



# **San Juan County Community Food Assessment**

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# Land Acknowledgment

The Food System Team recognizes and honors all peoples who have ancestral ties to these lands and waters and who have contributed their labor, experience, and knowledge to producing food and nourishing communities. As we deepen co-management partnerships, our team commits to uplifting Indigenous stewardship practices, knowledge systems, and adaptive management strategies. With humility, we offer this report as a stepping stone towards deeper understanding, as we as an island community of settlers and Coast Salish peoples uncover what it means to inhabit these lands and waters together.



*Figure 1: Aerial photograph of the Salish Sea* [\[The State of the Salish Sea\]](#)

# About This Report

This Community Food Assessment has been made possible through a combination of private and public funds. The private donors' contribution was leveraged in an application for a Regional Food System Partnerships (RFSP) grant, a USDA program aimed at strengthening regional food economies through collaboration and coordination.

A cohort of San Juan County agricultural organizations received a subaward in the RFSP application submitted by the Northwest Agriculture Business Center (NABC). Funding will support partnerships building on prior or ongoing efforts within the local or regional food system, including education; infrastructure planning & implementation; markets; food equity; and food system planning.

## **Citations:**

Wherever possible, our team has cited the sources of information referred to in the assessment. Passages without citations are the team's interpretations, drawn from our collective experiences and observations as members of the local food system.

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# Introduction

This Community Food Assessment offers an overview of the current state of the food system in San Juan County. Modeled after similar efforts in neighboring Whatcom County, this analysis emerges from in-depth data collection, research, outreach, and interviews, as well as input and editing by a broad swath of food system stakeholders.

We begin with People on the Land, a grounding in the historical context of how food systems in the islands have evolved over millennia. While brief, it is essential to acknowledge this history in order to better understand both current conditions and what it means to inhabit this land together as a community of Coast Salish peoples and island settlers.

The eight Sector Snapshots that follow reflect the arc of the local food system: Land, Water, Agriculture, Fishing & Aquaculture, Economy & Labor, Processing & Distribution, Consumption, and Waste. Within each Snapshot, we provide an Overview in paragraph form, as well as bullet point lists of both Challenges and Current Collaborations & Key Developments.

Our hope is that this Community Food Assessment will provide a solid foundation from which to build a county-wide, coordinated Food System Plan. The conclusion includes an invitation for continued community engagement, as there are inevitably limits to the knowledge and awareness of our team. Thank you for joining us on this learning journey!



*Figure 2: Infographic of the Whatcom Community Food Assessment (CFA), illustrating how a local food system works from multiple viewpoints within each sector and across all sectors. A CFA provides a snapshot of the actions inherent to a food system and can be used to improve or develop programs that focus on the opportunities and needs within that system. [[Whatcom Community Food Assessment](#)]*

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# People on the Land

## Historical context

The highest points of a submerged mountain chain, the San Juan Islands have been shaped by forces both geological and anthropological. [[Working Toward Climate Resilience in the San Juan Islands](#)] The archipelago has an archaeological record of human habitation dating back at least 14,000 years; artifacts and human remains suggest the existence of established villages 9,000 years ago. [[Mitchell Bay Tribe Descendants \(San Juan Island\) and Their Struggle for Lost Treaty Rights](#)]

The islands are the traditional and hereditary lands of the Coast Salish peoples, who historically followed seasonal migration routes linked to food sources. Indigenous families passed down sites for fishing, hunting, and plant gathering both in the islands and on the mainland. [[The First Ones](#)] These communities acted as the first natural resource managers by cultivating native plants, monitoring salmon runs, terracing beaches for clam gardens, and managing timber stands for harvest. [[Coast Salish Youth Stewardship Corps, Why Coastal Tribes Are Growing Clam Gardens That Look Like Asian Rice Fields](#)]

Throughout the Salish Sea, traces of the marine culture that Coast Salish peoples developed over thousands of years remain in the shell middens and clam gardens found along shorelines. Coast Salish peoples developed the technology of reef-net fishing to harvest from the five salmon runs. Reef-net fishing is still considered a best practice for selective fishing today. [[The First Ones](#)]

“A violent war for natural resources erupted between Indian people and settlers soon after non-Indians arrived in the Pacific Northwest. While settlers wanted to *possess* the land through ownership, Indian people wanted to *access* the land as they had for countless generations. This difference in world-view caused tensions and Indians became the target of animosity and violence, perhaps because they stood between settlers and the Northwest’s rich resources.” [[Tribal Community Food Sovereignty \(NWIC\)](#)]

The European explorers who first visited the Northwest Coast assumed that the entire region was virtually untouched wilderness and that occupants used the land only minimally for hunting and gathering shoots, roots, and berries that were peripheral to a salmon-focused diet and culture. The colonizers who followed used these claims to justify the violent displacement of Indigenous groups from their lands. Not until the 21st century did Western scholars understand that Coast Salish peoples were actively engaging with their environments to enhance and secure traditional foodways well before their first contact with Europeans. [[Keeping It Living: Traditions of Plant Use and Cultivation on the Northwest Coast of North America](#)]

The arrival of homesteaders in the 19th century irrevocably changed the lives of Indigenous peoples in the islands. Acting strategically to preserve their culture, Coast Salish peoples saw the opportunity to integrate with the first settlers. While maintaining agency through all subsequent chapters in this history, they faced mounting challenges as more settlers began to arrive. [[Traditional Practice, Archaeology, & Land Back](#)]

In the 1850s, the first Washington Territory governor was charged with crafting treaties to secure resources and lands for the growing flood of settlers; within two years the government had effectively seized control of all the land from the Columbia River to the Canadian border, including the San Juan Islands, in the Treaty of Point Elliott (1855). [[Mitchell Bay Tribe Descendants \(San Juan Island\) and Their Struggle for Lost Treaty Rights](#)]

As sovereign nations, tribes signed this treaty with the United States government, ceding most of the land that is now Western Washington but reserving rights to harvest salmon and other natural resources. [[NWIFC 2020 State of Our Watersheds](#)] Point Elliott Treaty tribes reserved approximately 49,786 acres, contrasted by the nearly 6 million acres of land ceded. [[Rights Remembered: A Salish Grandmother Speaks on American Indian History and the Future](#)] The legal basis for settler presence in the islands stems from the Treaty of Point Elliott. Events surrounding the treaty led to drastic changes in resource use and demographics that islanders still grapple with today. [See Treaty of Point Elliott, below]

Displacement of Indigenous tribes by settlers meant the interruption of Indigenous land stewardship practices. Throughout the 1870s and 1880s, increasing numbers of settlers began to move into prime farming and fishing areas [[Mitchell Bay Tribe Descendants \(San Juan Island\) and Their Struggle for Lost Treaty Rights](#)], and by the early 1900s, San Juan County was the primary producer of fruits, vegetables, milk, and butter in Western Washington. [[2017 USDA Ag Census](#)]

As a result of unsustainable fishing practices, damming of rivers, habitat destruction, and abrogation of treaty rights, European settlement has decimated a once monumental food source: salmon. Loss and degradation of habitat, changing climate, and ocean conditions continue to threaten salmon, tribal cultures, tribal treaty-reserved rights, wildlife habitat, water quality, and Western Washington's economy and quality of life. [[NWIFC 2020 State of Our Watersheds](#)]

### **Treaty of Point Elliott, 1855**

*"The right of taking fish at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the Territory, and of erecting temporary houses for the purpose of curing, together with the privilege of hunting and gathering roots and berries on open and unclaimed lands. Provided, however, that they shall not take shell-fish from any beds staked or cultivated by citizens."* [[Understanding Tribal Treaty Rights in Western Washington](#)]

*"We kept our word when we signed the treaties that ceded almost all of the land that is in western Washington. We expect the United States to keep its word, too."* late Billy Frank Jr, Nisqually tribal member and leader of the treaty fishing rights struggle [[Understanding Tribal Treaty Rights in Western Washington](#)]

While the San Juan Islands were ceded to the United States in the Treaty of Point Elliott of 1855, treaty tribes were recognized as sovereign nations and, as such, reserved certain rights to ensure their cultures would survive: the right to continue to fish, hunt, and gather native foods in all of their traditional places. Initially, the U.S. government was complacent about treaty rights, believing that settlers were primarily interested in farming as a food source. [[NWIC Tribal Community Food Sovereignty](#)]

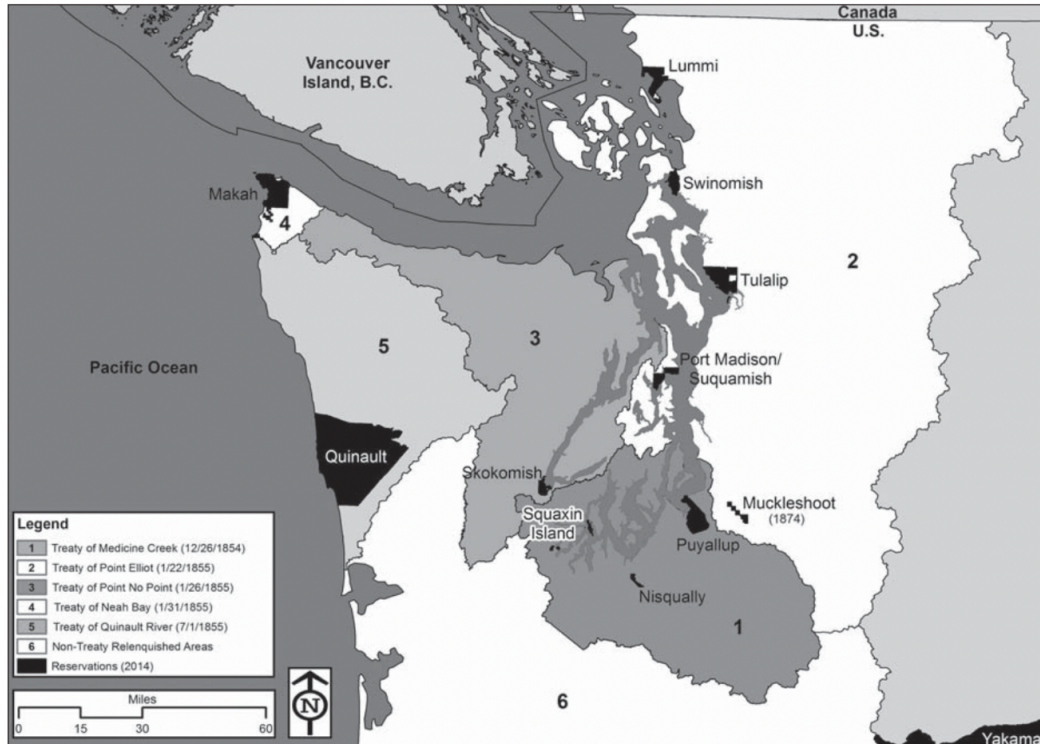
As more settlers arrived and continued to expand fish harvests, logging, and agriculture, the salmon populations steadily declined. Tribes were blamed for the dwindling resource, and despite treaty promises to the contrary, the state began to arrest tribal fishermen for fishing off-reservation. [[Understanding Tribal Treaty Rights in Western Washington](#)]

At the forefront of the civil rights movement of the 1960s, tribes throughout Western Washington battled for recognition of their fishing rights in the "Fish Wars." The 1974 Boldt decision (*U.S. v. Washington*) ultimately upheld treaty rights, affirming that: fishing was a treaty-reserved right, tribes were entitled to half the harvestable number of salmon returning to or passing through the tribes' usual and accustomed fishing places, treaty tribes would act as co-managers of the state's fish population, and conservation standards would be upheld that restricted the ability of the state to regulate tribal fishing under the treaty. [[Understanding Tribal Treaty Rights in Western Washington](#)]

The Boldt decision has been upheld several times in subsequent cases, which served to clarify that hatchery salmon and shellfish fall under the same treaty rights as wild salmon. The decision also clarified that state and federal governments have a duty to protect salmon habitat, under the reasoning that for treaty rights to have meaning, there must be fish available for harvest. [[Understanding Tribal Treaty Rights in Western Washington](#)]

Today, the twenty tribes in Western Washington covered by the treaty are organized as part of the Northwest Indian Fisheries Commission. The commission is active in all aspects of natural resource management including hatcheries, fisheries, and habitat protection and enhancement. [[Northwest Indian Fisheries Commission Annual Report](#)]





*Figure 3: Ceded lands and reservations in Western Washington. The reservations are shown in their present-day dimensions, after enlargements and reductions. The amount of land ceded by the Point Elliott Treaty (area 2) was about 9,000 square miles— nearly 6 million acres. The final acreage reserved by the tribes included in the Point Elliott Treaty is approximately 49,786 acres (about 78 square miles). Some Washington tribes have reservations that were established not by treaty but by executive order (order of a U.S. president), for example, the Muckleshoot and Chehalis, in Western Washington. [\[Rights Remembered: A Salish Grandmother Speaks on American Indian History and the Future\]](#)*

Despite the rights spelled out in the Treaty of Point Elliott, access to land and waters for Coast Salish peoples continues to be limited. With the treaty as the original legal overlay, land-use regulations and the privatization of land and beaches profoundly limit and complicate the pursuit of traditional foodways in the islands. Even in the face of these challenges, Coast Salish nations and peoples continue as co-managers of these lands and waters through efforts including nation-to-nation relationship building, Canoe Journeys, the Coast Salish Youth Stewardship Corps, and the Thirteen Moons health program. (see [Sector Snapshots](#) for more details)

