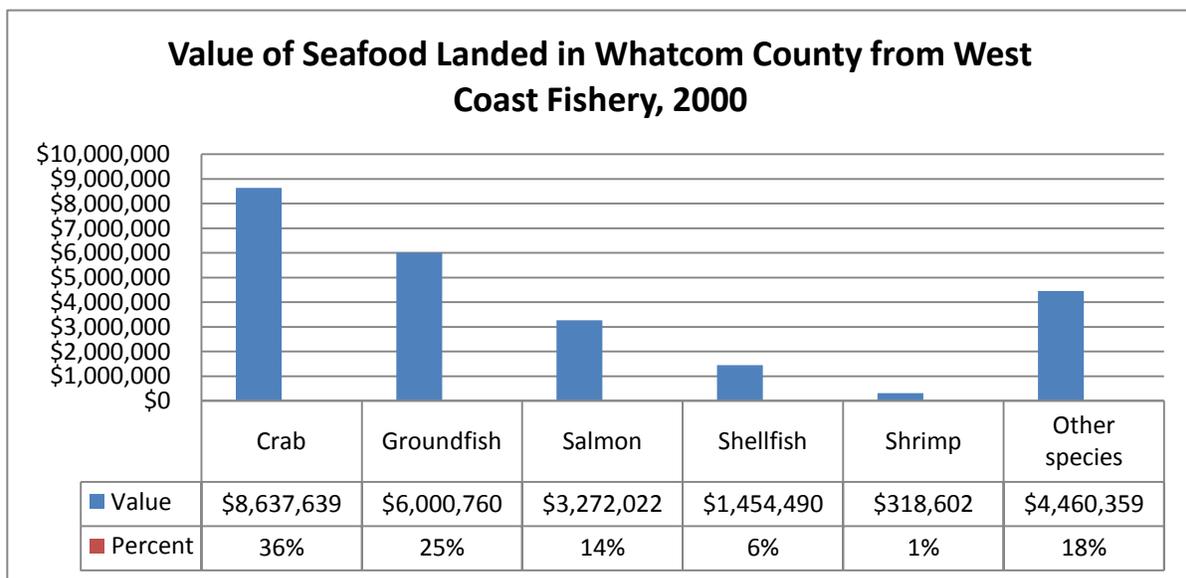
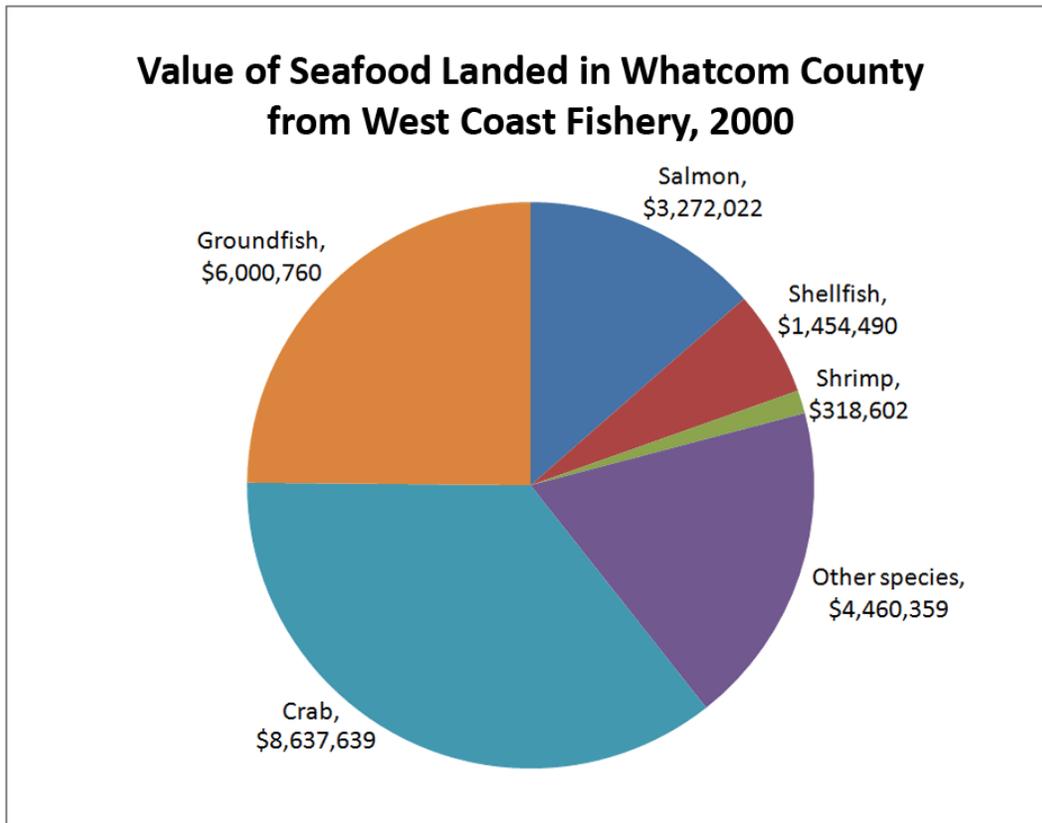


Reefnetting: This type of netting is particular to the Pacific Northwest, and is used to help celebrate the Lummi Reefnet Festival every summer. Reefnetting was once performed with cedar canoes and cedar-bark nets, but today modern boats and nylon nets are used. Two boats sit stationary with a net suspended between them. The net is like a crescent-shaped trough that sits near the seabed. The gear is set up during a flood tide to coincide with the northward migration of salmon into the entrance of the Fraser River. Fishermen stand on towers until they spot a school of salmon, and winches pull the net up to trap the salmon.

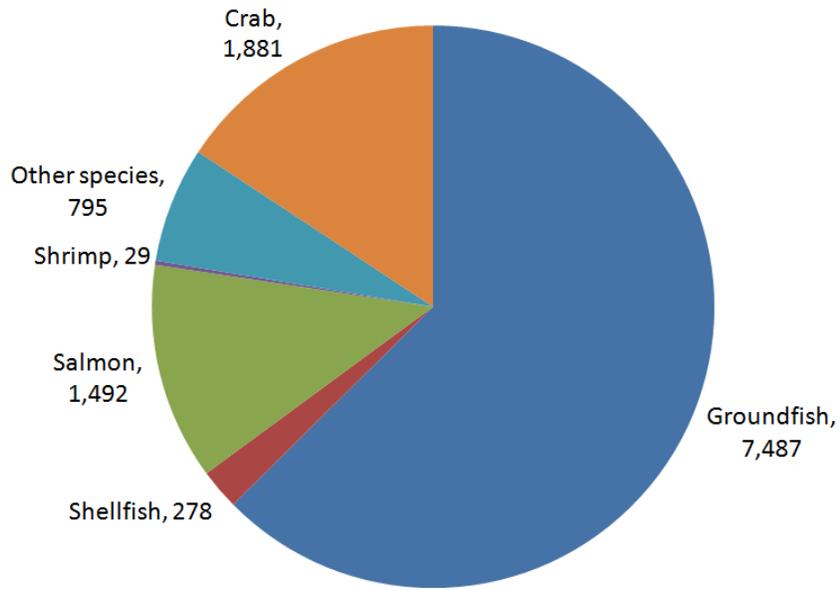
**Fish landed and processed in Whatcom County**

**Bellingham**

Vessels participating in the West Coast Fishery and the North Pacific Fishery landed their catch in both Bellingham and Blaine. The following charts describe fish and seafood from each fishery.

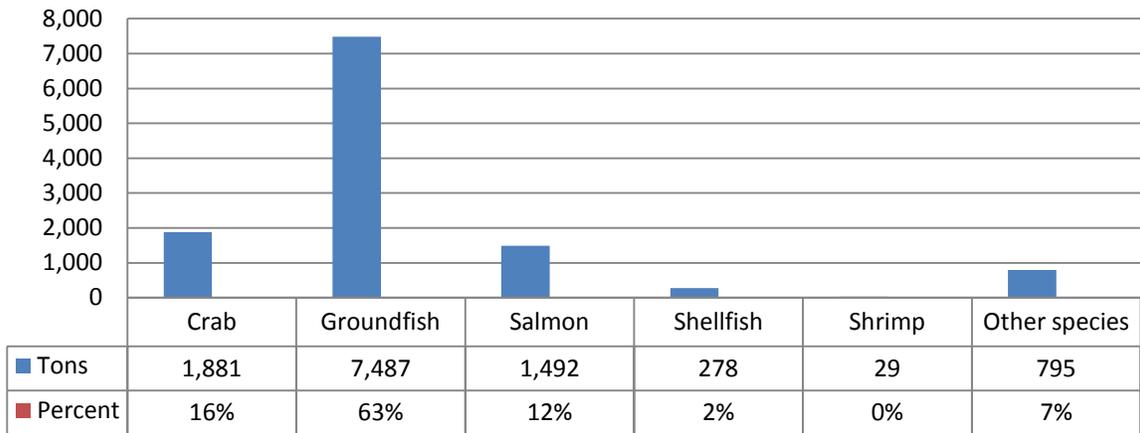


### Tons of Seafood Landed in Whatcom County from West Coast Fishery, 2000



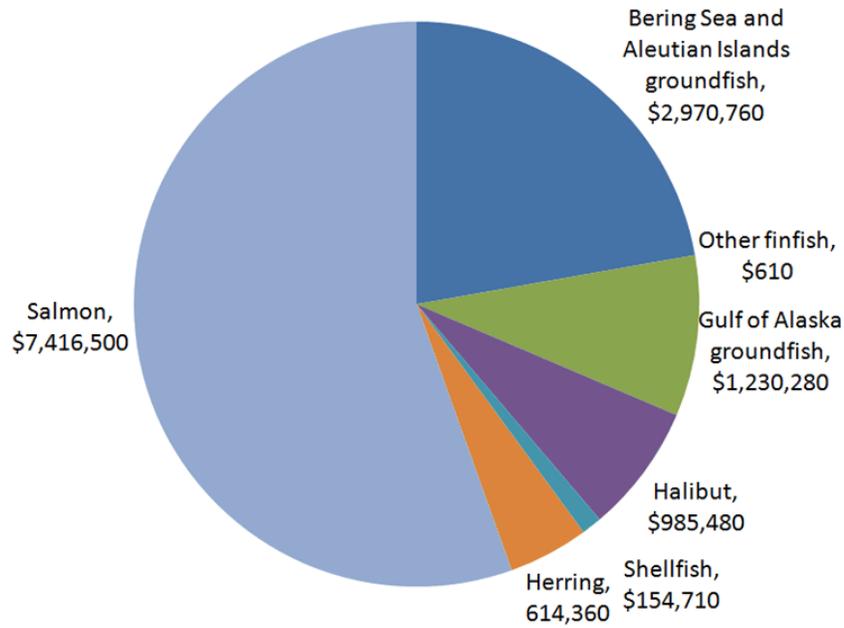
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### Tons of Seafood Landed in Whatcom County from West Coast Fishery, 2000



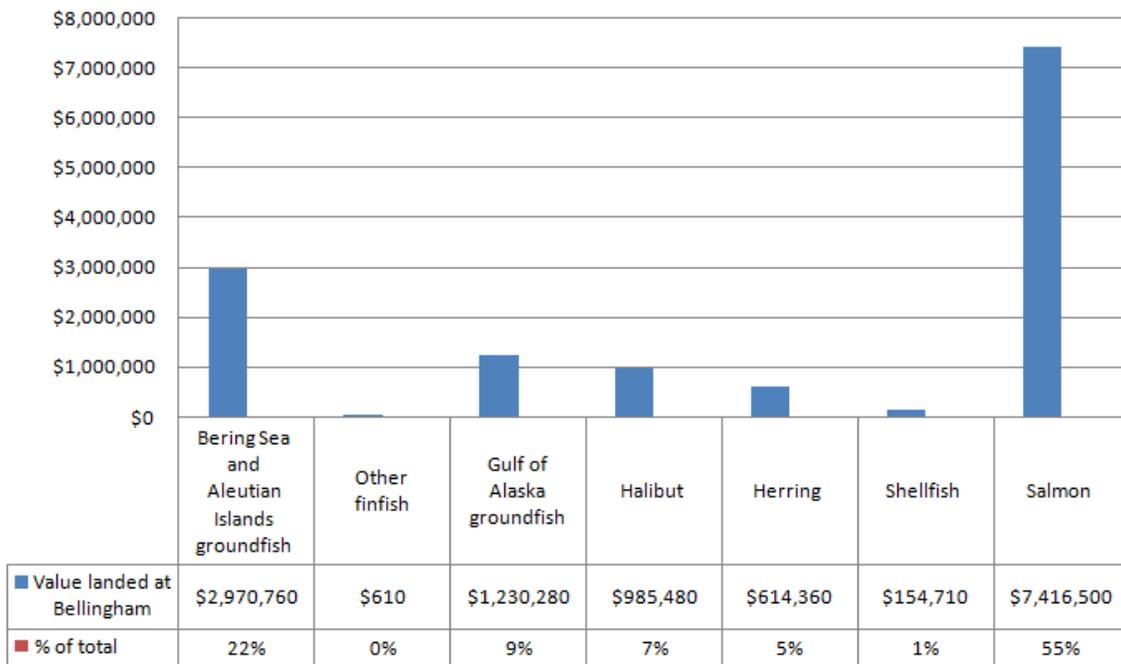
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### Value of Seafood Landed at Bellingham from North Pacific Fishery, 2000