## Current demographics

The county's resident population grew from 14,077 in 2000, to 15,769 in 2010, to 17,788 in 2020. [[US Census Bureau QuickFacts San Juan County, Washington](#)] By 2025, San Juan County is anticipated to be home to 19,280 residents; by 2030, 20,476 residents; and by 2035, 21,263 residents. Approximately 3,500 visitors are present per day in the winter and 8,400 visitors are present per day in the summer. [[San Juan Islands Food Impact Economic Analysis](#)]

	San Juan County	Washington state
<b>Population by age, 2019</b>		
Under 5 years old	2.8%	6.0%
Under 18 years old	12.7%	21.8%
65 years and older	35.2%	15.9%
<b>Females, 2019</b>	51.7%	49.9%
<b>Race/ethnicity, 2019</b>		
White	93.9%	78.5%
Black	0.8%	4.4%
American Indian, Alaskan Native	1.1%	1.9%
Asian, Native Hawaiian, other Pacific Islander	1.7%	10.3%
Hispanic or Latino, any race	6.8%	13.0%

Figure 4: Demographic information for San Juan County and Washington State [[2020 Employment Security Dept. SJC Profile](#)]

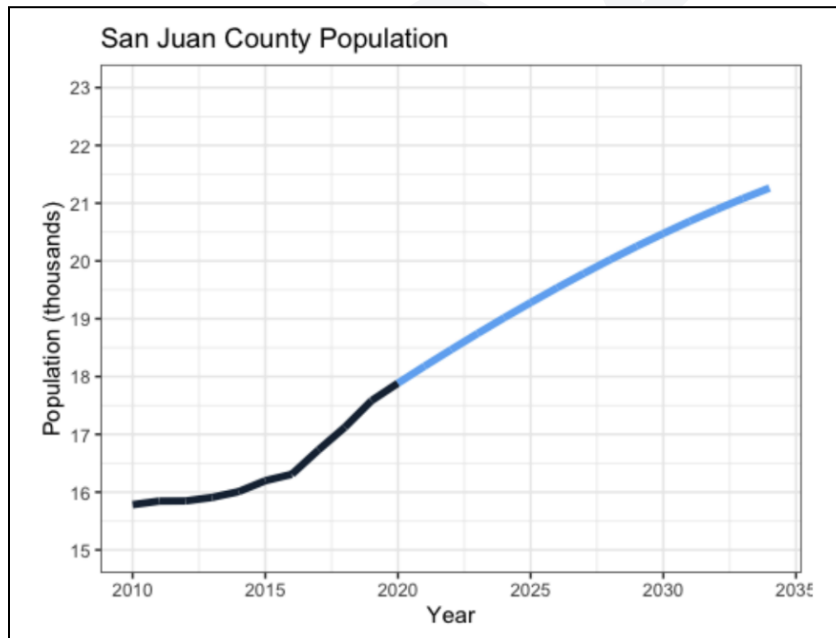
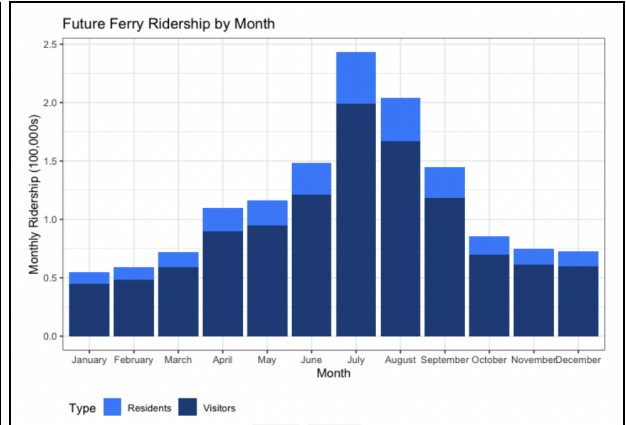
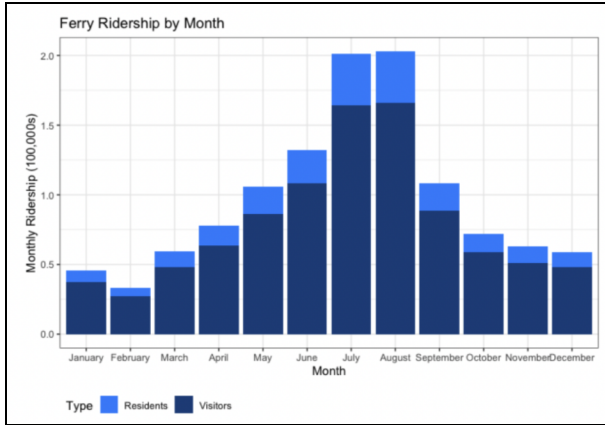


Figure 5: San Juan County population projection [[San Juan Islands Food Impact Economic Analysis](#)]



Figures 6 and 7: (left) Current and (right) future ferry ridership by month. [[San Juan Islands Food Impact Economic Analysis](#)]

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# Land

## Sector Overview

The San Juan Islands are an archipelago, with more than 170 islands covering 175 square miles of forest, rocky outcroppings, marsh, pasture, orchard, and cultivated land. The islands are the traditional and hereditary territory of the Coast Salish peoples, who have stewarded these lands and waters since time immemorial. (See [People on the Land](#) for more on Indigenous land stewardship practices and history.)

The changing management and ownership philosophies from pre-contact time to present have shaped how the land nourishes the people who live here. Camas gardens and open forests managed with fire were the landscape tended by Indigenous peoples for millenia. Beginning in the late 1800's, European settler-style agriculture used the open camas garden landscapes and cleared forests to create many of the inland pastures and farms we see today. While agriculture flourished in the islands in the early to mid 1900's, the 1960's saw a drastic reduction in farmland, from 46,000 acres in 1959 to 26,000 acres in 1969. [[2017 USDA Ag Census](#)]

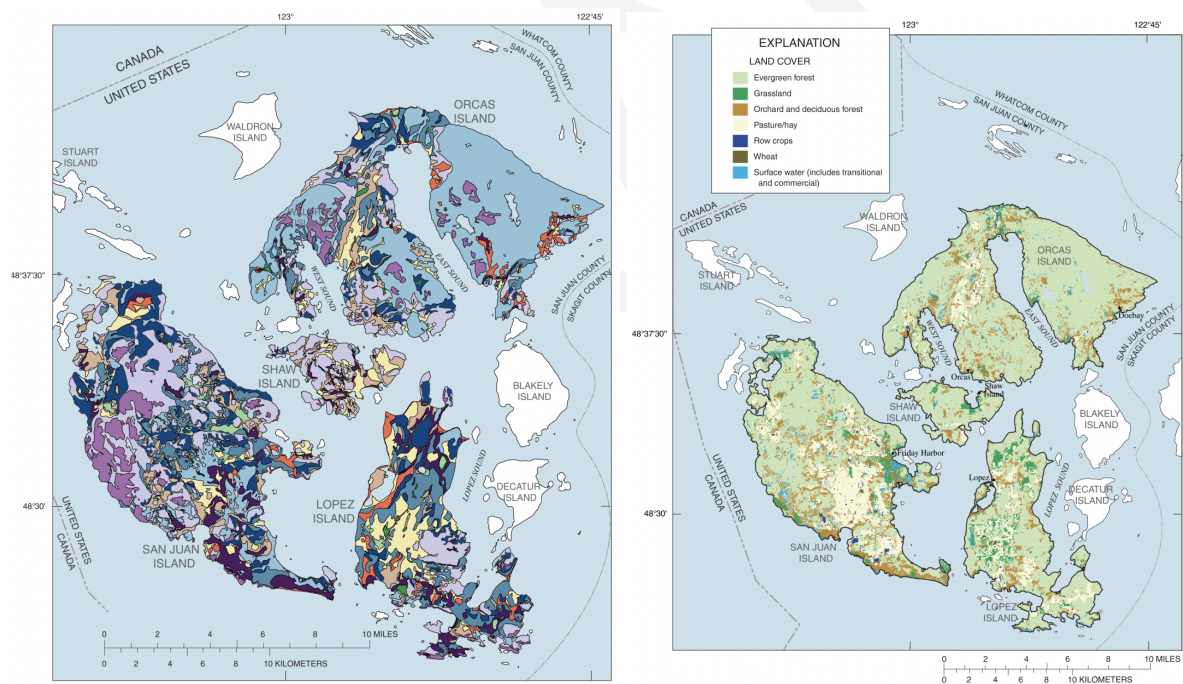


Figure 8 and 9: (left) the distribution of soil groupings derived from Soil Conservation Service data; (right) aerial distribution of land cover on Lopez, San Juan, Orcas, and Shaw islands. [[Estimates of groundwater recharge from precipitation to glacial-deposit and bedrock aquifers, San Juan County](#)]

Increasing development and loss of rural character and farmland inspired concerned citizens and local government officials to draft the San Juan County Open Space and Conservation Plan in 1991. In the plan, open space is characterized by land uses consistent with farming (including farm structures), forestry, and natural areas. [[San Juan County Open Space and Conservation Plan](#)] Today, the pressures of development and rising land values continue to threaten open space. Community organizations, county government, and individual citizens are continuing to address issues of farmland access and preservation.

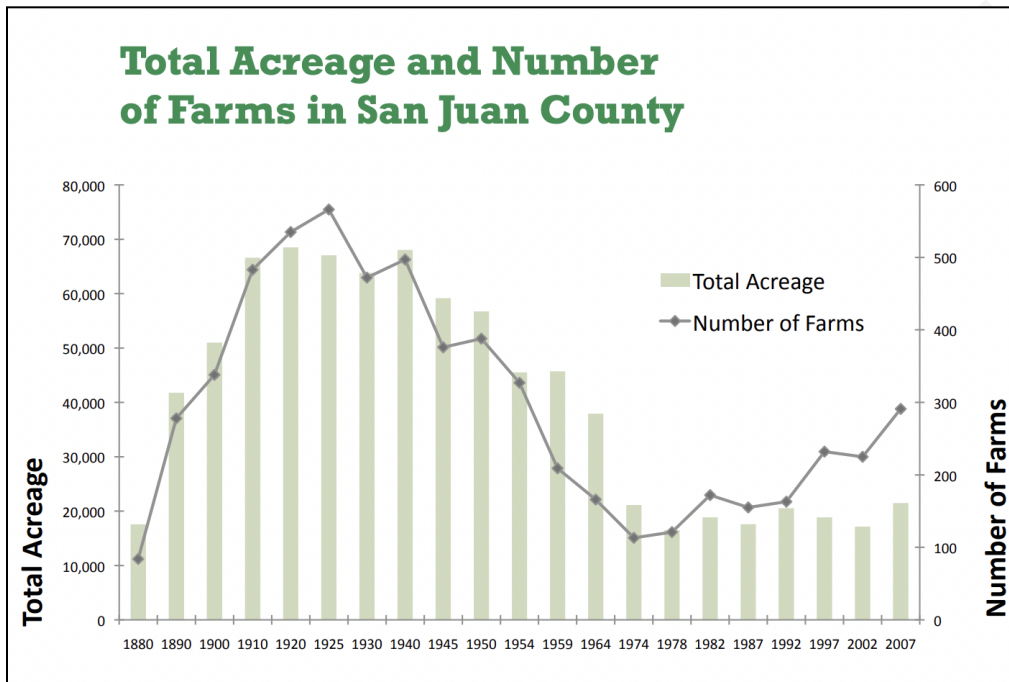


Figure 10: Graph showing total acreage and number of farms in San Juan County (1880-2007), and highlighting the recent trend of more small farms. [[Growing Our Future](#)]

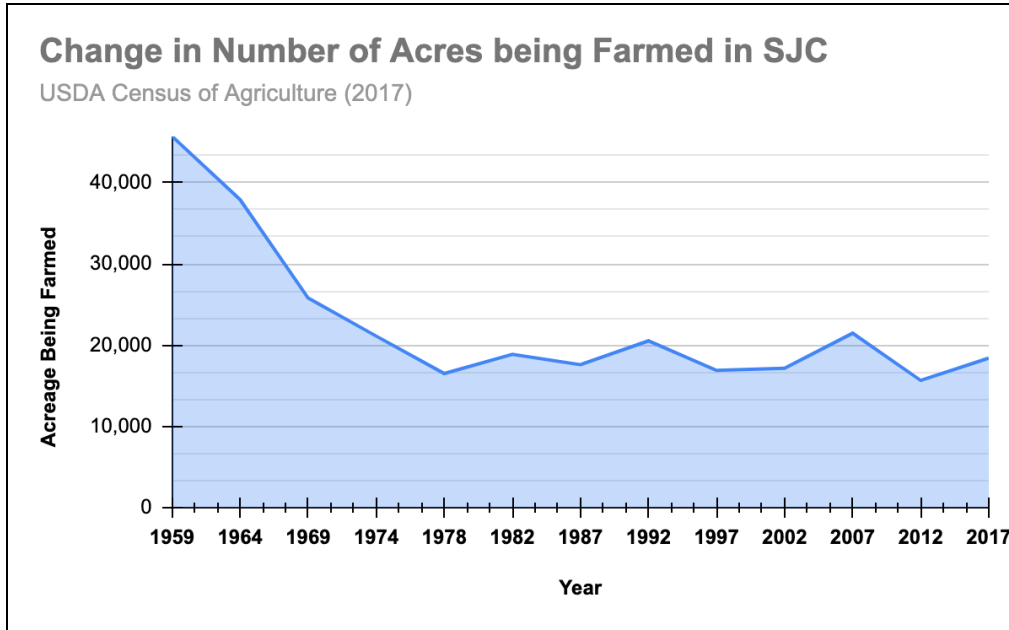


Figure 11: Total acreage being farmed in San Juan County, 1959-2017 [[2017 USDA Ag Census](#)]

Forty percent of the land (45,000 acres) is considered prime farmland due to soil type and topography; currently 13% of the land (18,400 acres) is actively farmed. [[Growing Our Future, 2017 USDA Ag Census](#)] (See [Farming](#) for more details.) At present, there are four main mechanisms to protect farmland from development in the county: land use designation, tax assessment programs, conservation easements, and land purchases by the San Juan County Land Bank or conservation organizations.

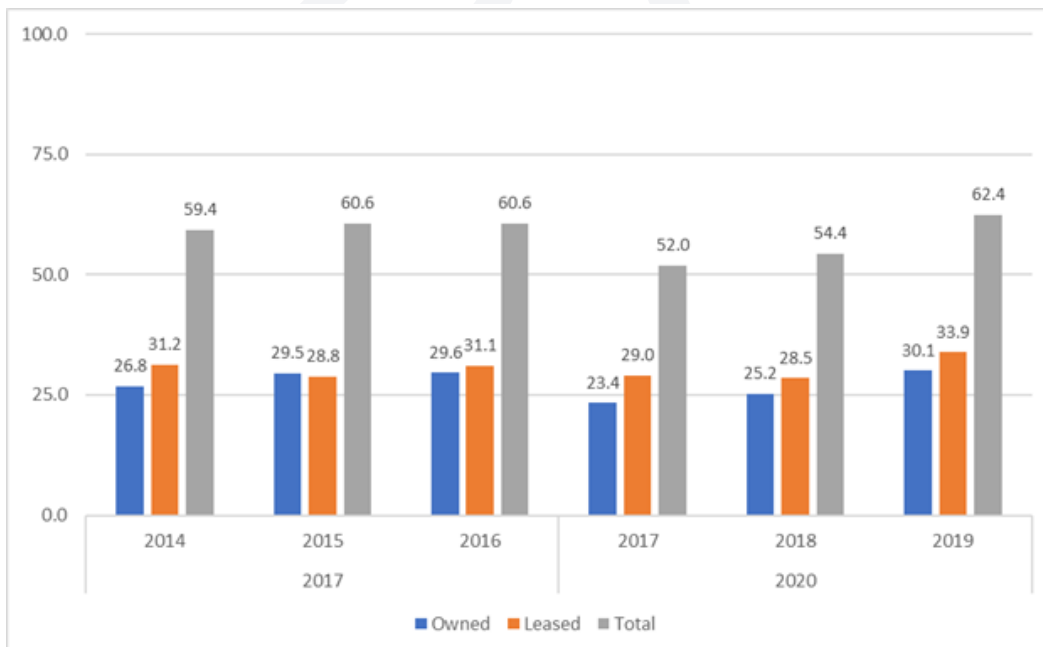


Figure 12: Owned and leased farm acreage, 2014-2019 [[2021 Agricultural Viability Report](#)]

Land is classed as belonging to one of four land-use designations (“zoning”): Growth Areas, Activity Centers, Rural Lands (including Rural Farm-Forest), and Resource Lands (including Agricultural and Forest lands), each with specific goals and policies related to designation criteria and land use. [[Comprehensive Plan, Land Use Section](#)] Currently, 13,900 acres are zoned Agricultural Resource Lands (AG), which is 12% of the total land in the county; Rural Farm-Forest accounts for 43% of total land. [[San Juan County Economic Analysis of Resource Lands](#)]

Agricultural Lands and Designation Status in San Juan County

	<b>Total Acres</b>
Designated Agriculture Resource Lands	13,884.2
Designated Agriculture Resource Lands Potentially Not Meeting Criteria	7,879.7
<i>No Agriculture Land Use Recorded by SJC Assessor</i>	6,996.9
<i>Parcel Size Less than 10 Acres</i>	1,423.2
<i>Non-Qualifying Soil Profile</i>	1,734.6
Non-Designated Agriculture Land Uses Potentially Meeting Criteria	2,001.9
Non-Designated Agriculture Land Uses Potentially Not Meeting Criteria	219.4

Figure 13: Acreage of agricultural lands with designated or non-designated status, 2017 [[San Juan County Economic Analysis of Resource Lands](#)]

The Current Use Farm and Agriculture (CUFA) special tax assessment program creates an incentive for farming through valuation and tax reduction and imposes a penalty for taking land out of agricultural production. Enrollment in CUFA requires continuing proof of agricultural production; if a parcel is removed from CUFA, the taxes, interest, and penalty fee come due. In 2021, this program protected 8,250 acres in San Juan County. [[San Juan County Special Tax Programs Map](#)]

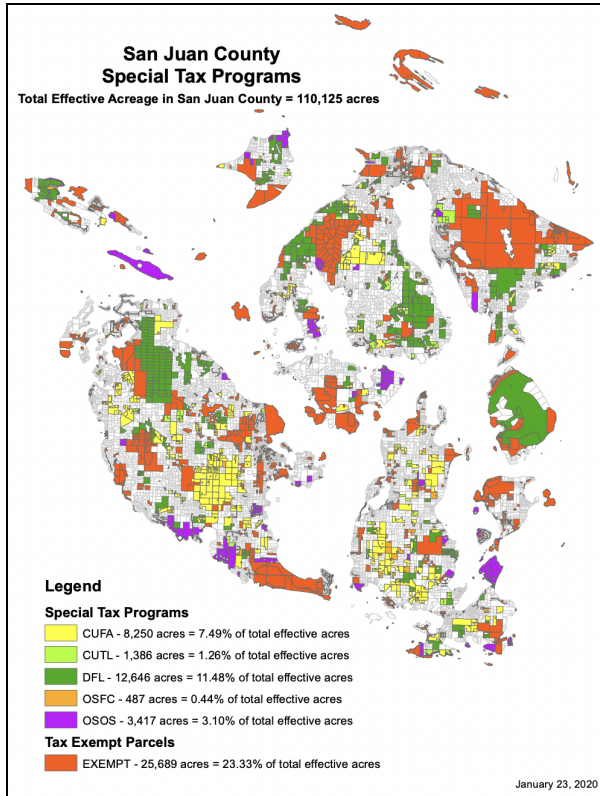


Figure 14: Land enrolled in special tax programs in San Juan County, effectively totalling 110,125 acres, of which 8,250 acres are enrolled in the CUFA program, 2020. [[San Juan County Special Tax Programs Map](#)]

Conservation easements and land purchases by the San Juan County Land Bank and conservation organizations constitute the final methods of farmland protection. Conservation easements are legal documents that protect key features of a property while the property remains in private ownership; conservation easement agreements apply in perpetuity, no matter who owns the land. [[San Juan County Land Bank conservation easements](#)] Land may also be purchased outright by conservation organizations and held in trust for a specific purpose, including agriculture. [[Lopez Island Farm Trust](#)]

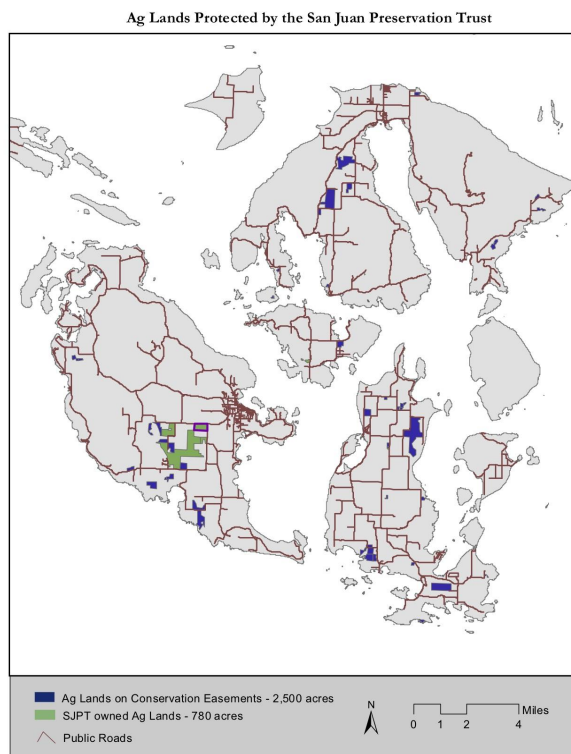
Local conservation organizations and government programs that preserve farmland include the San Juan County Land Bank, San Juan Preservation Trust (SJPT), and Lopez Community Land Trust (LCLT).

The Land Bank protects agricultural land in the County through the purchase of conservation easements (CEs) on private land and, occasionally, by purchasing properties (preserves) that are then leased to local farmers. To date, the Land Bank has secured conservation easements on over 1,300 acres of farmland (~50 percent of total Land Bank CE acreage) across 20 privately owned farms. In addition, the Land Bank owns 10 farmed preserves with a combined 727 acres (~15 percent of total Land Bank preserve acreage) zoned as Agricultural Resource Land (ARL), with approximately 500 acres under agricultural lease to private parties. Land Bank



farmland ownership represents approximately five percent of the 13,900 acres of ARL in San Juan County. [[San Juan County Land Bank Agriculture: Overview, Objectives, and Policy 2021](#)]

Similarly, the Preservation Trust owns preserves (826 acres) and holds conservation easements (2,295 acres) on agricultural land. [[San Juan Preservation Trust](#), [SJPT Transaction List](#)] Lopez Community Land Trust owns 70 acres of agricultural land; one parcel has an existing conservation easement through the Land Bank. [[Sandy Bishop, personal communication, Feb 16, 2021](#)]



Figures 15 and 16: (left) San Juan County Land Bank agricultural properties; (right) San Juan Preservation Trust agricultural properties [[Land Bank staff, personal communication, Nov 3, 2021](#); [San Juan Preservation Trust staff, personal communication, Jan 3, 2022](#)]

## Challenges

- **Amenity Migration and Second Home Ownership:** Amenity migration refers to the purchasing of primary or second residences in rural areas valued for their aesthetic, or recreational opportunities. [[Kondo, M et al, 2012](#)] Thirty-seven percent of homes in San Juan County are second homes, the highest rate in the state. [[US Census](#)] San Juan County is a destination for amenity migrants who select places to live or purchase vacation homes based on criteria such as an attractive landscape; favorable climate; and interesting social, cultural and/or tourist infrastructure.

Research from 2012 found that amenity migrants to the county often support regulations which promote the aesthetic aspect of a rural landscape rather than social or ecological function. [[Protecting the Idyll but Not the Environment: Second Homes, Amenity Migration and Rural Exclusion in Washington State](#)] This emphasis on how things look can lead to regulations and conservation easements that focus on aesthetics rather than evolving infrastructure needs for agricultural viability.

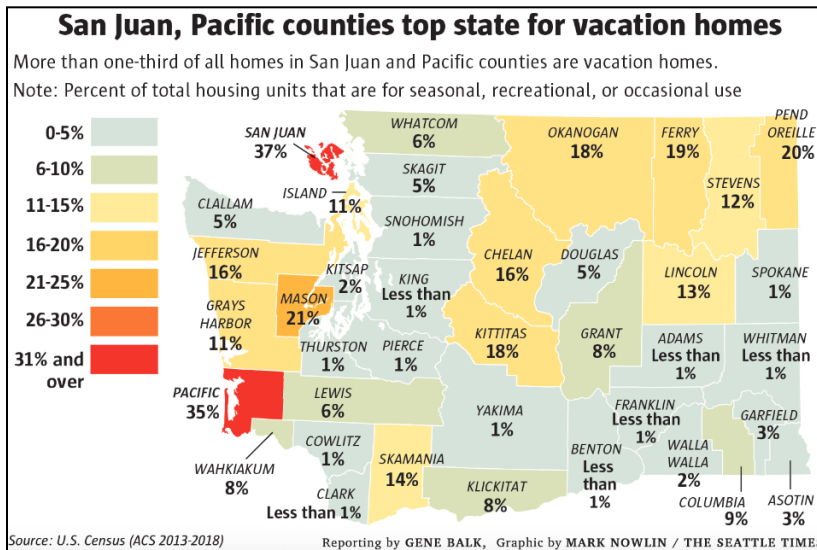


Figure 17: Vacation home percentages for Washington State counties, with San Juan County ranking highest in the state at 37 percent. [[US Census](#)]

- Cost of land:** Real estate values in San Juan County are among the highest in the state [[Neighborhood Scout](#)], and the median value of a farm in SJC is \$550,693. [[2017 USDA Ag Census](#)] High cost of land keeps farm ownership out of reach for many beginning farmers and ranchers. The cost of the land itself now far exceeds the ability to pay it off by farming. American Farmland Trust has designated Western Washington as the fifth most threatened agricultural region in the nation. [[Viva Farms](#)]
- Development and non-agricultural use of farmland:** In 2020, agricultural organizations in the county coordinated Farmer/Rancher Listening Sessions on three islands with over 90 participants. Producers stated that they see ag land being broken up for development as one of the barriers to expanding production. Of 45,000 acres of prime ag soils in SJC, only 18,400 are currently farmed. [[2017 USDA Ag Census](#)] Farms were historically composed of open fields on large parcels, and the greatest loss of farmland in the county has resulted from the division of larger farms into smaller parcels, which have then been developed or allowed to lie fallow. [[Growing Our Future](#)] These trends speak to the urgency of protecting farmland from development. [[ARC Comments on Economic Development Element Draft](#)]

- **Farm succession:** Thirty-eight percent of farmers in San Juan County are over 65 years of age [[2017 USDA Ag Census](#)]; forty-five percent of 63 farmers responding to the 2020 San Juan County Agricultural Viability survey indicated they need support with farm succession. [[2021 Agricultural Viability Report](#)] When farmers retire or pass away, their land is vulnerable to being sold and taken out of agricultural production.