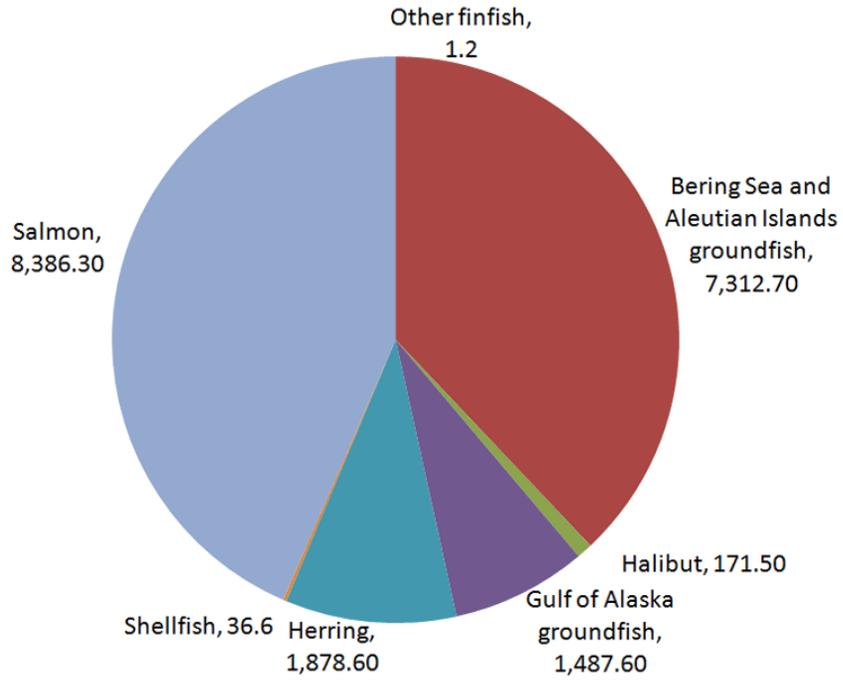
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### Value of Seafood landed at Bellingham from North Pacific Fishery, 2000



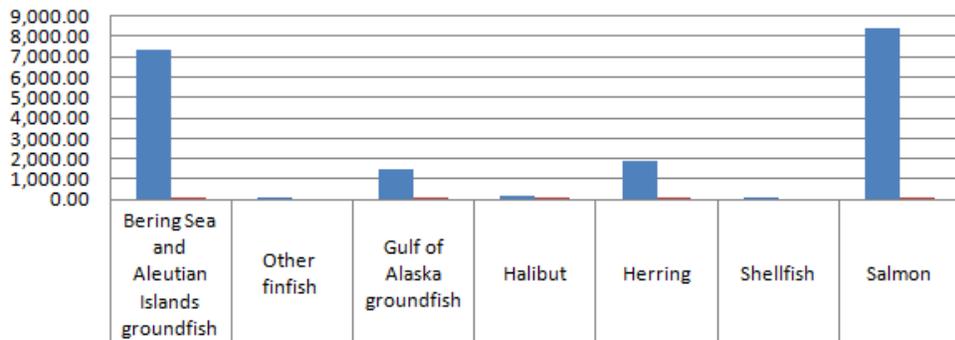
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### Tons of Seafood Landed at Bellingham from North Pacific Fishery, 2000



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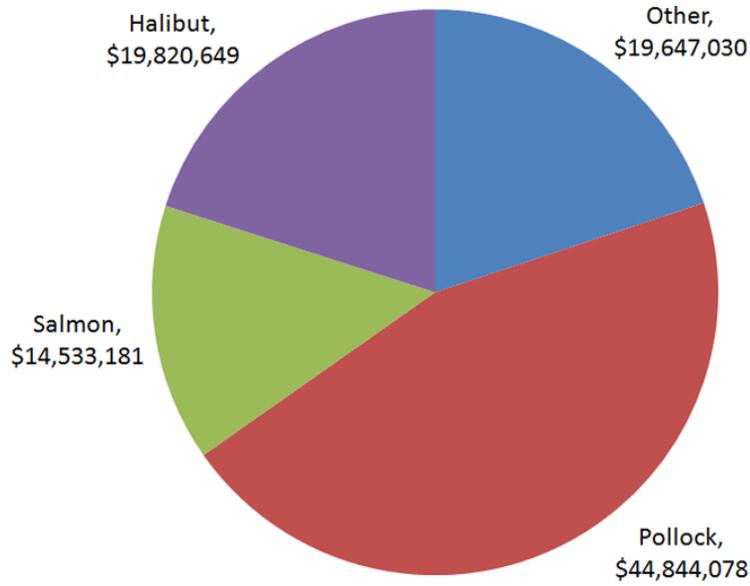
### Tons of Seafood landed at Bellingham from North Pacific Fishery, 2000



	Bering Sea and Aleutian Islands groundfish	Other finfish	Gulf of Alaska groundfish	Halibut	Herring	Shellfish	Salmon
■ Tons landed at Bellingham	7,312.70	1.2	1,487.60	171.5	1,878.60	36.6	8,386.30
■ % of total	38%	0%	8%	1%	10%	0%	44%

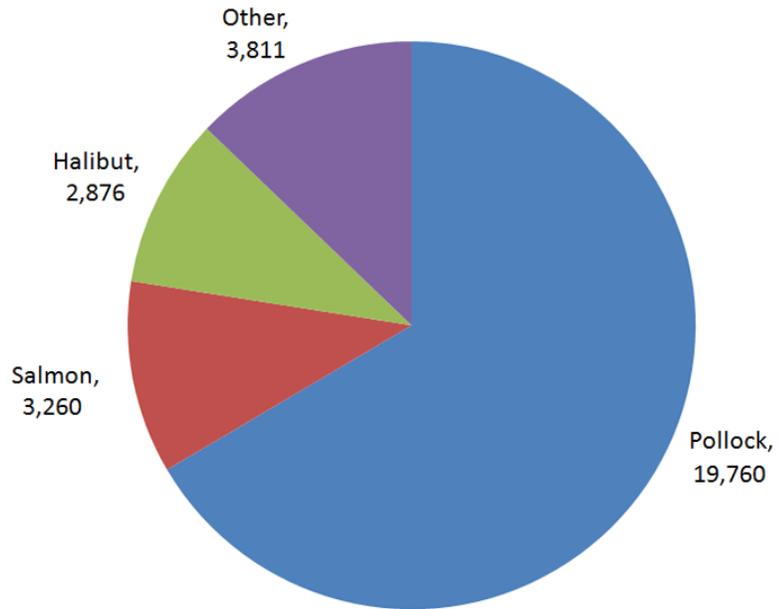
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### Value of Seafood Processed in Bellingham, 2000



xvii

### Tons of Seafood Processed in Bellingham, 2000



xviii

## Hatcheries

Whatcom County has three fish and one shellfish hatchery. According to a representative of the Department of Fish and Wildlife, hatcheries in Whatcom County release several species of trout and salmon.<sup>xxi</sup> According to the Hatchery Scientific Review Group, 75 percent of salmon caught commercially and recreationally in Puget Sound come from hatcheries.<sup>xxii</sup>

Name of Hatchery	Managed by	Species and numbers released
Kendall Creek	Washington Dept of Fish and Wildlife (WDFW)	100,000 Rainbow Trout 15,000 Brown Trout 750,000 Spring Chinook 200,000 Cutthroat Trout 150,000 Steelhead Trout
Brannian Creek	WDFW	100,000 Rainbow Trout
Middle Fork Pond	WDFW	None released
Skookum Creek	Lummi Nation	1,000,000 Coho Smelts 200,000 Spring Chinook
Whatcom Falls Park Hatchery	WDFW	14,000 Rainbow Trout 4,200,000 Kokanee Salmon
Maritime Heritage / Whatcom Creek	Bellingham Technical College	2,000,000 Chum Salmon 500,000 Pink Salmon 40,000 Steelhead Trout
Lummi Bay/Nooksack River	Lummi Nation	1,000,000 Coho Smelts 1,000,000 Fall Chinook Fry
Lummi Bay	Lummi Nation	Geoduck Clams, Manila Clams, Oysters

## Fisheries Support Organizations

In addition to the governmental organizations and regional councils that support or regulate fisheries in Northwestern Washington (for a list of those influencing Whatcom County, see the appendix), there are also non-profit organizations, such as the Nooksack Salmon Enhancement Association and the Drayton Harbor Oyster Farm, which work to restore local fisheries and raise awareness about the importance of intact marine and freshwater ecosystems. Some of these non-profits have created positive collaborations with other sectors of the community, such as the Farmers Growing Trees for Salmon project of the Whatcom County Ag Preservation Committee through which trees grown at local farms are planted by citizens as buffers along salmon-bearing streams to restore salmon habitat.<sup>xxix</sup> Others, like Bellingham Technical College’s Fisheries Technology Program, prepare students for employment in a variety of fisheries occupations with emphasis on aquaculture.<sup>xx</sup>

Many government and non-government organizations are present in Whatcom County or the region to support fisheries or restore fish habitat. These are listed in the table below.

Organization	Location	Purpose	Type
Drayton Harbor Oyster Farm	Blaine	To restore oysters to Drayton Harbor for the purpose of community aquaculture	Non-profit organization
Department of Fish and Wildlife	Mill Creek	To manage Washington State fish and wildlife species based on the best scientific information available	Government agency
Fisheries Technology Program, Bellingham Technical College	Bellingham	To prepare students for employment in a variety of fisheries occupations with emphasis on aquaculture	Educational program
Lummi Shellfish Operations	Lummi Reservation	To use aquaculture for the benefit of Lummi Tribal members	Government organization
Marine Resource Committee	Bellingham	To protect and restore marine waters, habitats, and species from the Canadian border to the south end of Whidbey Island	Government established, citizen based committee
National Marine Fisheries Service Regional Office	Seattle	To conserve, protect and manage Pacific salmon, groundfish, halibut, and marine mammals and their habitats under the Endangered Species Act and other laws	Government organization
Nooksack Natural Resources Department	Deming	Protection, management, and restoration of natural resources for the Nooksack Tribe	Government agency
Nooksack Salmon Enhancement Association	Bellingham	To restore salmon runs in Whatcom County	Non-profit organization
North Pacific Fisheries Management Council	Seattle	Oversees the management of the nation's fisheries off of Alaska	Government agency
Puget Sound Partnership	Olympia	To restore and protect Puget Sound	Collaborative organization
U.S. Coast Guard Station	Bellingham	To provide an area to conduct Coast Guard missions	Government facility
Washington State Department of Ecology	Bellingham and statewide	Works to monitor and regulate water to protect for human and other uses	Government agency
WSU Extension and Washington Sea Grant	Bellingham	To provide outreach on freshwater and marine restoration issues	Government/university agency

## Conclusion

Whatcom County has a long and complex history with fisheries. For native tribes, fishing has been a way of life for hundreds of years. The same was true of many early European settlers as it is with some residents today. Salmon brought Bellingham to the world's stage through the Pacific American Fishery (PAF), at one time the largest salmon cannery on the planet.