## Current Collaborations + Key Developments

- **Coast Salish Youth Stewardship Corps:** This program serves intertribal indigenous youth ages 14+ from the Lummi Nation, Samish Nation, Stillaguamish Tribe, and other Coast Salish Tribes who have ancestral ties with the San Juan Islands and whose families were disconnected from their traditional homelands during the time of the Indian Appropriations Act. [[Coast Salish Youth Stewardship Corps | The Madrona Institute](#)] Indigenous peoples have been the longest running land managers in the islands; this program aims to create the next generation of culturally engaged land managers by involving youth directly with land management agencies. [[Coast Salish Youth Stewardship Corps | White Swan Environmental](#)] Working with the San Juan Islands Youth Conservation Corps, the teachings are used to guide conservation and restoration efforts by informing habitat management practices on public lands. [[Coast Salish Youth Stewardship Corps | The Madrona Institute](#)]
- **Conservation Agriculture Resource Team (CART):** CART was formed in 2019 at the request of the Land Bank to evaluate future scenarios for the Coffelt Farm Preserve, addressing the economic viability of the farming operation and the organizational structure needed to manage and operate the farm to meet Land Bank and community goals. Composed of agriculture-related organizations and members of the farming community, CART made its recommendations and, in so doing, set a precedent for how publicly owned conserved agricultural land is managed in San Juan County. [[CART-Coffelt Overview](#), [A Review and Analysis of Coffelt Farm](#)] CART's next project will be to provide recommendations for agricultural use on Zylstra Preserve (San Juan Island).
- **Lopez Community Land Trust (LCLT) Lopez Island Farm Trust (LIFT):** In 2016 LCLT formed LIFT with the goal of holding farmland in trust to support a resilient local food system that contributes to a healthy local economy, provides a community place to gather and learn, and ensures farm succession through affordable access to farms and training of young farmers. Executive Director Sandy Bishop explains, "After a century of significant farmland loss throughout the San Juan Islands, access to affordable, productive farmland is one of the greatest challenges that our island farmers face. A community land trust can provide that access." [[Lopez Island Farm Trust \(LIFT\)](#)]
- **San Juan County Comprehensive Plan Update:** The WA Growth Management Act mandates that the county update its Comprehensive Plan every 20 years. The

Agricultural Resource Committee (ARC) has been deeply engaged with this process over the last 5 years. Many of the recommendations that the ARC has put forward have been incorporated into the working drafts, including:

- In 2018, the San Juan County Council adopted an updated Comprehensive Plan Vision Statement that included a new stand-alone agriculture section, which states, *“The San Juan Islands have a rich agricultural heritage that remains culturally and economically significant. We invest resources to ensure that agricultural lands are preserved and to maintain and enhance agricultural viability. We recognize the integral role that agriculture plays in the stewardship of our soils and water resources. Diverse agricultural activities are essential to the health and well-being of our community, contributing to the social, economic and environmental fabric of our islands.”* [[Comprehensive Plan Introduction and Vision](#)]
- The current draft of the Land Use Element includes a new section with the stated goal: *“Protect agricultural land and promote diverse agricultural activities that enhance stewardship and economic viability, and maintain the rural character of San Juan County”* and a list of policies designed to support agriculture. [[Comprehensive Plan Update Current Drafts](#)]
- **San Juan County Land Bank’s “Agriculture: Overview, Objectives, and Policy” document:** Following review and input from partnering organizations and the public, the Land Bank finalized the [Agriculture: Overview, Objectives, and Policy](#) document in March 2022. This document is an overview of the Land Bank’s role in agricultural land conservation and a definition of its goals, objectives, and policy in this area. It will be utilized to guide future Land Bank acquisition, management, and stewardship of agricultural lands.
- **San Juan Islands Agricultural Guild’s *Farmers-to-Farmland* program:** In October 2021, the Ag Guild received a USDA grant to fund the Farmers-to-Farmland project, which is implementing a multi-pronged approach to facilitate affordable, equitable entry into farming in San Juan County. A collaboration with San Juan Islands Conservation District, San Juan Islands Food Hub, Northwest Agriculture Business Center, WSU San Juan County Extension, San Juan County Land Bank, and local farmers, this project will help beginning farmers through technical assistance, education, and mentoring, as well as help navigating markets and connecting to farmland. While serving everyone, a primary focus will be on Latinx and women farmers. [[Beginning Farmer Rancher Grant Report](#); [Farmers-to-Farmland Program | San Juan Islands Agricultural Guild](#)]

# Water

## Sector Overview

San Juan County's water resources are characterized by the rain shadow created by the Olympic Mountains to the south and Vancouver Island to the west, by predominantly steep terrain and bedrock geology, by small watershed catchment areas, and by extensive shorelines. These conditions result in low rainfall, limited groundwater storage, and extensive runoff and discharge to the sea. [[San Juan County Water Resource Management Plan](#)] There is no water supply line connecting the islands to each other or to the mainland, and the whole of San Juan County exists in a Critical Aquifer Recharge Area (CARA), one of five Critical Areas defined by the Washington State Critical Areas Ordinance. [[Water Resources | San Juan County Comprehensive Plan](#)]

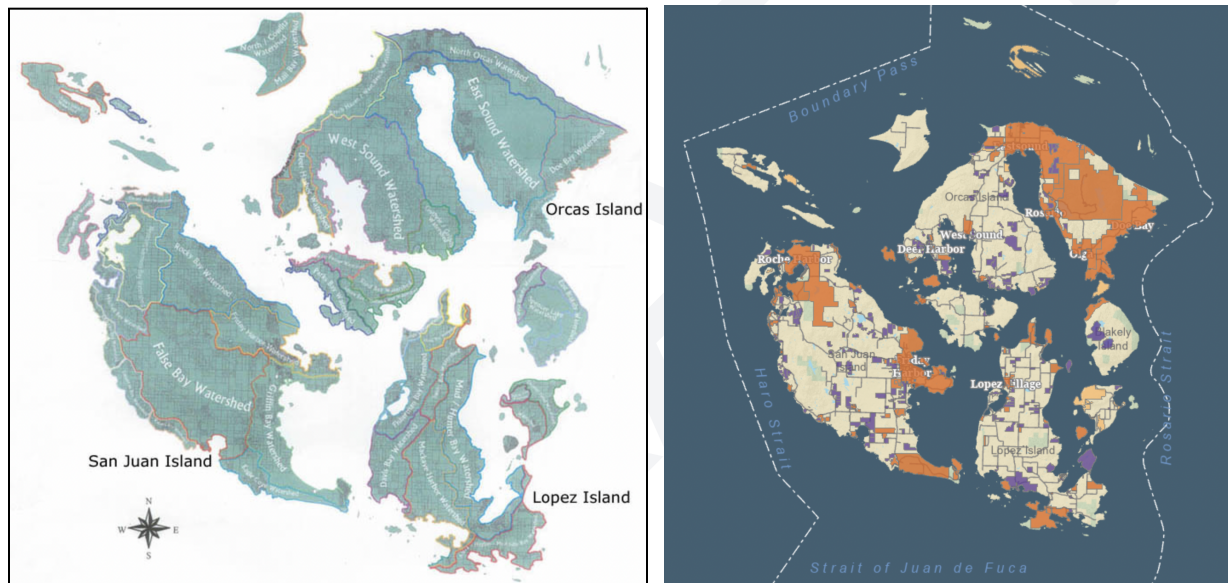


Figure 18 and 19: (left) San Juan County watersheds; (right) San Juan County water systems. [[San Juan County Watersheds | University of Washington](#); [San Juan County Water Systems Map | SJC GIS](#)]

Most of the county's fresh water resources are provided by local rainfall that feeds lakes and streams, recharges the groundwater system, and refills rainwater catchment systems. Smaller amounts of fresh water are provided by desalination systems and water delivered from the mainland by boat. Most streams are intermittent and are usually dry between June and late October or November. [[Aquifer Recharge Study and Water-Budget Components of San Juan County](#)] Water resources in the county vary dramatically, from the high rainfall conditions of eastern Orcas (up to 45" of rainfall a year at Mt. Constitution) to the near-drought conditions of south Lopez (19" annual average). [[San Juan County Water Resource Management Plan](#)]

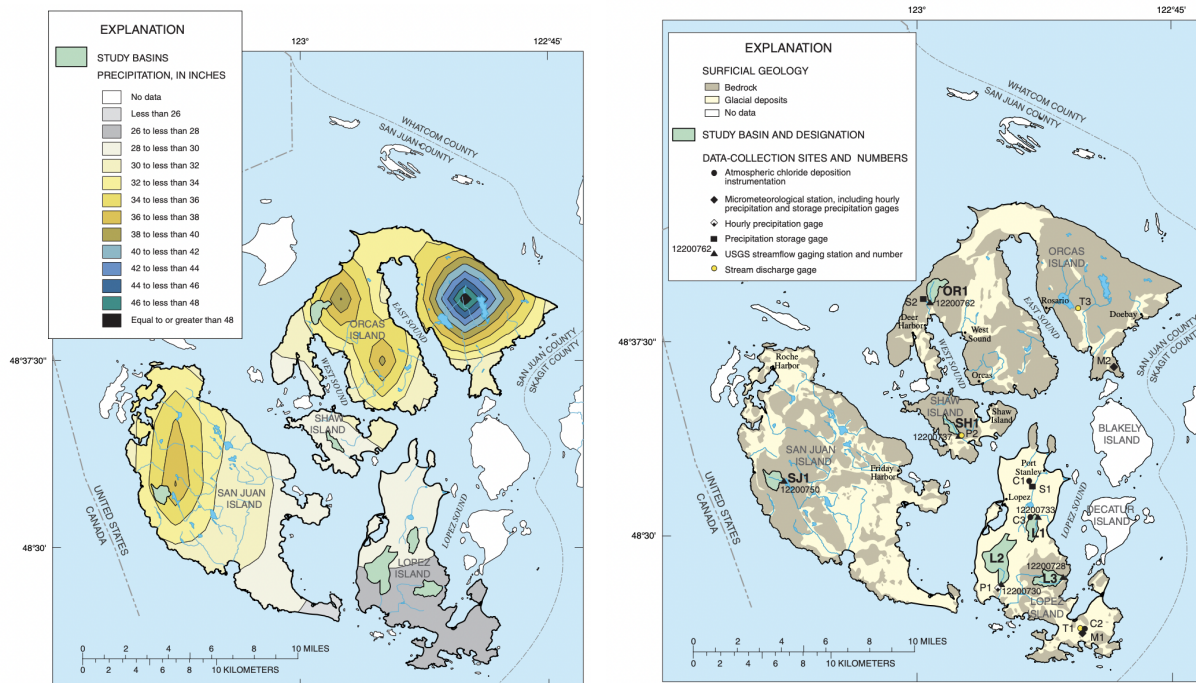


Figure 20 and 21: (left) Mean annual precipitation; (right) surficial geology, including bedrock and glacial deposits for Lopez, San Juan, Orcas, and Shaw islands. [[Estimates of groundwater recharge from precipitation to glacial-deposit and bedrock aquifers, San Juan County](#)]

Forty percent of the county's population receives its drinking water from surface water systems. [[San Juan County Water Resource Management Plan](#)] The rural interior and shoreline areas are served by a combination of private and community wells, numbering over 5,000, or one well for every three people. [[DOE Well Log Database](#)] Aquifer conditions vary from a few high-producing wells (50 gallons per minute) to wells that go dry or experience seawater intrusion during peak summer use. [[San Juan County Water Resource Management Plan](#)]

A key issue in assessing ground-water availability is to determine the amount of recharge to the aquifers from precipitation. The islands are composed of varying thicknesses of glacial deposits overlying sedimentary and volcanic bedrock that contain groundwater—the thicker the glacial deposits, the higher the recharge rate. However, deep percolation and subsequent ground-water recharge from precipitation is probably less than in most of Western Washington because of the rainshadow effect. [[Estimates of groundwater recharge from precipitation to glacial-deposit and bedrock aquifers, San Juan County](#)]

On the four largest islands—Lopez, San Juan, Orcas, and Shaw—population, development, and tourism during dry summer months are all growing rapidly. (See [People on the Land](#) for details on resident and visitor population growth). Because an important source of freshwater for the islands is the glacial-deposit and bedrock aquifers, there is growing concern about the quality and availability of groundwater. [[Aquifer Recharge Study and Water-Budget Components of San](#)

[Juan County; Estimates of groundwater recharge from precipitation to glacial-deposit and bedrock aquifers, San Juan County](#)

The waters of Washington State collectively belong to the public and cannot be owned by any one individual or group. [\[Water Rights | WA DOE\]](#) In 1917, the state passed its first water law, establishing that those who first put water to a good use retain the right to continue using it in the future. In the hundred years since, new laws and court rulings have influenced how water resources are managed for Washington communities, farms, fish, and businesses. [\[History of Water Law | WA DOE\]](#) The state is divided into 62 Water Resource Inventory Areas (WRIs) based on natural watersheds. Due to Washington's varied land uses, hydrology, and precipitation levels, the amount of water available for new water right permits varies dramatically across the state. [\[In Your Watershed | WA DOE\]](#)

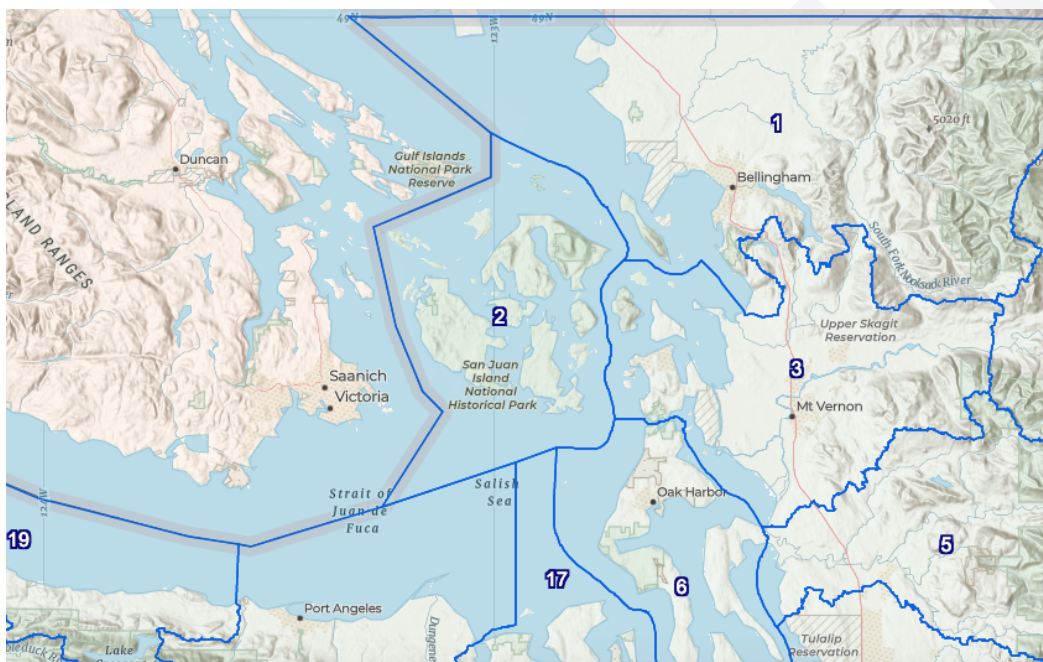


Figure 22: Water Resources Inventory Area (WRIA) 2, San Juan County. [\[WRIA Watershed Finder\]](#)

A water right is a legal authorization to use a predefined quantity of public water for a beneficial purpose and is primarily based on the western water law concept of “first in time, first in right.” Any use of surface water requires a water-right permit or certificate. Withdrawals of groundwater require a water-right permit or certificate unless the use is specifically exempt, which includes withdrawals of less than 5,000 gallons per day, irrigation of ½ acre or less, and unlimited well water for livestock. [\[SJICD Drought Conservation Plan\]](#)

The use of irrigation for agricultural production is varied and sporadic across the islands. Wet springs typically supply soils with water sufficient for production into the first half of the summer. Highest demands, both for agriculture and for the higher summer population, occur during the summer drought, when water for irrigation and livestock is primarily sourced from groundwater

and some constructed ponds. [\[SJICD Drought Conservation Plan\]](#) The future of farming and food security in the county will depend significantly upon the continued access to and wise use of water. Agricultural water usage must be factored into county water planning. [\[Comp Plan - Water Resources Element\]](#)

## Challenges

- **Climate Change:** Current climate modeling predicts a longer period between the end of the late winter recharge and the start of the next recharge season, requiring a finite water quantity to be stretched further during drier summers. Climate change is altering precipitation patterns, resulting in milder winters with heavier precipitation events, wetter springs, and increased runoff. [\[Working Toward Climate Resilience in the San Juan Islands\]](#)

Warmer summers, a longer dry season, and increased evaporation could increase challenges to island water systems in the future. Currently, the dry season is estimated to run from mid-June through the end of September, or roughly 15 weeks. Extending this by even just two weeks would mean that available water would have to be stretched to last 13 percent longer. [\[Working Toward Climate Resilience in the San Juan Islands\]](#)

In 2021, island farmers felt the tangible effects of climate change: the June “heat dome”, severe drought that stretched into the fall, and the November “atmospheric river”.

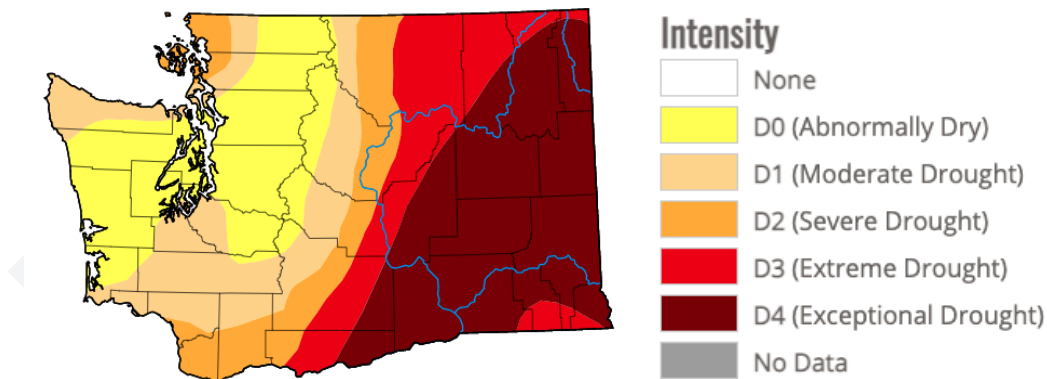


Figure 23: Drought data for September 2021, showing San Juan County in D2, Severe Drought. [\[U.S. Drought Monitor\]](#)

- **Cumbersome process to attain new water rights:** Water law in Washington states currently requires a farmer to have a water right in order to draw water from ponds or other surface water, with the exception of rooftop rainwater collection ponds. [\[SJICD Drought Conservation Plan\]](#) Many farmers have expressed concern that these rights and permits are becoming harder to obtain. [\[Lopez 2025\]](#) As of 2021, the WA Department of Ecology’s wait list for water rights is on the order of years, not months. [\[Noel Philip WA DOE, personal communication, Sep 9, 2021\]](#)



Rather than engaging in the lengthy and laborious process of applying for a water right, many landowners take advantage of Washington State's exempt well provision. Since use of up to 5,000 gallons per day is allowed from these exempt wells, more farmers may begin drawing more water from aquifers. [[Lopez 2025](#)] Groundwater depletion or long-term water-level declines caused by sustained ground-water pumping can have negative effects, including increased pumping costs and the deterioration of water quality. [[Ground-Water Depletion Across the Nation | USGS](#)]

- **Impact of conventional farming practices:** Conventional farming practices often degrade water quality. Compacting soils, altering drainage patterns, and replacing forest with pasture and structures result in more surface runoff, and, if not controlled, the discharge of warm, polluted water. Increasing surface runoff also increases the quantity of pollutants that are swept into the watershed during storms. The removal of riparian vegetation and over grazing by livestock destroy natural filtration systems, which can result in runoff, sediment, and the flow of nutrients unimpeded into the watershed. [[Comp Plan - Water Resources Element](#)] Stream corridors with little to no trees or shrubs, as well as livestock with free access to streams, also result in poor water quality that has a detrimental effect on salmonid species. [[Limiting Factors and recovery strategies eight basin report final 6-27-19](#)]
- **Lack of water use data:** There is very limited data on how much water is being used by agricultural producers in the islands. [[Working Toward Climate Resilience in the San Juan Islands](#)] Washington State's exempt well provision allows a person to drill a well and withdraw up to 5,000 gallons per day of groundwater without applying for a water right or receiving a permit, resulting in lack of data about the islands' actual water consumption. [[Groundwater permit exemption | Washington Department of Ecology](#)] Meters have been added to newer wells, but these meters are not monitored. Landowners can also voluntarily add a meter to a well, but few choose to do so. Uncertainty about the islands' total water consumption can lead to drawing more groundwater than can be recharged. [[Lopez 2025](#)]
- **Overallocation:** Aquifer storage capacity, the amount lost by lateral flow to the sea, the amount returned through septic systems, seasonal variations, and drought conditions all contribute to the difficulties of estimating water availability. A general rule used for planning purposes is that 20-30% of recharge is available for withdrawal. Large portions of the county are at a point where demand for groundwater exceeds local recharge. The water budget, an assessment of available water, reveals that the Department of Ecology has issued certificates and permits for groundwater that equal 57% of the amount of recharge. If exempt wells are factored into the picture, 174% of the amount of recharge has been allocated county-wide. [[San Juan County Water Resource Management Plan](#)]

Island	Average Annual Recharge Amount	Percent of total rainfall
Lopez	2.49 inches	9%
San Juan	1.99 inches	6%
Orcas	1.46 inches	5%
Shaw	1.44 inches	5%

Figure 24: Annual groundwater recharge amount by island. [[Working Toward Climate Resilience in the San Juan Islands](#)]

- Seasonality of Precipitation:** Demand for water rises sharply during annual summer drought conditions, which coincides with the arrival of tourists and summer residents. Irrigation and livestock watering needs are highest during the summer, and it is common for San Juan County water systems to see summer demand more than double the annual monthly average. As the population continues to grow and with climate change projections indicating drier and hotter summers, water will become an increasingly limiting factor in island food production. [[Working Toward Climate Resilience in the San Juan Islands](#)]

- Storage Capacity:** Ramped up local food production requires more water and places a premium on water storage capacity, as aquifer recharge is not reliable during the summer months. In addition to providing irrigation water, ponds increase groundwater recharge and retain surface water for a longer period of time; however, pond construction can be challenging due to regulatory issues [[SJICD Drought Conservation Plan](#)].

Studies indicate that water diversion can impact salmonid spawning habitat. Increased in-channel ponds can reduce summer stream flows and delay fall freshets, as well as prevent salmonid access to habitat. San Juan County no longer allows the construction of in-channel ponds, unless it is for fish or wildlife enhancement, which requires approval from numerous jurisdictions. [[San Juan Islands Salmonid Limiting Factors & Recommended Actions](#)]

- Water access:** In addition to acreage and soil type, the quantity of water available has a profound effect on the size of agricultural operations. [[Bruce Gregory, Personal communication, Dec 9 2020](#)] Producers in the islands cite access to water as a significant challenge, as well as a limiting factor to expanding their operations. [[2021 Agricultural Viability Report](#)] For farm and food businesses in town limits, paying for municipal water also presents a significant obstacle.

The extended summer dry season projected in climate-change scenarios may lead to additional stress on aquifer capacity. When wells run dry, water is bought and trucked in or wells are deepened. It is likely that climate change will mean that more wells will be

unable to meet the demand placed on them during the summer season. [[Working Toward Climate Resilience in the San Juan Islands](#)]

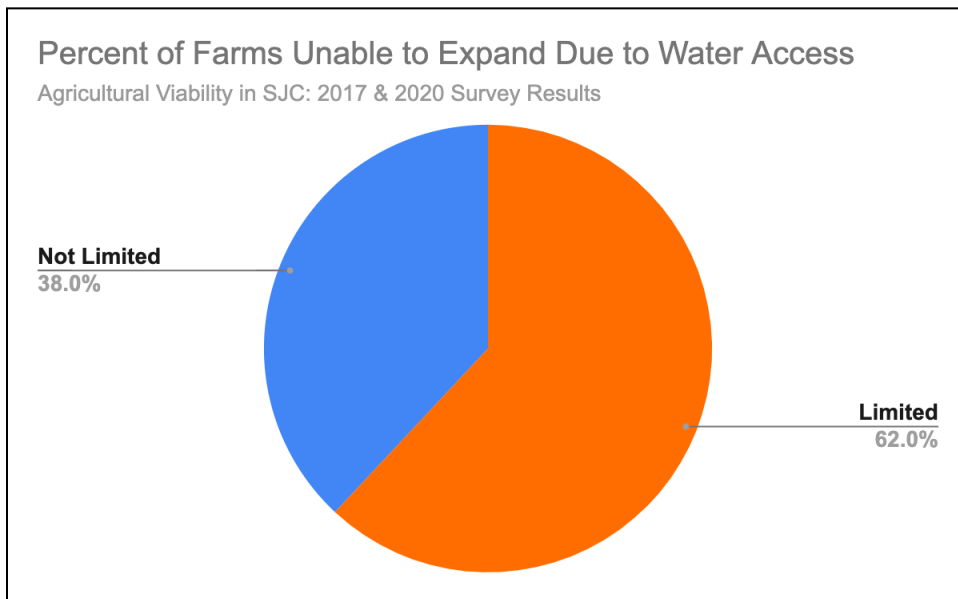


Figure 25: Percent of farms unable to expand due to water access challenges. [[2021 Agricultural Viability Report](#)]

- **Water quality:** Regulations regarding water quality testing can present hurdles for farms and food businesses that utilize processing and commercial kitchens. Operations using a public water supply (city or municipal water supply or water association) automatically meet State Department of Health (DOH) requirements; however, operations using wells or other private water supplies must meet additional DOH testing requirements based on the number of water system connections and people served. [[Facility Requirements | Washington State Department of Agriculture](#)]

Saltwater intrusion presents another significant water quality challenge. There are already multiple nearshore wells and contaminated groundwater sources throughout the islands that are affected by saltwater intrusion. Lopez Island's geology creates the highest potential for seawater intrusion; Lopez is also more dependent on groundwater than San Juan or Orcas islands. This condition is expected to increase as climate change brings rising sea levels. [[Working Toward Climate Resilience in the San Juan Islands](#)]

## Current Collaborations + Key Developments

- **Aquifer Recharge Study:** An ongoing need in the management of the islands' fresh water resources is an accounting of water-budget components and water-use. Toward this end, San Juan County Health & Community Services has received funding for a water budget and recharge study through the Washington State Legislature. Conducted by the USGS with the health department as the local partner, this study will build on work completed in the early 2000s to identify aquifer recharge areas, to estimate rates of recharge to the groundwater system, and to provide an updated water balance for the county (including irrigation water).