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service maintains statistics on fish landings, commercial licenses, and fish processing in Whatcom County, separated by regional fisheries councils, including the locally important West Coast Fishery and the North Pacific Fishery. Noteworthy statistics in this section of the CFA include:

- Principal among the types of fish landed in Whatcom County are salmon, groundfish (including rockfish, flatfish, roundfish, sharks, and skates), shellfish (including Pacific oysters and manila clams), crab, and shrimp.
- In 2000, 1,278 unique vessels landed fish at 9 processing companies in Bellingham, which processed 59,412,691 pounds of fish.
- From the West Coast Fishery, groundfish were the largest catch by weight, but crab was the highest in value.
- From the North Pacific Fishery, salmon was the largest catch by weight but crab was the highest in value.
- In 2000, 471 unique vessels landed fish at 2 processing companies in Blaine; 1,268 unique vessels landed fish at 9 processing companies in Bellingham; zero vessels delivered landings to Ferndale.
- Of the vessels landing fish in 2000, about 35% were commercial vessels, 52% were commercial tribal vessels, and 13% were licensed only for personal use.
- The following harvest methods are used by vessels landing fish in Whatcom County: trawl, purse seine, longline, gill net, reefnet, and ring net or crab pot.

Fishing is an important industry in Whatcom County, valued at over a hundred million dollars a year (commercial and recreational value) and employing over a thousand residents of Whatcom County. Commercial fishing has changed a great deal in the last hundred or more years since larger companies like PAF have dissolved and the industry has decentralized.

Due to the decentralization of the industry and the overlap of data recorded for each regional fishery, it is challenging to find exact statistical information, especially figures about the labor force and commercial companies' financial relationship to Whatcom County's economy. In addition, the following information would make this CFA section on fisheries more complete:

- Total number of employees of vessels engaged in fishing.
- Total number of vessels landing fish in Whatcom County (including cross-references associated with the regional fishery with which each is involved).
- Total number of employees of fish processors in Whatcom County.
- Principal marine industries that support the fishing industry.
- A comparison of yearly values of fish landed and processed in Whatcom County and the change over time.
- Total value of fish processed in Blaine and Ferndale.

- Proportion of fish processed in Whatcom County that is landed elsewhere.
- The role processors have forwarding fish to other places for further processing (for example, Bellingham Cold Storage being the largest fish forwarder for Alaskan salmon).<sup>xxiii</sup>
- Information about the health of fisheries stock and what this means for the future of fisheries in Whatcom County.
- Number of fishers living in Whatcom County who fish in Alaska and amount of income that comes back to be spent in Whatcom County.
- Number of local fishers who sell directly to the public and to restaurants and retail grocery stores.

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i Western Washington University Center for Pacific Northwest Studies. *Pacific American Fisheries Records*. Retrieved on April 14, 2010 from: <http://www.acadweb.wvu.edu/cpnws/paf/pafhist.htm>

ii See Chapter 9 of this CFA for more information about Bellingham Cold Storage.

iii *Magnuson-Stevens Fishery Conservation and Management Act, Public Law 94-265. (1996). J. Feder version (12/19/96)*. Retrieved on April 13, 2010 from: <http://www.nmfs.noaa.gov/sfa/maqact/maq3.html#s302>

iv Brown, H. J. (2002, March 3). Processing is entry into fishing industry. *The Bellingham Herald*, Bellingham, WA.

v U.S. Department of Commerce, National Atmospheric and Oceanic Administration. (2007). *Community Profiles for West Coast and North Pacific Fisheries, Washington, Oregon, California, and other U.S. States*. Retrieved on April 13, 2010 from: [http://www.nwfsc.noaa.gov/assets/25/6718\\_01082008\\_153910\\_CommunityProfilesTM85WebFinalSA.pdf](http://www.nwfsc.noaa.gov/assets/25/6718_01082008_153910_CommunityProfilesTM85WebFinalSA.pdf)

vi Ibid.

vii Lummi Nation. (No date). *Shellfish Brochure*. Retrieved on April 15, 2010 from: [http://www.lummi-nsn.org/NR/Enhancement/PDF/5\\_shellfish%20brochure.pdf](http://www.lummi-nsn.org/NR/Enhancement/PDF/5_shellfish%20brochure.pdf)

viii Ibid.

ix U.S. Department of Commerce, National Atmospheric and Oceanic Administration. (2007). *Community Profiles for West Coast and North Pacific Fisheries, Washington, Oregon, California, and other U.S. States*. Retrieved from: [http://www.nwfsc.noaa.gov/assets/25/6718\\_01082008\\_153910\\_CommunityProfilesTM85WebFinalSA.pdf](http://www.nwfsc.noaa.gov/assets/25/6718_01082008_153910_CommunityProfilesTM85WebFinalSA.pdf)

x Ibid.

xi Ibid.

xii Ibid.

xiii Ibid.

xiv Ibid.

xv Ibid.

xvi Ibid.

xvii Ibid.

xviii Ibid.

xix For more on the Farmers Growing Trees for Salmon project, visit: <http://www.piersystem.com/go/doc/1579/203373/>

xx Bellingham Technical College. (2010). *Fisheries Technology Program*. Retrieved on April 15, 2010 from: <http://fisheries.btc.ctc.edu>

xxi Stephen Seymour, Washington Department of Fish and Wildlife (personal communication).

xxii Hatchery Scientific Review Group. (2003). Retrieved from: <http://www.hatcheryreform.us>

xxiii U.S. Department of Commerce, National Atmospheric and Oceanic Administration. (2007). *Community Profiles for West Coast and North Pacific Fisheries, Washington, Oregon, California, and other U.S. States*. Retrieved April 13, 2010 from: [http://www.nwfsc.noaa.gov/assets/25/6718\\_01082008\\_153910\\_CommunityProfilesTM85WebFinalSA.pdf](http://www.nwfsc.noaa.gov/assets/25/6718_01082008_153910_CommunityProfilesTM85WebFinalSA.pdf)

## Chapter 8

### What Food is Processed in Whatcom County?

Food growing and food manufacturing go hand in hand when one considers the structure of an agricultural economy and a food system. In counties such as Whatcom, far more food is produced locally than could ever be consumed locally; much of this is in dairy and berries, which are initially processed locally and then marketed nationally or globally. The local availability of agricultural land and processing facilities is integral to the long-term viability of agricultural regions; this will grow more critical as fuel costs rise.

Whatcom County has food processing facilities for 3 primary local ingredients (seafood, dairy, and berries) and for raw materials that come from other regions. In addition, Whatcom County has bakeries, cereal processors, wineries, a flour mill, and numerous meat processing companies. For a greater discussion of Whatcom County's history of food processing, see Chapter 5 of this Community Food Assessment.

#### Seafood and Fisheries

Bellingham Cold Storage (BCS) is the largest food processing facility in Whatcom County. Two locations with a combined 13.6 million cubic feet of storage capacity process one billion pounds of product per year. BCS manages the receiving, freezing, handling, and shipping of products and also houses 15 value-added food processing businesses. All businesses combined, BCS employs approximately 1,000 people year round and an additional 600-800 people during the peak harvesting season of July to October.<sup>i</sup>

Fish and seafood comprise over 55% of processing activity at BCS. Most fish is received from vessels harvesting within about 60-80 miles of Bellingham. Fruits and vegetables come from Whatcom County, Skagit County, and British Columbia. The facility also processes, stores, and ships dairy products and meat. Most products are shipped within North America, but some go to Europe and Asia as well. Not all products moving through BCS are local. For example, low-demand chicken legs are transported to BCS from across the country to be stored and then shipped to Russia. Several value-added processors housed at BCS process seafood (e.g., turning pollack into artificial crabmeat). Items leaving BCS run the gamut from retail-ready products to component food items that are further processed elsewhere. An example of the latter is a type of sauce cube that is shipped to the Midwest and California to be incorporated into skillet meals.

With so much product moving through BCS, the company developed a comprehensive online inventory system. Some products manufactured by companies outside of Whatcom County are shipped through BCS simply for access to this inventorying capacity. BCS also provides food storage and handling for area food banks and school district free-lunch programs. Some of the value-added companies housed at BCS donate fish to food banks as well.

#### Dairy

The majority of the milk that is produced in Whatcom County is sold in bulk through Darigold, which has a processing plant in Lynden. This plant focuses on producing dried milk products. Some milk from Whatcom County also travels to plants in other parts of Washington (primarily Seattle and Issaquah) that produce other dairy products, including butter and cream.<sup>ii</sup> There are currently 5 dairies in Whatcom County that bottle and sell their milk under their own label.<sup>iii</sup> These are marketed through farm stands, the Bellingham Farmers Market, and local grocery stores. Four farms produce and sell cheese directly from the farm and through grocery stores. With low prices for bulk milk in recent years, some smaller dairies are finding it more profitable to direct-market their products.

## **Berries**

Most berries produced in Whatcom County are processed for export out of the region. Local facilities in Whatcom County process the fruit as individually quick frozen (IQF), puree, juice, juice concentrate, straight pack, or berry blends.

## **Other Processors<sup>iv</sup>**

Bakeries and cereal producers are the next largest food processors in Whatcom County. Large national companies have bakeries here, such as United States Bakery (Franz breads), but smaller bakery chains and franchises, such as Great Harvest and Flax 4 Life Muffins, also produce for local markets and grocery stores. Several other bakeries sell products directly from local storefronts and at local retail outlets or at farmers markets. The organic cereal producer Nature's Path has a large processing plant in Blaine employing 150 people and sells their products throughout North America. Baker's Breakfast Cookies, located in Bellingham, employs approximately 45 people and produces breakfast cookies and granola that are sold nationwide as well as at the Bellingham Farmers Market.

Wineries are increasing in number in Whatcom County as they are in western Washington as a whole. Two of the larger wineries are Samson Estates Winery and Mt. Baker Vineyards. Both produce some of the fruit for their wines, but also buy fruit from eastern Washington. Beer is produced at several breweries in Whatcom County: Boundary Bay Brewery, Chuckanut Brewery, and North Fork Brewery are the 3 largest. At least one meadery and cidery operates in Whatcom County.

Fairhaven Organic Flour Mill has been in Bellingham since 1974, when it started as a cooperative. It is still owned locally and produces high quality organic flour from grain grown in the western United States.

Five meat and sausage processing facilities are located in Whatcom County. Hempler's Meat and Sausage in Ferndale employs approximately 35 people and produces sausage products for regional markets. Lynden Meat and Kaiser Meats are 2 of the larger meat slaughter and processing facilities.

Historically, several vegetable processing facilities were located in Whatcom County, which allowed these products to be grown and quickly processed for storage. No facilities are currently processing summer grown vegetables. Several facilities are available for processing berry crops into puree, juice, or individually quick frozen products. These are shipped to processors for use as ingredients in final products or packed for consumer use.

## **Conclusion**

Food processing is an important piece of the local and regional food system. The processing infrastructure that supported food production was one of several factors that enabled Whatcom County to make its agricultural output economically viable in a growing global market. Although some of that infrastructure has disappeared—particularly fresh vegetable processing—the local capacity for processing fish and seafood, dairy, and berries still allows for production far in excess of what can be consumed locally and contributes mightily to the county's agricultural economic output.

Since diversified vegetable processing plants left the area, smaller Whatcom County farms are challenged to find fresh market opportunities for mid-scale vegetable production. Without processing capacity for such products, the year-round market for local and regional sales of vegetables is limited—both at retail venues and institutions such as school districts. In the long run, this may be one of the most significant barriers faced by local food advocates and farms interested in localizing their sales. It is a situation that favors small, direct-market farms and much larger production farms selling to large processors operating at scale outside of the community. Several organizations and state agencies are currently studying the feasibility of commercially certified kitchens and processing opportunities centered around vegetable-producing regions of the county. With increasing fuel costs,

planning for agricultural resiliency, and a desire of Whatcom County citizens for locally grown food year round, small- to mid-scale and diversified processing capacity will likely be a significant opportunity for Whatcom County.

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- i Doug Thomas, President and CEO of Bellingham Cold Storage (personal communication) and information from: <http://www.bellcold.com>
- ii Cheryl DeHaan, Whatcom Farm Friends (personal communication).
- iii *Whatcom Food and Farm Finder*. (2010). Retrieved from: <http://sustainableconnections.org/foodfarming/guidetoeatinglocal>
- iv Several sources were used including the Bellingham/Whatcom County phone book and LexisNexis Academic Website.

## Chapter 9

# Where Does Whatcom County's Food Waste Go?

Agriculture in Whatcom County produces many directly consumable items, but it also produces waste materials. Some of the waste materials have applications on farms and in other industries, but others do not yet have any place to go but the landfill. Reducing the amount of farm waste that goes to landfill is good for the environment and saves farmers' dollars. New Whatcom County recycling businesses and services have filled an important role in the management and use of waste products, especially within the last decade or two.

Waste products from agriculture and food preparation can be separated into 3 major categories: biological (including both agricultural and food waste), plastics, and pesticides.

### **Biological Waste Products**

#### ***Agricultural Waste***

Plant material, culled products, manure, deceased livestock, and male calves of dairy cattle are just a few of the items considered biological waste. Most of this material is either composted or used for another value-added product. For example:

- Plant material is usually composted on site, such as when raspberry canes are chipped and put back onto the rows.
- Manure from dairy farms is often applied to fields in liquid form or used to produce a composted dairy manure product, such as Smit's compost, which is then sold.
- Some dairy manure is processed through an anaerobic digester to produce electricity, which is sold into the national electric grid (offsetting on-farm electricity costs). The liquid component in this digestion process is used to fertilize fields and the dry component has horticultural applications.
- Silage waste is often spread on fields or composted.
- Dairy cows no longer producing milk are sold for hamburger meat.
- Male calves from dairy cows are often sold for meat.

#### ***Food Waste***

Waste products from preparation and consumption of food make up a large part of waste in a community. In Whatcom County, several options exist for disposal of these wastes.

Two disposal services operate in Whatcom County with different service areas: Sanitary Services Company (SSC) and Nooksack Valley Disposal (NVD). Both SSC and NVD provide pickup service for disposal of yard and food waste. SSC's program is called "FoodPlus!" and NVD's program is called "Yard Debris." Waste from both companies is taken to Green Earth Technology in Lynden for composting. That compost is then used for both municipal landscaping and for sale back to the public. Initially accepting yard waste only, SSC and NVD have added food waste to their services within the past 5 years, and since then, both have seen their programs grow.

SSC FoodPlus! program currently has almost 7,000 residential customers and several hundred commercial customers, primarily offices and retail businesses. SSC also services Bellingham Technical College, Whatcom

Community College, Western Washington University, most County private schools, and Whatcom County school districts with the exception of Blaine, Ferndale and Lynden. Blaine and Ferndale school districts will start pilot programs in the 2009/2010 school year. The City of Bellingham and Whatcom County use the FoodPlus! program in many of their offices. All Haggen, Inc. grocery stores in Whatcom County use the FoodPlus! program for food waste. A few restaurants are customers of the program, but many have had problems managing it: there is high turnover among restaurant employees and new employees often contaminate the FoodPlus! waste with plastics and other non-compostables, causing higher expense because the contaminated contents must be separated or thrown away as garbage.

Residential customers can choose either every-other-week or weekly pickup of a 60-gallon tote. Commercial customers, including restaurants, pay a monthly rental fee for containers (1-, 1.5-, 2-, 4-, and 6-yard containers available) and receive price discounts by increasing the volume of the container used. Containers full beyond a specific weight incur a different rate. Single event FoodPlus! totes are available for rent. In 2008, the SSC FoodPlus! program picked up 3,000 tons of waste; this amount grows each year. According to staff at SSC, customers sign up primarily for 2 reasons: to save money or because they are concerned about the environment.<sup>i</sup> NVD serves northern Whatcom County and has approximately 1,500 customers in its Yard Debris program, with at least 90% being residential customers. This number has increased by 100-200 per year. Nooksack Valley High School is the only educational facility that takes advantage of the NVD Yard Debris Program. Residential customers pay monthly for a 68-gallon tote to be picked up once per week. Commercial customers rent 1-, 1.5-, or 2-yard containers and pay each time their container is emptied. NVD charges a small monthly rental for each container, independent of size. In 2008, the Yard Debris Program picked up 1,360 tons of waste, and with the number increasing each year. A potential barrier to these food waste programs is health issues, but the health department has had no complaints. Everyone involved with the programs has had positive feedback.

#### *Diverting Food from the Waste Stream*

Food that has cosmetic blemishes or is near its date of expiration can be a waste product to many stores, but a great deal of this food is not yet actually waste. Organizations like the Bellingham Food Bank and its programs are finding more opportunity to work with grocery stores, farms, and farmers markets in order to save this nutritious and healthy food to meet growing hunger needs in Whatcom County.

#### *Food Waste Recycling at Home*

In May, 2008, students from an Anthropology class at Western Washington University set up a “dot survey” at the Bellingham Farmers Market and at a book reading by Mark Winne. Participants responded to questions by placing a sticky dot beside answers on a flip chart. Of greatest pertinence to this CFA was the question, “how do you handle your food waste?” Several answers were given as choices (see table 10a), and respondents indicated all methods of disposal that applied to their households.

Many respondents (47% from the Bellingham Farmers Market survey) threw food waste in the garbage, but many also used alternative options for food disposal, including home composting (38%) and the FoodPlus! program run by SSC (13%). Findings were quite different at the book reading. For example, only 19% of respondents there put food waste in the garbage, and 43% composted on their own. Given the locations for each survey, the groups can be considered to represent one end of the residential recycling spectrum in Whatcom County, but responses at least illustrate that a “composting ethic” is alive and well among certain groups of people in the community.

#### **Plastic Waste Products**

Plastic farm waste comes from a variety of sources, including drip irrigation tape, plastic twine, mulch film, greenhouse film, and plastic drums or bags that held pesticides or fertilizers. Many of these products can be recycled, often for free, by various public and private companies.

Agricultural plastics can be classified by the type of material from which they are created. Most agricultural plastics are high density polyethylene (HDPE, #2 plastics) or low density polyethylene (LDPE, #4 plastics). Generally, HDPE plastics have a more stable market than LDPE, but both are generally accepted at recycling facilities. Other recyclable agricultural plastics include polypropylene (PP, #5 plastics), polystyrene (PS, #6 plastics), polyvinyl chloride (PVC), acrylonitrile butadiene styrene (ABS), and polyethylene terephthalate (PET). Market value of these recycled plastics fluctuates.

Recycling plastics has many benefits, including the following, as documented by RE Sources:<sup>ii</sup>

- Air quality: recycling plastics reduces the release of atmospheric pollution that would otherwise have been generated by open burning. Pollutants include volatile organic compounds, particulates, dioxins, furans, and greenhouse gases.
- Energy: recycling of plastics can save oil by reducing new production demands.
- Farmer financial benefit: farmers often do not have to pay for recycling plastics, whereas they *would* have to pay dump fees for this material.
- Jobs: agricultural plastics recycling has the potential to create or maintain local and regional jobs.

RE Sources and the Northwest Clean Air Agency developed an agricultural plastics recycling program in the Puget Sound region. This collaboration developed drop-off stations in 5 counties, including Whatcom, where farmers can bring plastics to be recycled. Several private companies are able to accept plastics for recycling as well, often for free, although a fee is sometimes required for items such as fumigation film. Certain plastics cannot currently be recycled in our region.

### **Pesticide Waste Products**

Washington State Department of Agriculture collects unusable agricultural and commercial grade pesticides from residents, farmers, small business and public agencies. This service is free of charge and is held at various locations around the state throughout the year. This allows for proper disposal of chemicals that are no longer registered or are no longer needed on a farm.<sup>ii</sup>

### **Conclusion**

Agricultural, food processing, and food preparation businesses all create waste. This waste can be separated into 2 primary categories: biological waste products and plastics. The majority of biological waste products can be reused either at the site of production (e.g., on the farm that produced them) or via a recycling service provided by another company. Similarly, many plastics can be recycled. This sort of reuse has great advantages over treating waste products in a more traditional way:

- Agricultural waste products can often be separated into constituent parts and reused directly on the farm, thereby reducing the cost of purchasing new products and even using waste products to produce a profit, such as manure for fertilizer or energy production and sale of male dairy cattle for hamburger meat.
- Food waste from residential and commercial customers can be collected by services such as Sanitary Services Company and Nooksack Valley Disposal, both of which work with Green Earth Technology to turn food waste into landscaping and agricultural compost for resale.
- Food that is not saleable at grocery stores may still be healthy and nutritious and can be collected by organizations such as food banks and soup kitchens to meet hunger needs in Whatcom County.
- Residents and businesses can compost their own food waste for gardens and landscaping.

- Plastics recycling has significant benefits over other methods of disposal and affects air quality, reduces use of energy, has financial benefits, and creates jobs.

A great many more opportunities likely exist for reusing products that have traditionally been considered fit only for disposal. Research, environmental concerns, and entrepreneurship will undoubtedly continue to inspire ecologically important and economically viable activities. Several programs run collaboratively by nonprofits and governmental agencies, such as Sustainable Connections' "Toward Zero Waste" campaign, are making strides toward raising public awareness of unnecessary waste, but there is still a lot of work to be done.

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<sup>i</sup> Rodd Pemble. Sanitary Services Company (personal communication, 2009).

<sup>ii</sup> [www.re-sources.org](http://www.re-sources.org)

<sup>iii</sup> <http://agr.wa.gov/PestFert/Pesticides/WastePesticide.aspx>

# Appendices

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Whatcom County Population and Access to Food Sources Maps

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## **Appendix A: Initial Indicators for the Whatcom County Community Food Assessment**

The Whatcom County Community Food Assessment team developed initial indicators of the food system as:

### **1. Promotes food choices that lead to healthy eating.**

- a. Daily per capita servings of fruits and vegetables.
- b. Obesity rates in adults and youth.

### **2. Provides easy economic and physical access to healthy food from retail outlets for all eaters in Whatcom County.**

- a. Distance distribution from eaters to nearest full-service food store (urban/rural, those with/without cars).
- b. Healthy food is available to all eaters at an affordable cost.
- c. Percentage of households that are food insecure/food secure.
- d. Percentage of population that is in poverty.
- e. Public transportation to full service food outlets, farmers markets, etc.

### **3. Provides for meaningful livelihoods and opportunities for all farming workers and farmers.**

- a. Average wage paid to farm workers.
- b. Percentage of farm workers employed through farm labor contractors.
- c. Total number of ethnic minority farmers.
- d. Farmer and farm worker education are available and accessed.
- b. Average income of Whatcom County Farmers.

### **4. Is characterized by many locally owned and operated food and farming businesses.**

- a. Total number of retail food businesses by size classes (number of employees).
- b. Total number of food manufacturers by size classes (number of employees).
- c. Aggregate income earned by workers in various food sectors.
- d. Total number of workers in various food sectors.
- e. Number of commercial fishers.
- f. Average wage paid to grocery workers (compared to other industries).
- g. Average wage paid to food service and processing workers (compared to other industries).

### **5. Provides eaters with foods produced as close to home as possible.**

- a. Total direct agriculture sales to public in Whatcom County. Farmers Market Sales, CSA subscriptions, farm stands, co-op, other grocery stores, restaurants, etc.
- b. Number of people who grow their own food, participate in gleaning, grow victory gardens, community gardens.
- c. Number of school districts with farm-to-school programs.

**6. Encourages eaters to know where, how, and by whom their food is produced.**

- a. Total direct sales per capita, as % of total agricultural sales.
- b. Number of certified farmers markets.
- c. Sales from certified farmers markets.
- d. Number of Community Supported Agriculture farms.
- e. Number of farms that offer agricultural tourism.
- f. Number of school gardens.
- g. Number of school-to-farm programs.
- h. Number of farm-to-school programs.
- i. Total sales of organic food.
- j. Percent of food sales in organics (all forms – fresh, frozen, canned, packaged).

**7. Honors and draws upon the diversity and richness of different food cultures.**

- a. Availability of ethnic markets/culturally relevant food.
- b. Descriptions of specific cultural food traditions/festivals.

**8. Conducts farming, ranching, and fishing activities so that water, air, forests, and soil resources are enhanced, biodiversity and wildlife habitat are increased, and food production continues in perpetuity.**

- a. Number of WSDA certified organic growers and organic acres in Whatcom County.
- b. Number of Whatcom County farmers that are using Integrated Pest Management practices.
- b. Tons of topsoil lost per year due to erosion.
- c. Total water usage (acre-feet) in agriculture.
- d. Amount of water impacted by agriculture as a source of pollution.
- e. Farm worker pesticide poisonings.
- f. Number of areas in no-take marine reserves.