Water-use estimates will aid in planning and management of water resources and inform management decisions related to potential changes to the natural systems due to increased use, drought, climate warming, and sea-level rise. Work on this study is expected to commence in 2021 and will be carried out over approximately a year and a half. [[Aquifer Recharge Study and Water-Budget Components of San Juan County](#)]

- **Federal and state agencies** can provide assistance programs, climate data, seasonal forecasts, and information to help communities cope with drought, as well as financial assistance programs for agricultural producers seeking to implement conservation practices. [[Working Toward Climate Resilience in the San Juan Islands](#)]
- **San Juan County's GIS department** has assisted with multiple water resource studies, such as mapping water rights and water system boundaries. The department has also helped to map precipitation runoff to better track stream flow. The County has installed groundwater monitoring networks on Lopez Island and in Eastsound, Orcas Island, the two most sensitive groundwater aquifers in the county. [[Working Toward Climate Resilience in the San Juan Islands](#)]
- **San Juan County Water Resource Management Committee (WRMC)** serves as the designated planning unit for watershed planning under the Watershed Management Act of 1998. The WRMC works with San Juan County to produce reports on local groundwater monitoring, desalination systems, water supply recommendations, and surface water storage. [[Working Toward Climate Resilience in the San Juan Islands](#)] **San Juan County Health and Community Services** is the lead agency for water resource planning in San Juan County and works in partnership with WRMC and its subcommittees. [[SJC Water Resource Management](#)]
- **San Juan Islands Conservation District (SJICD)** has developed a drought conservation plan in collaboration with WRMC and the **Islands Climate Resilience (ICR) Water Resiliency Work Group**. This plan provides an overview of water management within the county; resource conditions and concerns; and conservation, mitigation, and adaptation strategies to address seasonal drought. Funding for the initial draft of the plan was provided by the Washington State Conservation Commission and

the Natural Resources Conservation Service, and planning coincided with the ICR Water Resiliency Work Group process. The SJICD also offers a variety of resources to assist landowners to offset costs to implement Best Management Practices for water quality and conservation, as well as drought mitigation. [[Working Toward Climate Resilience in the San Juan Islands](#)]

- **Voluntary Stewardship Program (VSP):** In 2012, San Juan County opted to participate in VSP, an incentive-based approach for farmers to participate in a watershed-based, collaborative planning process that protects critical areas while promoting agricultural viability through the use of Best Management Practices. VSP is a voluntary alternative to Critical Areas Ordinance (CAO) regulations adopted by local governments in compliance with the State's Growth Management Act. VSP provides farmers with a means to receive financial and technical assistance to protect critical areas while pursuing agricultural activities. [[Voluntary Stewardship Program Work Plan](#)]

Given that all of San Juan County exists in a Critical Aquifer Recharge Area, all agricultural land stewards within the county can voluntarily participate in VSP. The program holds great potential to support local producers to balance conservation and agricultural goals by leveraging funding, creating stewardship plans, and monitoring critical areas indicators. (See [Agriculture](#) for more details on the Agricultural Viability Survey)

- **Watershed rehabilitation:** San Juan County Public Works and Land Bank, San Juan Preservation Trust, and San Juan Islands Conservation District are partnering in watershed restoration efforts at False Bay Preserve, Red Mill Farm, and Zylstra Lake Preserve on San Juan Island. As part of a watershed restoration strategy and with the hope of enlisting adjacent private landowners to do the same, partners are planting native trees and shrubs, controlling reed canary grass, and fencing cattle out of creek corridors. [[San Juan False Bay watershed restoration fact sheet 6-22-21](#)]

False Bay wetlands were ditched and cleared over 100 years ago for agriculture, to maximize area for crops and grazing. These wetlands are crucial to filtering surface water before it enters marine waters, and the restoration of stream corridors will slow the rate of water warming and reduce nutrients in the marine habitat. Work on modeling the impact from climate change on current and future hydrology will also be included in watershed rehabilitation efforts. [[San Juan False Bay watershed restoration fact sheet 6-22-21](#)]

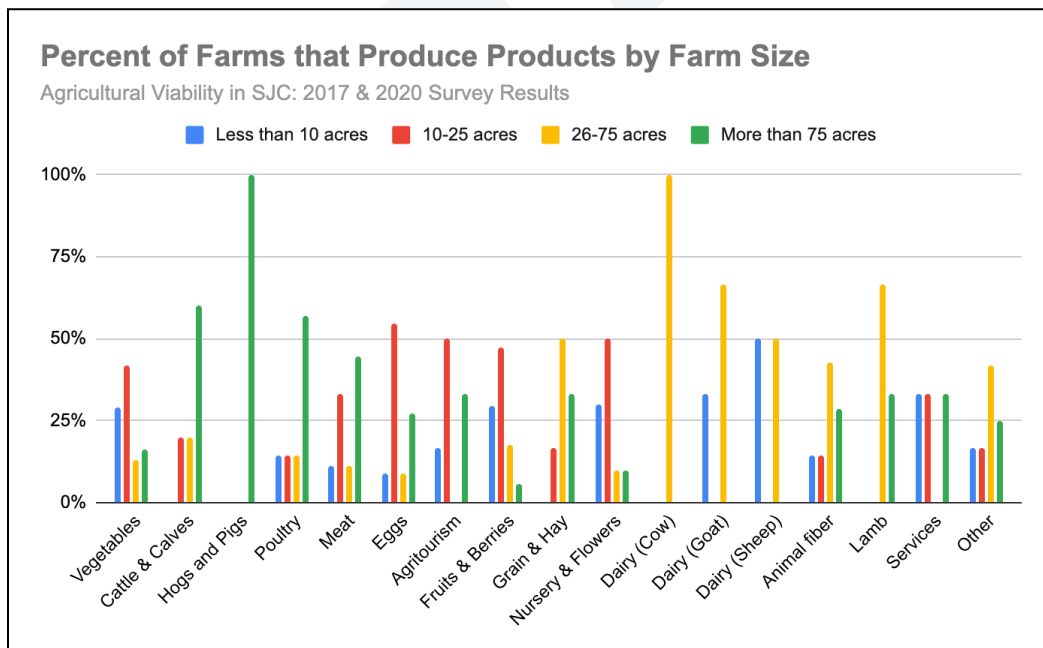
# Agriculture

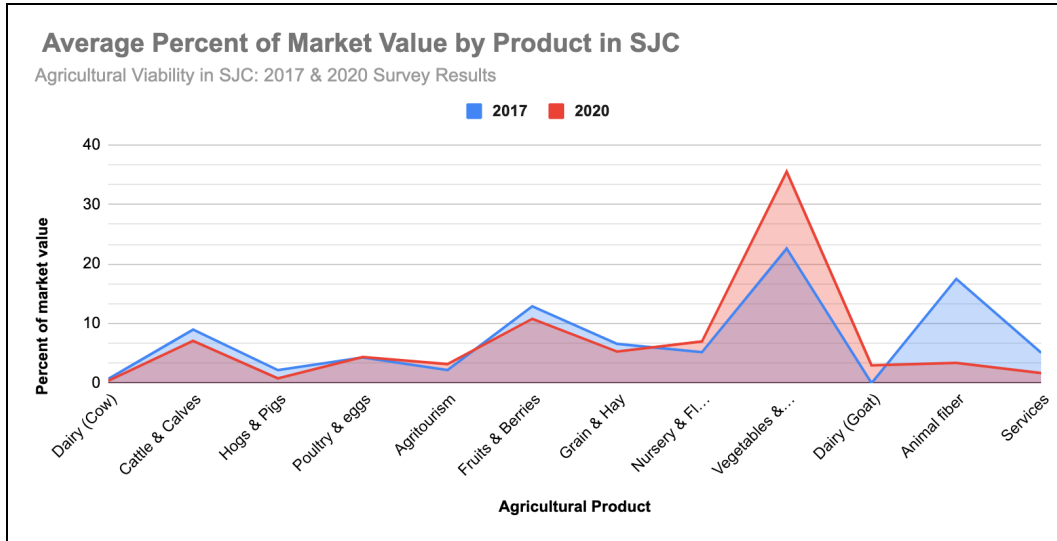
## Sector Overview

(See [Land](#) for more information on farmland preservation)

Farming creates the pastoral landscapes of iconic barns, fields, and orchards that, together with forests, give San Juan County its rural character. The San Juan Islands have a variety of microclimates and soil types that provide opportunities for diverse agricultural activities. Currently, island farms range from livestock operations utilizing hundreds of acres to intensive vegetable production on a quarter acre. The bounty provided by local farms is the basis of a local food system, yet local food production in the islands provides less than 5% of our food supply. [[San Juan Islands Food Impact Economic Analysis](#)]

San Juan County farmers produce mixed vegetables, orchard crops and berries, lavender and other herbs, fiber, grains, hay, grass-fed meats (beef, pork, lamb, goat, poultry), dairy products and eggs, as well as value-added products, including compost, artisan cheese, and distilled spirits. Vegetable production is the most common revenue source for producers and has the highest percent of market value. [[2021 Agricultural Viability Report](#)] Many farms are diversified and rely on multiple income streams. [[SJC Food Hub Feasibility Study](#)] [[ARC Comp Plan rec's: Economic Development](#)]





Figures 26 and 27: San Juan County farm products by (top) farm size and (bottom) average market value [[2021 Agricultural Viability Report](#)]

In the past fifty years, the average size of farms in the county has decreased by a factor of four; from 1992 to 2017, average farm size fell from 132 acres to 58 acres. [[2017 USDA Ag Census](#)] San Juan County’s agriculture sector today is characterized by a larger number of smaller farms, having increased from 155 farms in 1992 to 316 farms in 2017. [[Comp Plan - Economic Analysis of Resource Lands](#); [2017 USDA Ag Census](#)]

In 2017, the average gross value of sales per San Juan County farm was \$13,035, with 40% of farms reporting sales less than \$2,500 and 2% of farms reporting sales of \$100,000 or more. Crop, nursery, and greenhouse sales totaled \$2.4M (forage: 3,619 acres at \$155/acre; vegetables: 75 acres at \$6,280/acre; and orchard 127 acres at \$6,826/acre on average); livestock sales in the county totaled \$1.7M. [[2017 USDA Ag Census](#)]

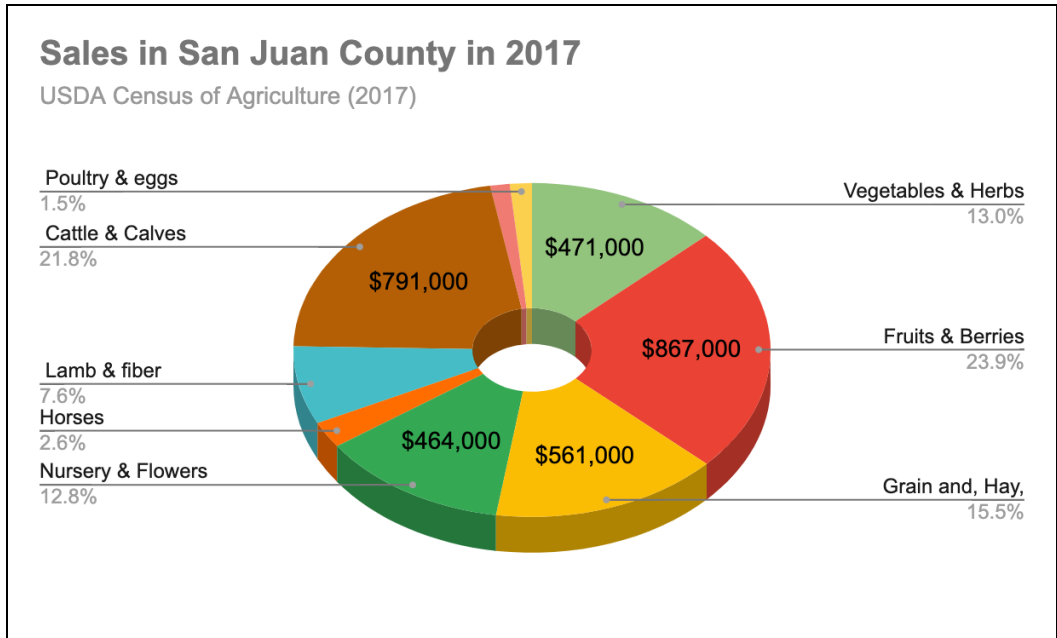


Figure 28: Agricultural sales in San Juan County, 2017. [[2017 USDA Ag Census](#)]

The role and value of agriculture in the islands cannot easily be quantified in dollars, with many farms reporting a mix of commercial and non-commercial production. [[2021 Agricultural Viability Report](#)]. Non-commercial and subsistence-style agricultural activities support food production, quality of life, connection to and stewardship of the land, reskilling, and transfer of knowledge and culture. Further analysis is needed to quantify the non-commercial values of agriculture.