**9. Provides incentives for waste recycling, reduction of petroleum, and other nonrenewable inputs.**

- a. Number of composters accepting food and agricultural waste in relation to total number of composters/processors of organic material.
- b. Total tons of food and agricultural waste disposed; pounds per capita.
- c. Number of people who compost their own food waste.

The Whatcom County Community Food Assessment Steering Committee acknowledges The Vivid Picture Project for its inspiration on the indicators. Feenstra et al. (2005, October). *Proposed Indicators for Sustainable Food Systems*. Ecotrust: <http://www.vividpicture.net>

## Appendix B: Whatcom County Community Food Assessment Logic Model

CFA GOAL: *To gather information on all aspects of the food system (food availability, quality, and quantity).*

Created January, 2008

Assumptions	Resources	Activities	Outputs	Impacts
<ol style="list-style-type: none"> <li>1. There are hungry people in WC</li> <li>2. There is abundant food in WC</li> <li>3. There are barriers to accessing food</li> <li>4. Some people are eating less desirable (health-related) food choices</li> <li>5. Data is already available</li> <li>6. Data may be biased</li> <li>7. If we study the food system, we will learn things that will help people</li> <li>8. People define healthy food differently – diversity of opinions</li> <li>9. WC is becoming food opinionated</li> <li>10. Loss of farmland is an important issue for the food system in WC</li> <li>11. Ensuring local food production is important in WC</li> <li>12. Food is a political topic</li> </ol>	<p><b>Steering Committee:</b></p> <ul style="list-style-type: none"> <li>- WSU</li> <li>- WWU</li> <li>- WC Health Department</li> <li>- C2C</li> <li>- WSDA</li> <li>- Ag Biz Center</li> <li>- Farm Friends</li> <li>- WCHC</li> </ul> <p><b>Other Potential Partners:</b></p> <ul style="list-style-type: none"> <li>- 4-H youth development</li> <li>- WWU</li> <li>- Sustainable connections</li> <li>- Food Co-op (board member)</li> <li>- Health care community</li> <li>- School Districts</li> <li>- Grocers</li> <li>- Faith community</li> <li>- Food banks</li> <li>- Community food programs</li> <li>- Native American community</li> <li>- NWIC</li> <li>- Immigrant communities</li> <li>- Farmers</li> <li>- Fishers</li> <li>- Chambers of Commerce</li> <li>- Restaurants</li> <li>- Community Food</li> <li>- Social justice agencies</li> <li>- Social service agencies</li> <li>- Media</li> <li>- Cities</li> <li>- WC Health Committee</li> </ul>	<ul style="list-style-type: none"> <li>- Focus groups of like individuals to refine goals</li> <li>- Dot surveys</li> <li>- Online surveys</li> <li>- GIS mapping</li> <li>- Focus groups to assess CFA goals</li> <li>- Media blitz</li> <li>- Community forums</li> <li>- Workshops or information sharing</li> <li>- Outside speakers presenting models of what other communities are doing</li> </ul>	<ol style="list-style-type: none"> <li>1. Report</li> <li>2. Website</li> <li>3. Next steps plan</li> <li>4. Food Policy Council</li> <li>5. Buzz around town</li> <li>6. Media, articles, workshops, conversations</li> </ol>	

**Appendix C: Dot Survey Results from Bellingham Farmer's Market and Mark Winne Book Reading, May, 2008**

<b>Book Reading</b> <i>(54 responses)</i>	<b>Bellingham Farmer's Market</b> <i>(544 responses)</i>
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<b>Do you grow your own food?</b>		
No	17%	45%
Yes	83%	55%

<b>Of those who grow their own food:</b>		
Grow fruit	53%	53%
Grow vegetable	60%	74%
Grow nuts	7%	8%
Grow protein (meat, eggs, etc.)	4%	5%

<b>Of those who grow their own food:</b>		
Grow in ground	62%	62%
Grow in containers	16%	34%
Grow at a community garden	22%	4%

<b>How do you handle your food waste?</b>		
Recycle	25%	7%
Compost	38%	43%
FoodPlus! From SSC	13%	7%
Burn	1%	0%
Put in garbage	47%	19%
Landfill	1%	0%
Bury	1%	2%
Feed to creatures	16%	11%
Other	6%	2%

## Appendix D: School district food service directors’ attitudes about sourcing food locally

### Bellingham School District

Where do you buy your food from?	Do you purchase any food from local farmers? Producers? Processors?	Are you interested in doing so?	What are some barriers to purchasing locally produced food?	What do you see as some benefits to purchasing locally?	What do you do with food waste? Are you interested in composting or recycling more?
<p>Mostly from FSA (Food Services of America)</p>	<p>-Bellewood Acres Sep-Dec/Jan (mid-sized apples that don’t have another market)</p> <p>-Eat Local Week in September—good but hard with prepping food</p> <p>-Last year—8 months tried buying from Hendrickson Farms (Arlington area)—a little more expensive but good products. Bought from CA or Mexico when unavailable.</p>	<p>Not opposed, if barriers could be addressed. Bellewood Acres works really well.</p>	<p>-Prices: we have ~\$1 per student for lunch food cost.</p> <p>-Don’t have much \$ for food prep.</p> <p>-Seasonality: have been able to do some carrots, lettuce, etc, but not open in summer for biggest local harvest.</p>	<p>-Fresher, better products</p> <p>-Support local farmers</p>	<p>All schools use Sanitary Services’ Food Plus Recycling Program: implemented 3 years ago for all elementary and junior high schools, and this year for all high schools.</p>

Ferndale School District

Where do you buy your food from?	Do you purchase any food from local farmers? Producers? Processors?	Are you interested in doing so?	What are some barriers to purchasing locally produced food?	What do you see as some benefits to purchasing locally?	What do you do with food waste? Are you interested in composting or recycling more?
<p>Cisco, Edaleen, Coke/Pepsi, Fran's Bakery. Also get commodities from gov't (chicken, beef, canned veggies and fruits)</p>	<p>Not really, although we have been trying to attend workshops and such through Sustainable Connections</p>	<p>Yes, but it has to be balanced with our economic needs</p>	<p>-For us and the farmers: we require that all our food suppliers have \$5 million liability insurance.</p> <p>-Cost factors in for producers: our transportation requirements aren't usually cost effective for them.</p> <p>-Preparation: we have to have low prep foods (food service workers will always say they don't have time), low budget for labor and risk re: getting cut with knife, injury, etc.</p> <p>- Price per student: waffle b/w supporting local businesses and getting a good price. Charge from the district is to get the best product for low cost. We could pay a little more if it's a small amount of something.</p>	<p>-Local economy stimulation, maybe putting more students to work in the long run</p> <p>-lifts spirits and feeling of community</p>	<p>-Been looking into Food to Flowers (industrial version of food plus recycling) at Sanitary Services. We have done better this year with just recycling more than composting food waste.</p>

Lynden School District

Where do you buy your food from?	Do you purchase any food from local farmers? Producers? Processors?	Are you interested in doing so?	What are some barriers to purchasing locally produced food?	What do you see as some benefits to purchasing locally?	What do you do with food waste? Are you interested in composting or recycling more?
FSA	Brings Dairy, Apples from Bellewood Acres for a few months of the year.	Yes	Price is a problem, Do farmers have the program in place (plan, critical control points from where things are grown— documentation of food safety, etc), preparation is a barrier too, in terms of time and resources, and also if we get stuff that’s prepped ahead of time, if there’s any problems or contamination, it is not our liability, Nooksack and Mt Baker have fresh fruit and veggie grants (not enough free or reduced lunches in our district for those).	Freshness, quality, supporting local people, I believe in supporting local people	Looking into it, but not yet. These last few months, there is a gentleman at the high school (faculty member) who has been working on that, and wants the students to take part in it. We definitely want to, but they are looking into feasibility right now.

Meridian School District

Where do you buy your food from?	Do you purchase any food from local farmers? Producers? Processors?	Are you interested in doing so?	What are some barriers to purchasing locally produced food?	What do you see as some benefits to purchasing locally?	What do you do with food waste? Are you interested in composting or recycling more?
Mostly from FSA.	We get apples from Bellewood Acres. We get strawberries from Corks. We try to get whatever we can from FSA. They send us a newsletter once a week with what's local.	We'd love to buy whatever we can locally.	The biggest problem is availability, having what we want and need through the winter. There's also always the cost issue.	Spending our money locally. We know the farmers work hard and we'd like to support them as much as we can.	We compost our food waste with Food Plus.

**Mt. Baker School District**

Where do you buy your food from?	Do you purchase any food from local farmers? Producers? Processors?	Are you interested in doing so?	What are some barriers to purchasing locally produced food?	What do you see as some benefits to purchasing locally?	What do you do with food waste? Are you interested in composting or recycling more?
FSA	<p>Yes:</p> <ul style="list-style-type: none"> <li>• We work with Growing Washington and purchase from Bellwood Acres and Hendrickson Farms.</li> <li>• FSA has improved greatly in labeling origin of food, including grown in Washington.</li> <li>• FSA sends an e-mail detailing what food is grown in Washington.</li> <li>• We have a Grown in Washington day that coincides with Eat Local Week.</li> </ul>	<p>I'd love to purchase all our food locally if what we needed was available and affordable.</p>	<ul style="list-style-type: none"> <li>• Weather. Availability of food is a big issue. This year the availability of the foods we need was way down, so our ability to buy local greatly limited.</li> <li>• Price.</li> <li>• Delivery, although Growing Washington has done a pretty good job coordinating delivery.</li> </ul>	<p>The local economy.</p>	<p>We've had a composting program for the past 5 years.</p>

Nooksack Valley School District

Where do you buy your food from?	Do you purchase any food from local farmers? Producers? Processors?	Are you interested in doing so?	What are some barriers to purchasing locally produced food?	What do you see as some benefits to purchasing locally?	What do you do with food waste? Are you interested in composting or recycling more?
FSA	<p>We have the new WA Grown fresh fruit and veggie grant (state grant) so we are getting produce from the Green Barn out on meridian—for Nooksack elementary only. Did have a grant for another school (fed grant) except they just put a new thing that said they would have to do a bid...</p> <p>Dairy Valley milk (right down in Mt Vernon)</p>	<p>Yes, but I was sick when that was all happening, and I am hoping that next year we can do some more work to buy from local producers.</p>	<p>Deliveries are always an issue (some of the local places don't deliver). Last year, we did work with Hendrick's Farm—great selection and delivery, have hothouses so they were able to have a longer season for some of the things we wanted.</p> <p>Food prep is a real issue in the kitchens, we don't have the funding. Apples, pears easy but cutting up produce, you're taking money from food to labor, which is a concern of mine.</p>	<p>Helps the economy, it's fresh, you know where it's coming from. Some of the schools take the kids to the farms, so there's a lot of learning.</p> <p>With the federal grant, not just local, but there is increased exposure to different fruits and veggies (we can bring in pineapple, starfruit, new kinds of fruits and veggies.)</p>	<p>We don't as much as we could. Students have an environmental club at the high school, and they got a grant to buy compostable utensils and trays. We don't do Food to Flowers, and I am not sure if there is any interest in that, because it's more a building issue.</p>

## Appendix E: Type and amount of fish landed by fishery

### West Coast Fishery

Fish type	Bellingham	Blaine	Total
Crab tons landed	1,300	581	1,881
Crab value landed	\$6,000,290	\$2,637,349	\$8,637,639
Groundfish tons landed	5,461	2,026	7,487
Groundfish value landed	\$4,699,501	\$1,301,259	\$6,000,760
Salmon tons landed	1,117	375	1,492
Salmon value landed	\$2,373,443	\$898,579	\$3,272,022
Shellfish tons landed	276	2	278
Shellfish value landed	\$1,447,756	\$6,734	\$1,454,490
Shrimp tons landed	27	2	29
Shrimp value landed	\$302,812	\$15,790	\$318,602
Other species tons landed	621	174	795
Other species value landed	\$3,998,297	\$462,062	\$4,460,359