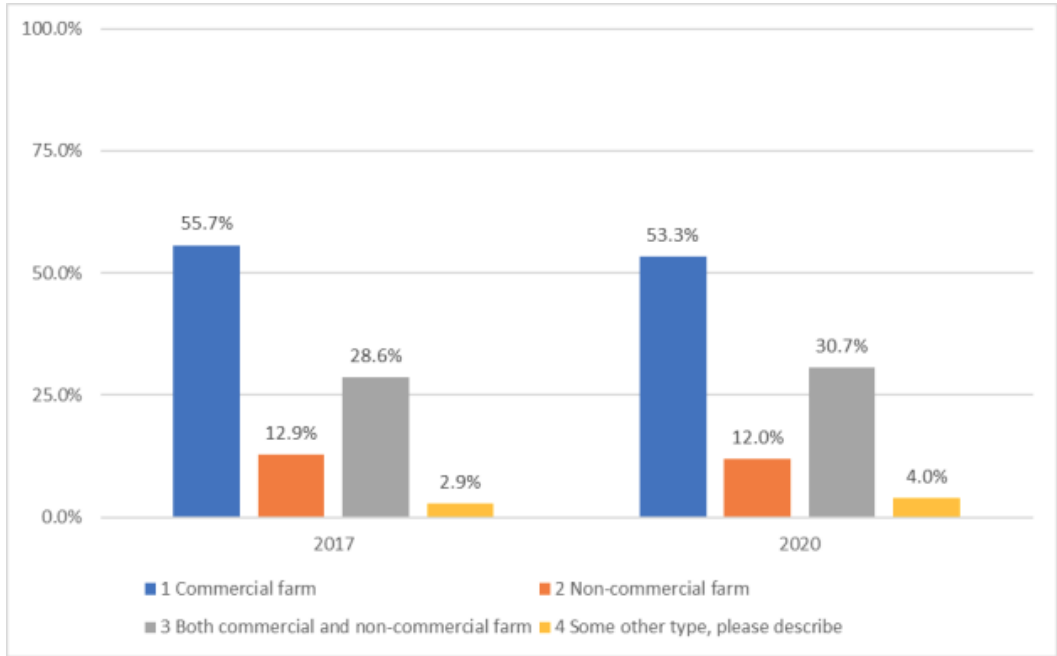


Figure 29: Percent of commercial and non-commercial farms in San Juan County [[2021 Agricultural Viability Report](#)]



Producers in San Juan County both own and lease land. Nine out of ten farms own their land outright. Leased land is used mostly for grazing (62%) and hay production (52%). Two-thirds (60%) of those who lease land have no formal lease agreement and operate with only a verbal contract, general understanding, or on a handshake. Over half of farm lessees, under a formal contract or not, pay no rent. [\[2021 Agricultural Viability Report\]](#)

Farmers in San Juan County engage in a range of agricultural activities and employ a variety of land use practices. In 2012 San Juan County passed an ordinance restricting the cultivation of genetically modified crops, livestock, and other organisms. As of 2021, there are 12 certified-organic farms in the county [\[2017 USDA Ag Census\]](#); in 2018 there were 200 acres of certified-organic grain grown. [\[Current Status of Certified Organic Agriculture in Washington State: 2017\]](#)

While most island farms are not certified-organic, many farmers and ranchers in the county follow organic practices and permaculture design techniques that provide valuable ecosystem services, enrich soils, recharge aquifers, and sequester carbon. Roughly half of farms (49%) have worked with the San Juan Islands Conservation District to create a farm management plan and are interested (50%) in gathering observational data on water quality, soil health, and biodiversity. [\[2017 Agricultural Viability Report\]](#)

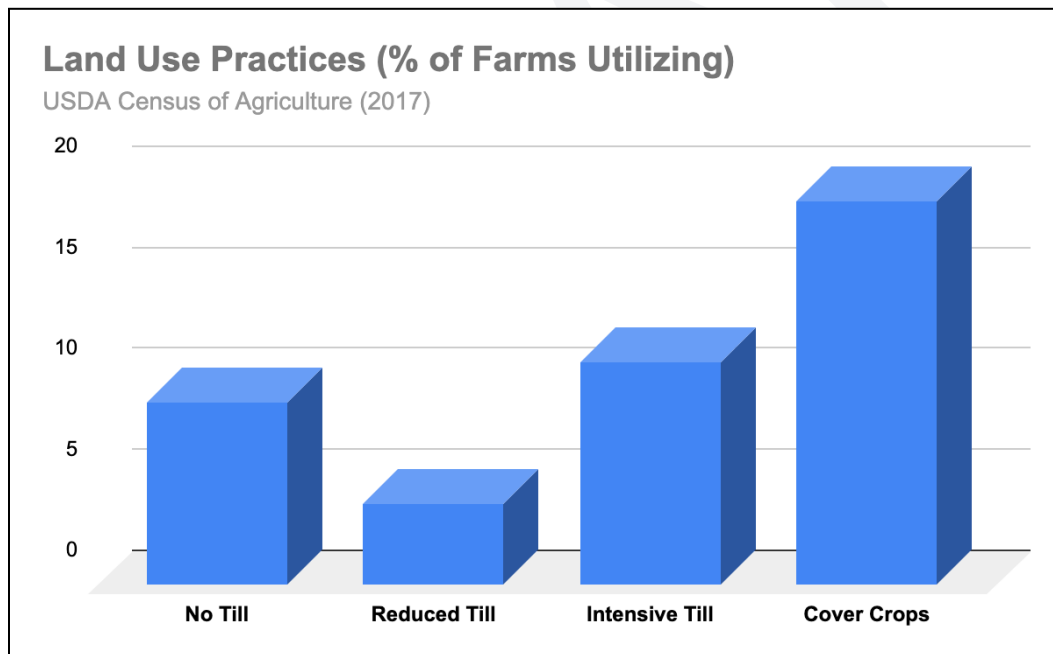
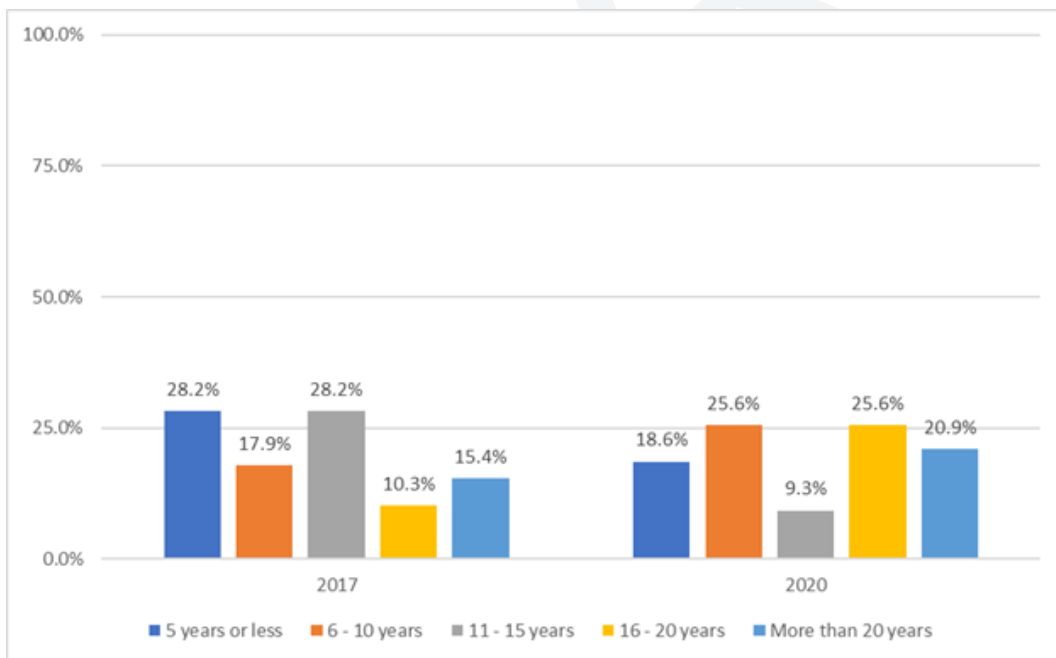
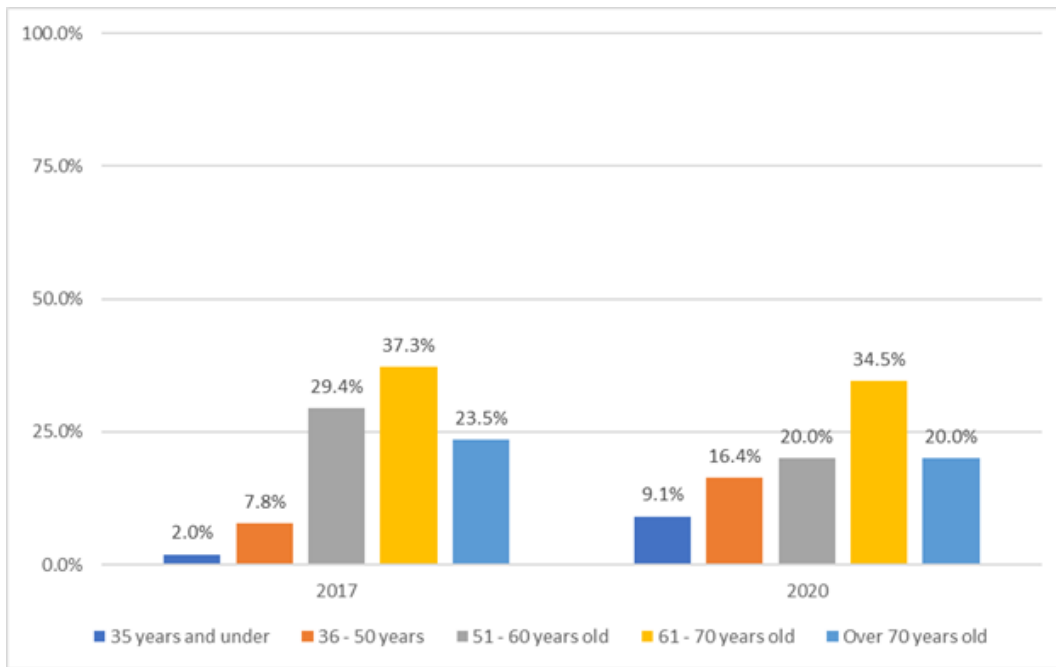


Figure 30: Land use practices on San Juan County farms. [\[2017 USDA Ag Census\]](#)

Ninety-seven percent of farms in San Juan County are family farms, and 61% of farms have two producers who share in the risk and profit of the crop. [\[2017 USDA Ag Census\]](#) Since 2017 there has been an increase in the number of farmers in two age categories: those under 35 and those 36–50 years of age. In 2020, four out of ten ag producers (39%) plan to increase or

expand operations, and 45% plan to be in production for 16 years or longer. [[2021 Agricultural Viability Report](#)]



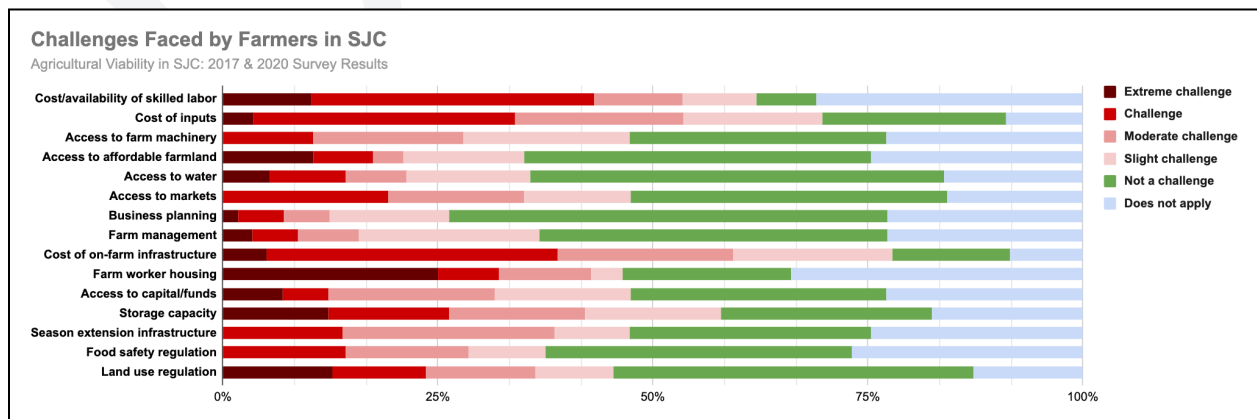
Figures 31 and 32: (top) Age distribution of San Juan County farmers; (bottom) years San Juan County farmers plan to continue farming [[2021 Agricultural Viability Report](#)]