Source: National Marine Fisheries Service

[http://www.nwfsc.noaa.gov/assets/25/6718\\_01082008\\_153910\\_CommunityProfilesTM85WebFinalSA.pdf](http://www.nwfsc.noaa.gov/assets/25/6718_01082008_153910_CommunityProfilesTM85WebFinalSA.pdf)

**North Pacific Fishery**

<b>Fish type</b>	<b>Bellingham</b>	<b>Blaine</b>	<b>Total</b>
Bering Sea and Aleutian Islands groundfish tons landed	7,312.7	confidential	NA
Bering Sea and Aleutian Islands groundfish value	\$2,970,760	confidential	NA
Other finfish tons landed	1.2	NA	NA
Other finfish value landed	\$610	NA	NA
Gulf of Alaska groundfish tons landed	1,487.6	2,513	7,487
Gulf of Alaska groundfish value landed	\$1,230,280	\$898,440	\$6,000,760
Halibut tons landed	171.5	confidential	NA
Halibut value landed	\$985,480	confidential	NA
Herring tons landed	1,878.6	confidential	278
Herring value landed	\$614,360	confidential	NA
Shellfish tons landed	36.6	confidential	NA
Shellfish value landed	\$154,710	confidential	NA
Salmon tons landed	8,386.3	3,621	NA
Salmon value landed	\$7,416,500	\$1,709,500	\$9,126,000

Source: National Marine Fisheries Service

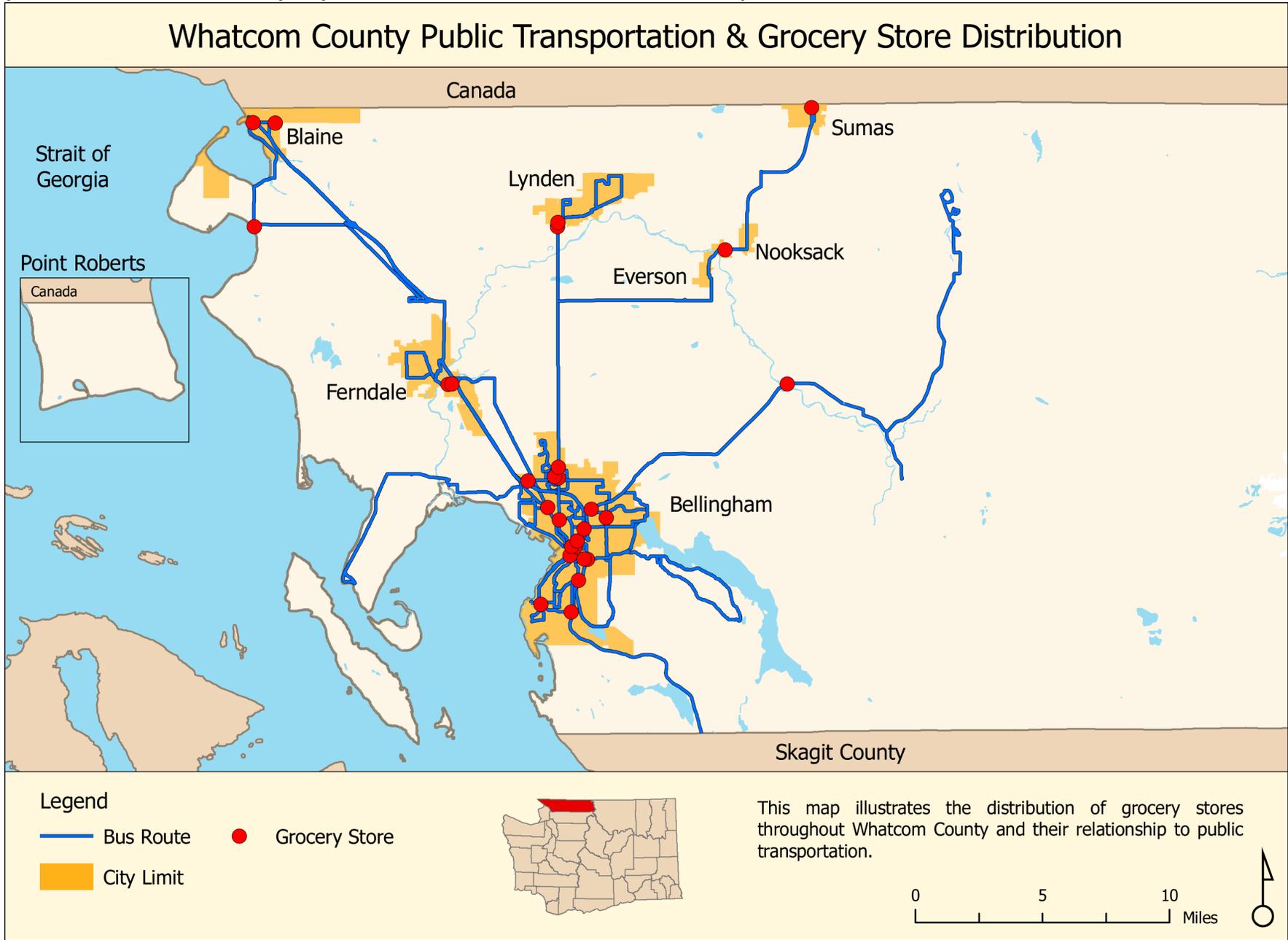
**Amount and Value of Fish landed at Bellingham, Blaine, and Ferndale**

<b>Fish type</b>	<b>Bellingham</b>	<b>Blaine</b>	<b>Ferndale</b>	<b>Total</b>
Bering Sea and Aleutian Islands groundfish tons landed	7,312.70	confidential	confidential	NA
Bering Sea and Aleutian Islands groundfish value	\$2,970,760	confidential	confidential	NA
Other finfish tons landed	1.2	NA	confidential	NA
Other finfish value landed	\$610	NA	confidential	NA
Gulf of Alaska groundfish tons landed	1,487.60	2,513	confidential	NA
Gulf of Alaska groundfish value landed	\$1,230,280	\$898,440	confidential	NA
Halibut tons landed	171.5	confidential	confidential	NA
Halibut value landed	\$985,480	confidential	confidential	NA
Herring tons landed	1,878.60	confidential	confidential	NA
Herring value landed	\$614,360	confidential	confidential	NA
Shellfish tons landed	36.6	confidential	confidential	NA
Shellfish value landed	\$154,710	confidential	confidential	NA
Salmon tons landed	8,386.30	3,621	1,001	13,008.30
Salmon value landed	\$7,416,500	\$1,709,500	\$882,210	\$318,602

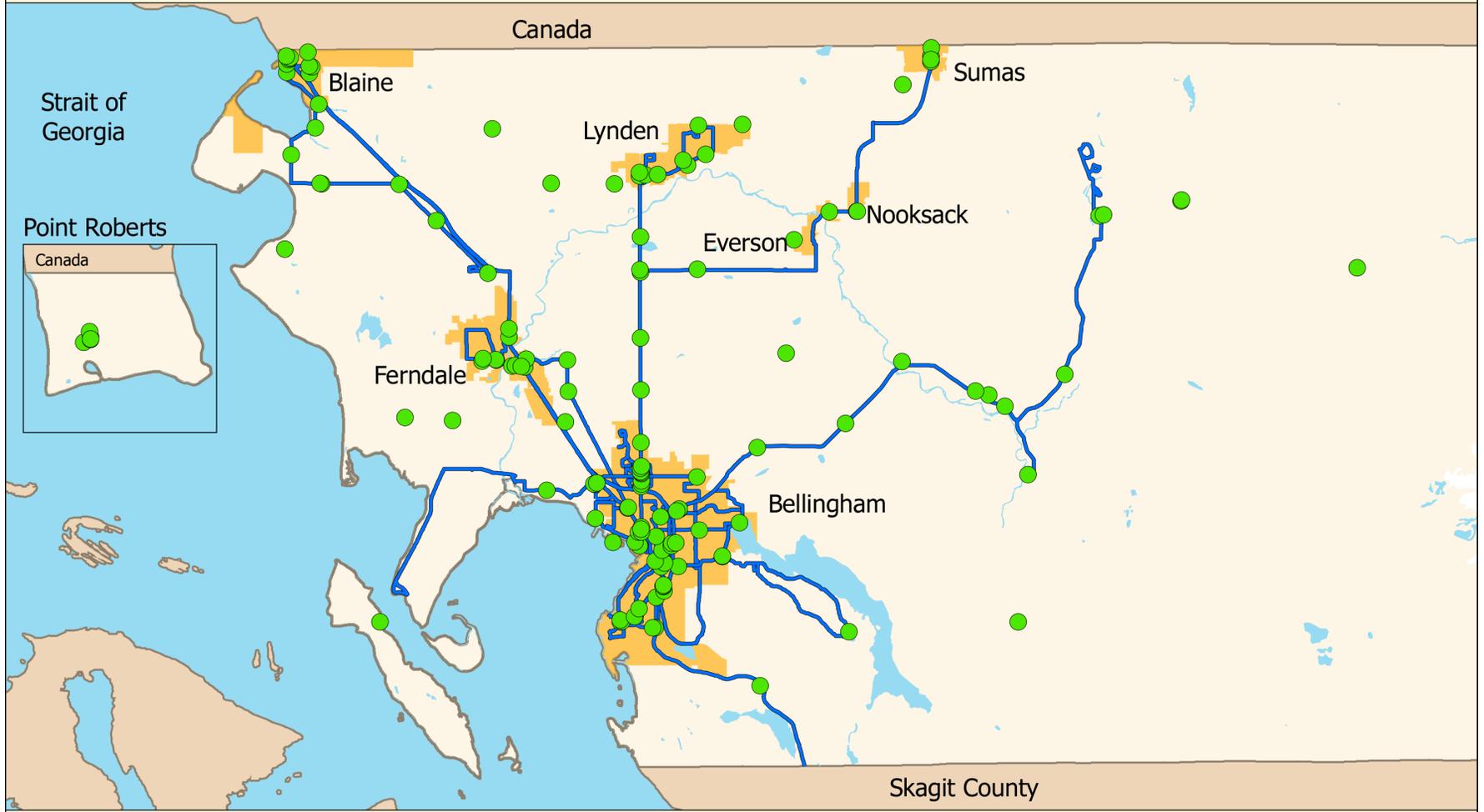
**Total of all fish processed in Bellingham**

<b>Fish type</b>	<b>Tons processed</b>	<b>Value processed</b>
Pollock	19,760	\$44,844,078
Salmon	3,260	\$14,533,181
Halibut	2,876	\$19,820,649
Other	3,811	\$19,647,030
<b>Total</b>	<b>29,706</b>	<b>\$98,844,938</b>

Appendix F: Whatcom County Population and Access to Food Sources Maps



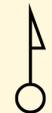
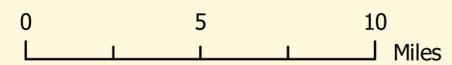
# Whatcom County Public Transportation & Convenience Store Distribution



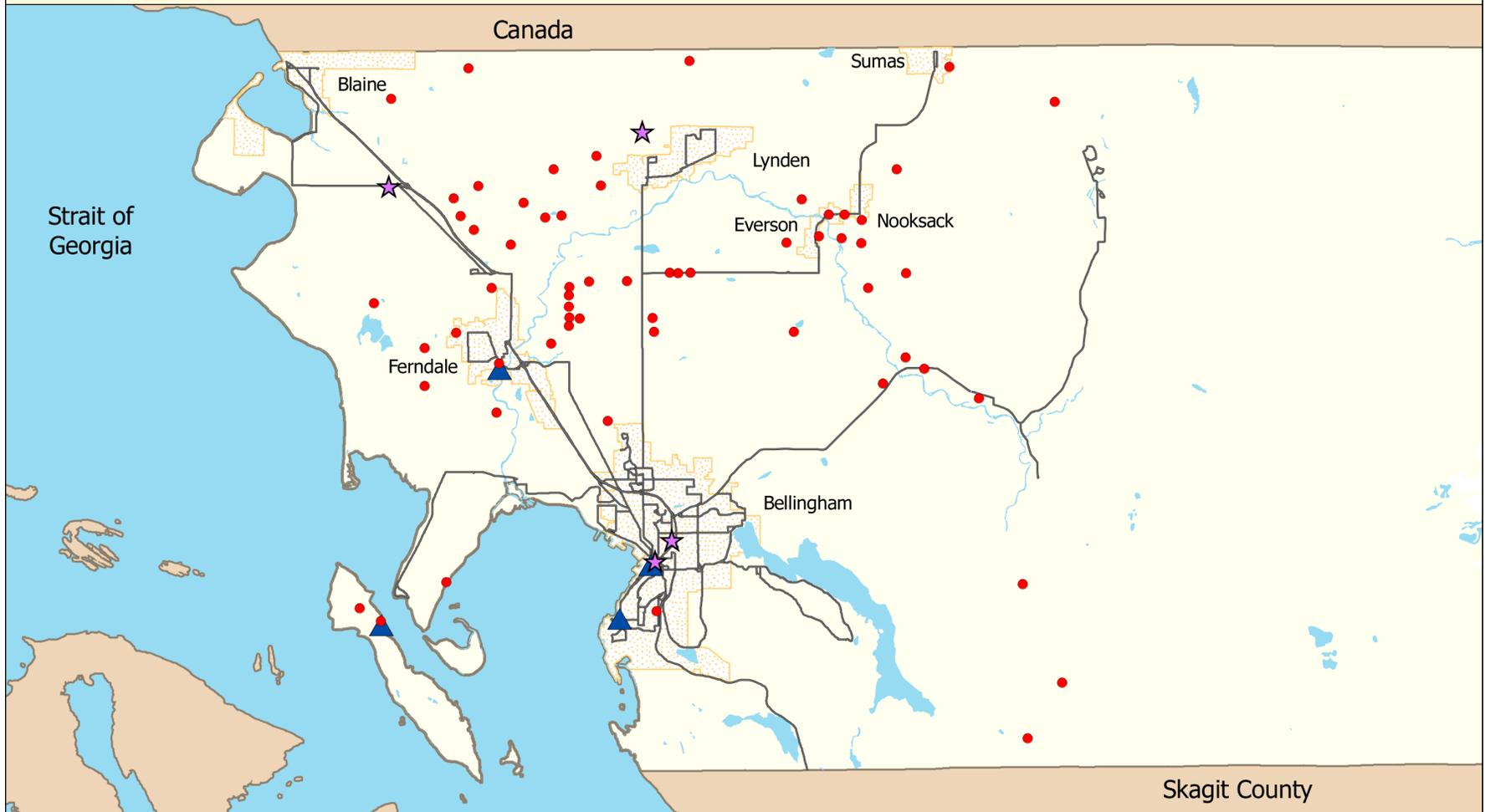
- Legend**
- Bus Route
  - City Limit
  - Convenience Store



This map illustrates the distribution of convenience stores throughout Whatcom County and their relationship to public transportation.



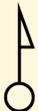
# Whatcom County Public Transportation & the Distribution of Local Food Sources



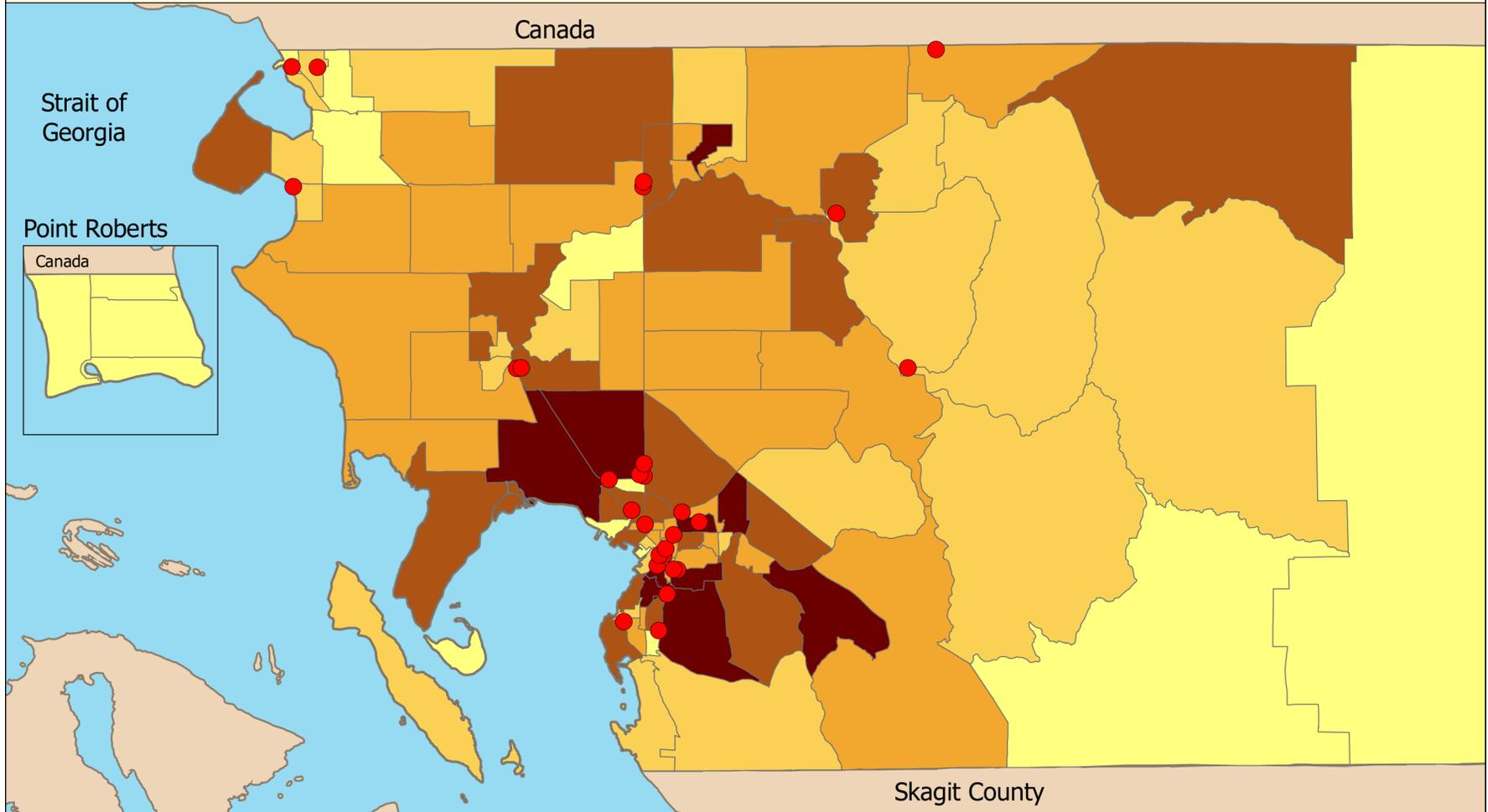
## Legend

-  Farmer's Market
-  Produce Stands
-  Farm Sales
-  Bus Route
-  City Limit

This map illustrates the distribution of farmer markets, produce stands, and farms with direct sales throughout Whatcom County and their proximity to public transportation.



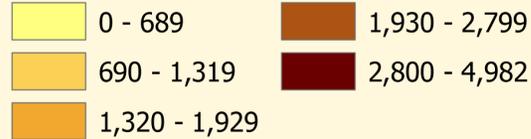
# Whatcom County Population & Grocery Store Distribution



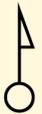
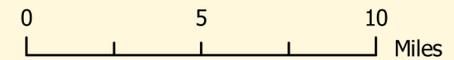
## Legend

● Grocery Store

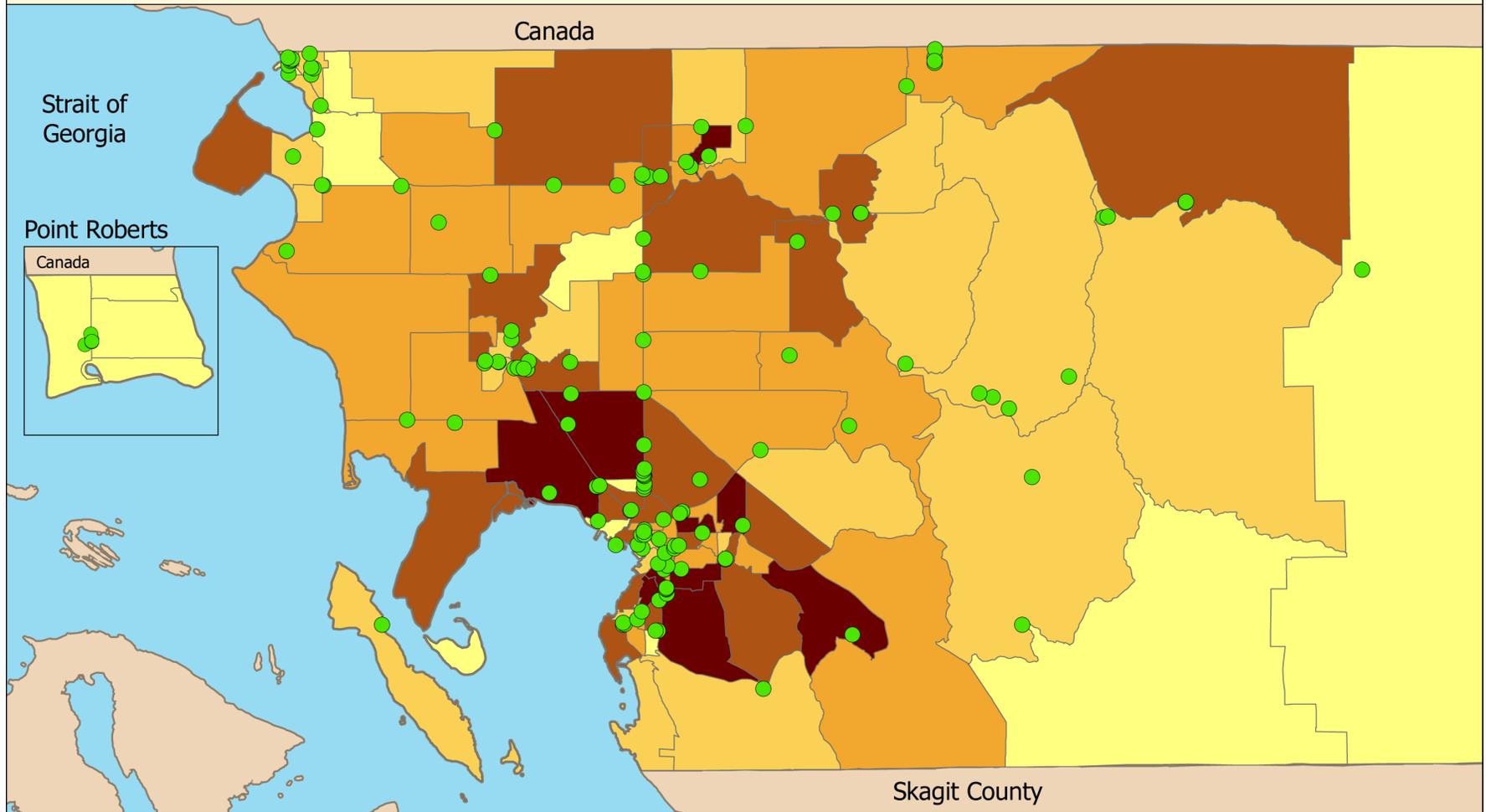
## Population Per Block Group



This map illustrates the distribution of grocery stores throughout Whatcom County related to population per census block group.



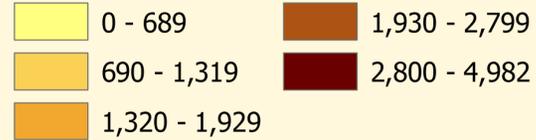
# Whatcom County Population & Convenience Store Distribution



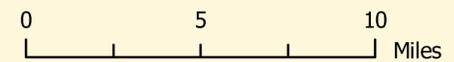
## Legend

● Convenience Store

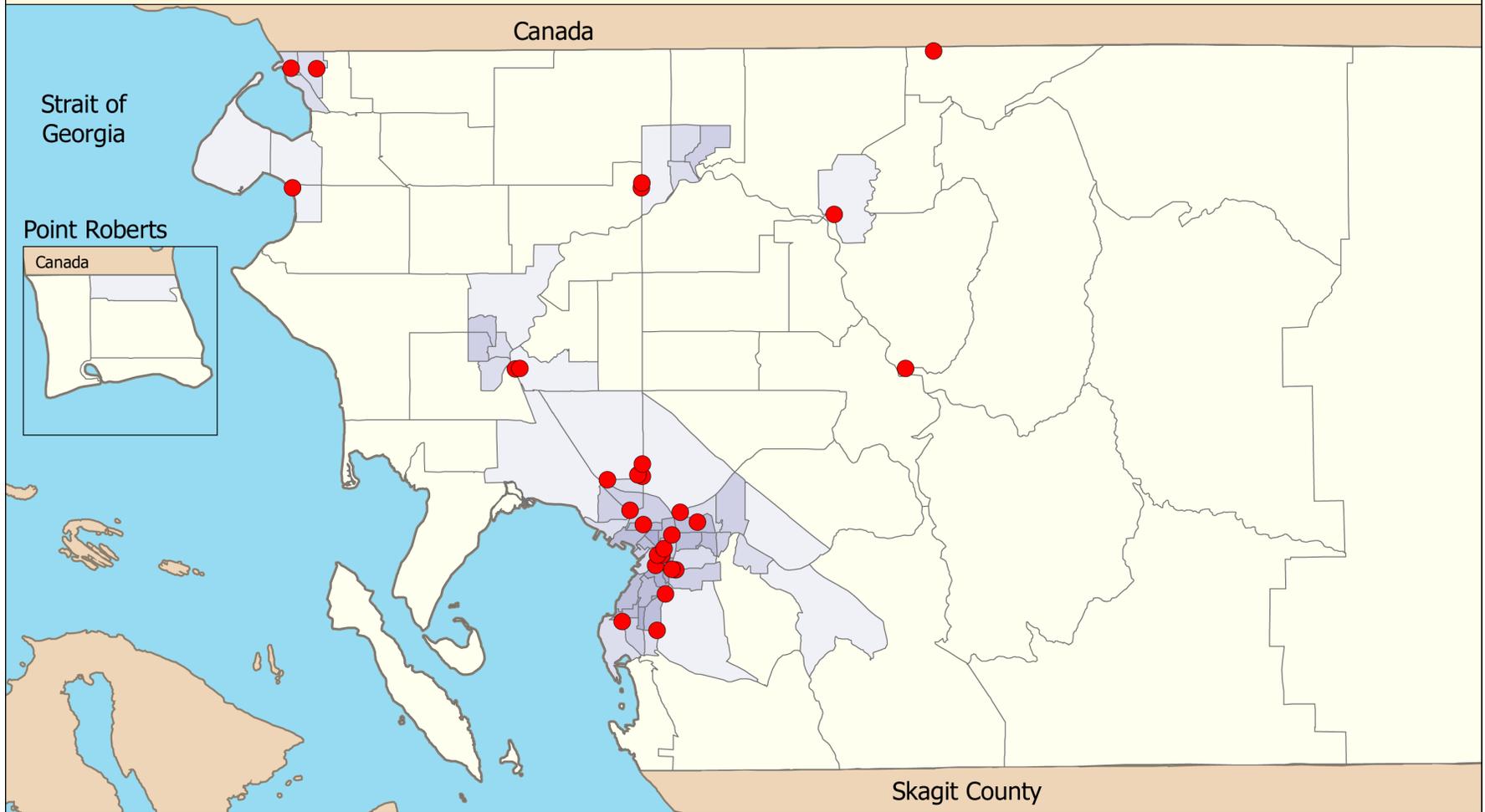
## Population Per Block Group



This map illustrates the distribution of convenience stores throughout Whatcom County related to population per census block group.



# Whatcom County Population Density & Grocery Store Distribution



## Legend

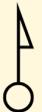
● Grocery Store

## Population Per Square Mile

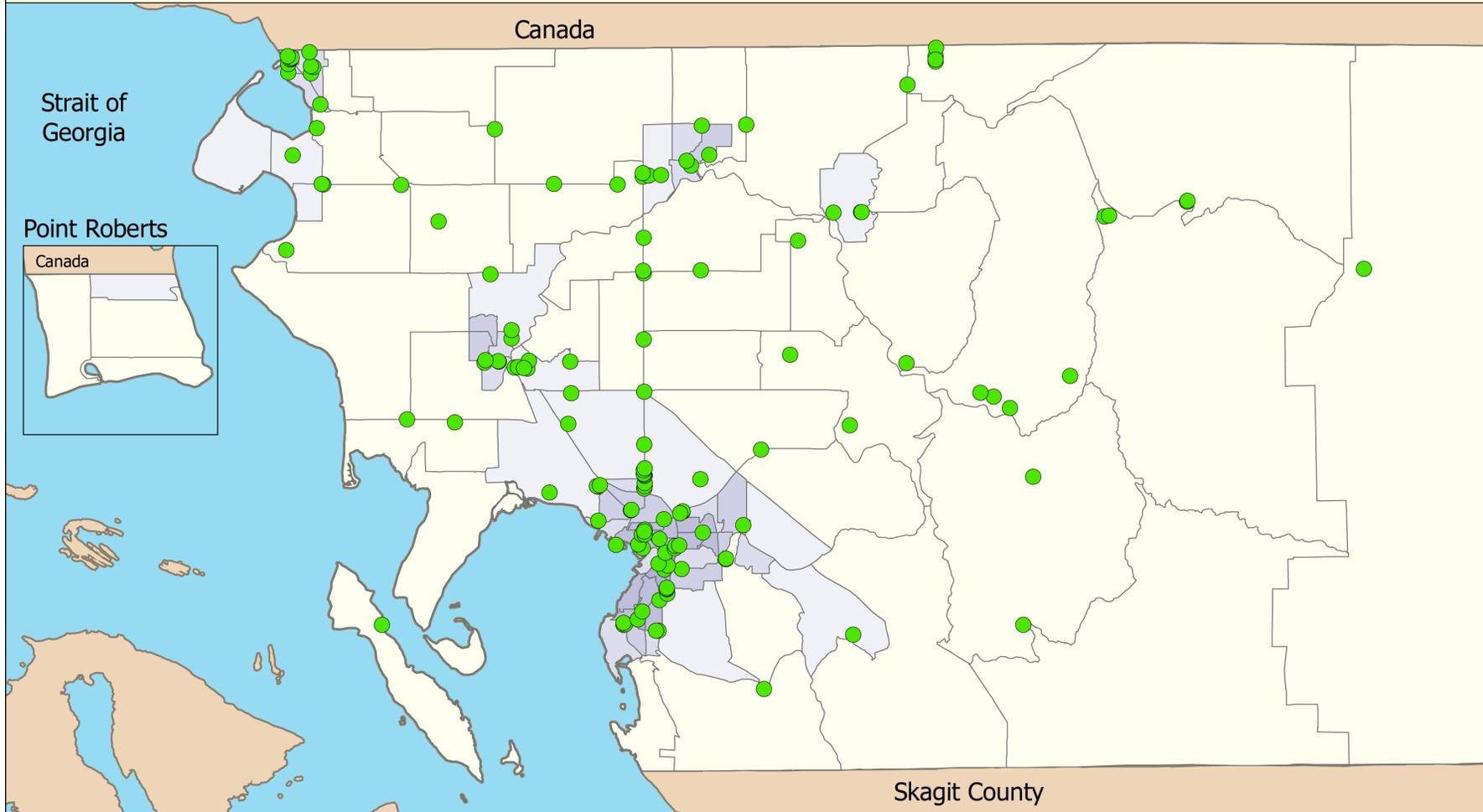
0 - 282	2,232 - 3,495
283 - 950	3,496 - 6,630
951 - 2,231	6,631 - 11,506

This map illustrates the distribution of grocery stores throughout Whatcom County related to population density.

0 5 10 Miles



# Whatcom County Population Density & Convenience Store Distribution



## Legend

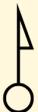
● Convenience Store

## Population Per Square Mile

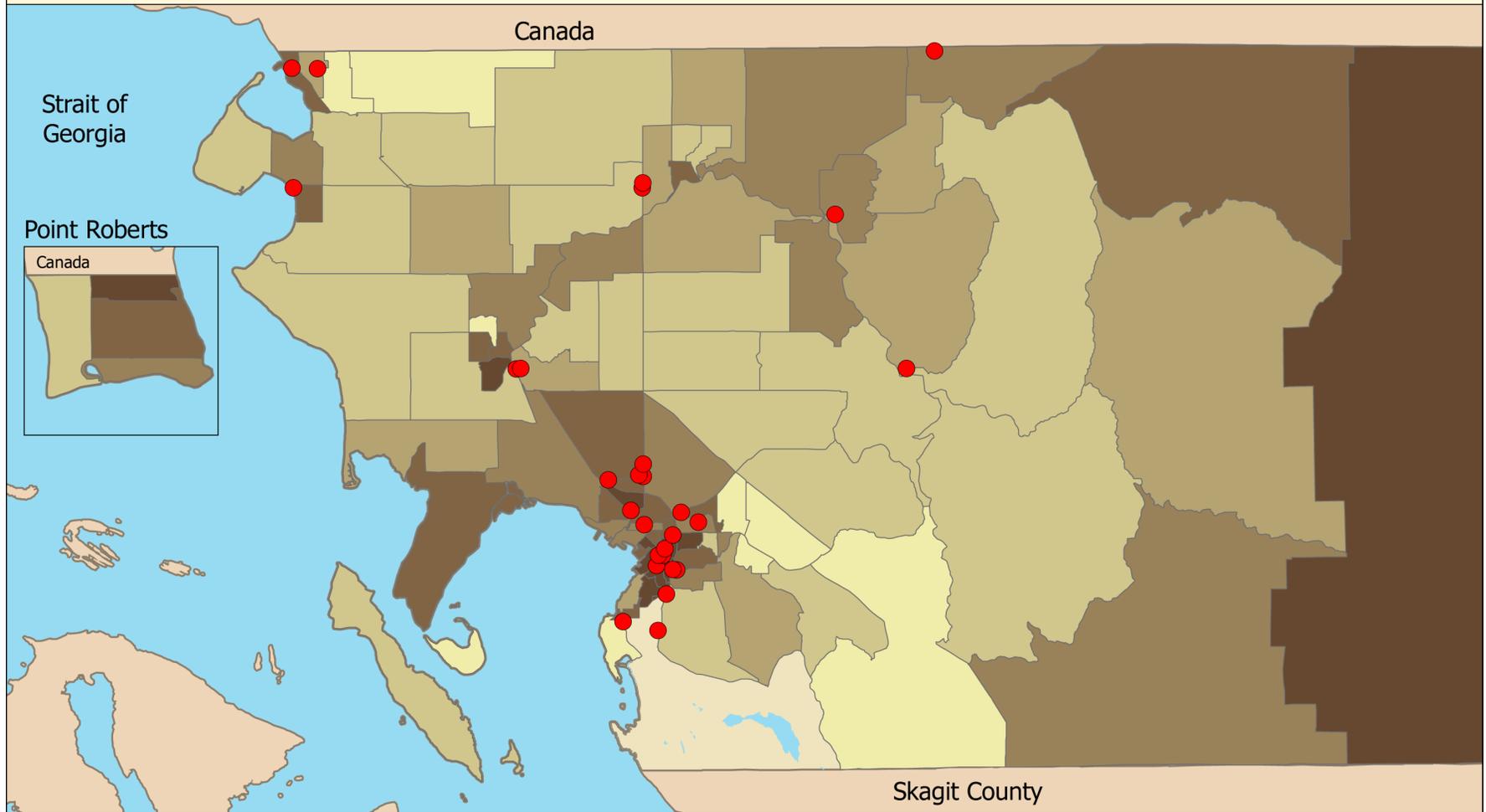
0 - 282	2,232 - 3,495
283 - 950	3,496 - 6,630
951 - 2,231	6,631 - 11,506

This map illustrates the distribution of convenience stores throughout Whatcom County related to population density.

0 5 10 Miles



# Percentage of Households with Income under \$35k & Grocery Store Distribution



## Legend

● Grocery Store

## Percentage of Households with Income under \$35k

	0% - 25%		42% - 46%
	26% - 35%		47% - 58%
	36% - 41%		59% - 100%

This map illustrates the distribution of grocery stores throughout Whatcom County related to the percentage of households with annual income under \$35,000.