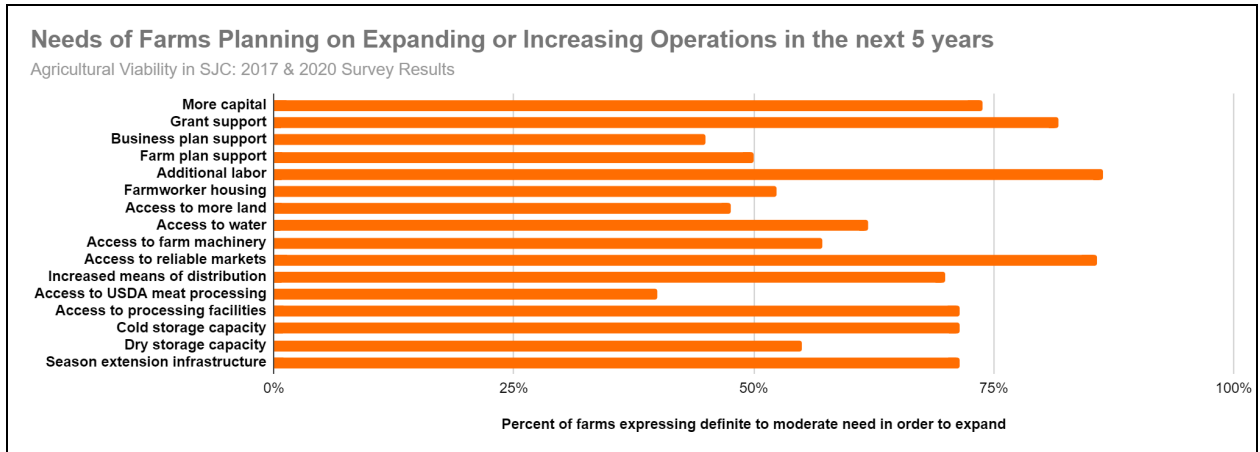
General demographic information for island farmers is outlined in the chart below. Notably, San Juan County has a higher number of women producers (54%) than the state and national averages (37% and 31%, respectively). [\[2017 USDA Ag Census\]](#)

Number of Producers	576
Race & Ethnicity	American Indian/Alaska Native: 2 Asian: 2 Black/African American: 0 Native Hawaiian/Pacific Islander: 0 White: 565 More than one race: 7 Hispanic/Latinx: 8
Veterans	51
Sex	Female: 54% Male: 46%
Age	65 and older: 38%
Occupation	Farming as primary occupation: 36% Worked 200 days or more off farm: 30%
Production experience	New & beginning farmers (>10 years): 32% 10 years or more on current farm: 65% 10 years or less experience operating any farm: 31%

Figure 33: San Juan County Producers: Demographic Information [\[2017 USDA Ag Census\]](#)

## Challenges





Figures 34 and 35: Challenges faced by farmers in San Juan County; needs of farms planning to expand or increase operations in the next five years. [2021 Agricultural Viability Report]

- **Difficulty of getting product to market; Infrastructure** (see [Processing & Distribution](#))
- **High cost and limited availability of labor** (see [Economy & Labor](#))
- **High/rising cost of land; Farmland in transition** (see [Land](#))
- **Limited water resources** (see [Water](#))

- **Affordable Workforce Housing:** Most farms hire seasonal and/or year-round employees. Farms that are on Agricultural Resource Land and enrolled in the Current Use Farm and Agriculture (CUFA) taxation program are able to build additional housing for farm employees with a conditional use permit. Although this pathway to on-farm housing is allowed in the county zoning code, it is not utilized by many farms due to the capital investment needed. If a farm does have farmworker housing, it can be an important part of the compensation package a farm can offer; however, farmworker housing does have its challenges when employee housing is tied to continued employment on a particular farm. (See [Economy & Labor](#) for more details on affordable housing challenges.)

- **Climate Change:** Changing climate trends may bring both positive and negative impacts to agriculture in the Puget Sound region. Positive impacts may include longer growing seasons due to higher temperatures, allowing farmers to diversify into crops requiring more heat units for optimum yields. [[SJICD Drought Conservation Plan](#)]

Negative impacts may include water stress, declines in production if summer precipitation decreases and irrigation water is unavailable, decreased availability of irrigation water, and increased flooding on low-lying farmland. Higher temperatures will mean heat stress for livestock and crops, as evidenced by the 2021 severe drought conditions. Changing climate patterns may also trigger an increase in pests and plant diseases. The impact of changing climate to agriculture will vary by location, crop, and type of livestock. [[SJICD Drought Conservation Plan](#)]

In June of 2021, the Pacific Northwest experienced a “heat dome” of more than three consecutive days, with more than three consecutive days of highs in the triple digits and humidity ranging from 13 to 16% depending on the time of day. The record-setting heat and low humidity resulted in significant crop and livestock losses, and threatened the health and safety of agricultural workers. This event points to the need for growers to plan for climate resiliency and prepare to adapt to a hotter future. [[What Can We Learn from the ‘Pacific Northwest Heat Dome’ of 2021? | WSU Center for Sustaining Agriculture and Natural Resources](#)]

(See [Water](#) for details on atmospheric rivers as they affect agriculture, as severe weather events.)

- **Cost of On-Farm Infrastructure:** Farming is often infrastructure intensive. The success of an operation can depend on its built systems, from fences and irrigation to barns, hoop houses, and housing. In the 2020 Ag Viability survey, farmers rated the cost of on-farm infrastructure as their number one challenge. Access to capital, storage capacity, season extension infrastructure, and farmworker housing were also rated among their top ten challenges. [[2021 Agricultural Viability Report](#)]
- **Geographic isolation:** Whether by sea or by air, transportation adds significantly to the cost of agricultural production, increasing the cost of fuel, fencing, soil amendments, irrigation components, equipment, and other inputs. [[SJC Food Hub Feasibility Study](#)] In addition, island farmers face a lack of local farm services and suppliers.
- **Lack of certifications:** Many agricultural producers in San Juan County choose to forgo certification programs for their farms, feeling that they and their production practices are already generally known within the community. Because of the cost of food production in the islands, San Juan County growers have to charge the same price for food that is not certified organic; the lack of certifications, however, inhibits island producers from competing in the regional market. In addition, local consumers place importance on organic certification in purchasing from San Juan County farms. Twenty-six percent of 582 respondents to the 2020 Local Food Consumer Survey reported that certification mattered “a moderate amount,” 21% reported it mattered “a lot,” and 19% reported that certification mattered “a great deal.” [[2020 SJC Local Food Consumer Survey Report](#)]
- **Pest challenges:** Pests and diseases go hand in hand with farming. In addition to abiotic needs (soil nutrient, pH, and water), farmers and home-scale producers in the county face myriad pests and diseases. Master Gardener clinic coordinators report frequent incidence of fungal diseases for both fruits and vegetables, as well as insect pests that damage tree fruits, small fruits, and vegetables. [[SJC Master Gardener clinic, Personal communication, December 12, 2020](#)] Two new pests have been challenging county producers: spotted wing drosophila, which affect soft fruits and berries, and non-native wireworms (the larval form of the click beetle), which damage both root crops and young vegetables. (See [WSU Hortsense](#) for fact sheets on common plant problems)

- **Soils:** The San Juan Islands patchwork geology creates micro soil pockets, rather than one consistent band of deep alluvial topsoil. The islands' varied soils support many different types of operations and small diversified farms. While capacity and soil quality can be altered with soil management practices, the cost of inputs to improve soil health is an ongoing challenge for producers. As per the 2020 Ag Viability Survey, producers rated the cost of inputs as their number two challenge. [[2021 Agricultural Viability Report](#)]

## Current Collaborations + Key Developments

- **Farm Worker Housing** (see [Economy & Labor](#))
- **Agricultural organizations supporting local producers:** There is a constellation of organizations that collaborate to support agriculture in San Juan County, each with its own expertise and sphere of influence. The Agricultural Resources Committee (ARC) annually convenes the Agricultural Organizations Retreat in order to identify emerging trends and support collaboration. The San Juan County-based organizations below are, in turn, supported by national, statewide, and regional organizations such as the Northwest Agriculture Business Center (NABC).

[San Juan County Agricultural Resources Committee](#) (ARC) is a citizen advisory committee composed of farmers and agricultural organizations with a mission to protect and restore agricultural resources in San Juan County. Created in 2005, the committee is mandated to listen to farmers and amplify their voices; to advise the SJC Council on agricultural issues and policy; to advocate for the preservation of agricultural land and the importance of island farms; and to advance programs, initiatives, and policies that strengthen and expand the agricultural economy. The ARC is filling a key niche in the county's food system by focusing on ag-related policy.

The increasing urgency of the climate crisis led the ARC to urge the SJC Council to create a [Climate and Sustainability Advisory Committee](#) with representation from existing advisory committees and knowledgeable members of the public in order to integrate planning, goals and policies. The ARC will work with the Committee to address the impacts of climate change on agriculture, as well as the role that agriculture can play in climate mitigation strategies.

[San Juan County Land Bank](#) protects farmland by way of conservation easements and land acquisition to meet its mandate to preserve in perpetuity areas that have environmental, agricultural, aesthetic, cultural, scientific, historic, scenic, or low-intensity recreational value, and to protect existing and future sources of potable water. The Land Bank provides affordable farmland lease opportunities to farmers and strives to foster agricultural uses and practices that benefit island communities, while protecting both

agricultural and natural resources.

[San Juan Islands Agricultural Guild](#) (Ag Guild) is a community-based organization dedicated to fostering a vibrant, resilient, and sustainable local food system. The Ag Guild manages a variety of programs, including the San Juan Islands Food Hub, Brickworks event center, the Island Grown in the San Juans program, and the Farmers-to-Farmland program (see [Land](#) for more details). The **Food, Agriculture, Relationships, Markets Fund (FARM Fund)** was created by the Orcas Food Co-op in 2015 to support innovative projects that strengthen and develop local, sustainable agriculture in San Juan County and increase availability of healthy, local food. Now managed by the Ag Guild, the FARM Fund continues to work with community partners to support regenerative agriculture, identify gaps in San Juan County's food system, and provide critical capital to farmers, distributors, and producers in order to meet those needs. [[FARM Fund](#)]

[San Juan Islands Conservation District](#) (SJICD) was established in 1947 and supports farms and farmers, with a focus on natural resource protection and enhancement. Programs and services include free farm planning by certified USDA Natural Resources Conservation Service (NRCS) planners; cost-share funding to help farmers finance and implement best management practices; the Voluntary Stewardship Program that promotes voluntary protection and enhancement of critical areas on agricultural lands in SJC; equipment-sharing programs that provide low-cost use of equipment, such as a no-till seed drill; and general support for ag-related events, data collection, and learning opportunities throughout the county.

[Washington State University San Juan County Extension Ag Program](#) supports the farm community and food system by providing education on issues and topics important to agriculture in San Juan County, including on-farm research programs, listening sessions, surveys, program evaluations, and direct contacts. In partnership with the San Juan Islands Agricultural Guild, the SJC Agricultural Resources Committee, and additional farmers and SJC organizations, WSU Extension also delivers the annual [San Juan Islands Ag Summit](#), which brings together local farmers, producers, and food system advocates for inspiration, education, and community building.

(See [Land](#) for details on [Lopez Island Farm Trust \(LIFT\)](#))

- **Agricultural Viability Survey:** The Social and Economic Sciences Research Center (SESRC) worked collaboratively with the San Juan Islands Conservation District to conduct an Agricultural Viability Survey in San Juan County in 2017 and again in 2020. The purpose of this project is to help better understand how to increase profitability for farmers and support agricultural viability in the islands.

The questionnaire includes questions on a variety of topics, including market channels, size of farm (acres, sales, net profit), challenges to farming in San Juan County, products

grown or produced, and demographics. In 2017, 71 producers responded to the survey (29.1% response rate); in 2020, 86 producers responded (38.1% response rate). Agricultural organizations in the county are committed to conducting the survey every three years. Comparisons from the resulting data sets will continue to elucidate trends and guide decision making by local leaders and agricultural organizations. [[2021 Agricultural Viability Report](#)]

(There have been many data collection efforts related to the local food system in recent years. See [Land](#) for details on **Conservation Agriculture Resource Team (CART)** Coffelt Farm report; [Processing & Distribution](#) for **Lopez Food Center feasibility study**; [Economy & Labor](#) for **San Juan Makers Guild**; [Consumption](#) for **San Juan County Local Food Consumer Survey**)

- **Farmer education:** Several of the agricultural organizations above provide farmer education. WSU Extension offers [Cultivating Success](#) courses to help local growers plan for a small farm future.

In 2021, over 10 interns on four farms in San Juan County were enrolled in the WA [Small Farm Internship Program](#). Instead of a wage, farm interns receive room and board, education, experience about specific farming activities and are entitled to industrial insurance protections while participating in their internship. Many farms also pay a stipend. Lopez Community Land Trust has a [Farm Intern Program](#); the Ag Guild manages the [Farmers-to-Farmland](#) program (see [Land](#) for more details). The farming community also has a **tradition of mentorship and mutual aid** that provides support and learning through an informal network of relationships.

- **Local Grain Economy:** In 2009, the Lopez Community Land Trust asked the question “What would it take to renew grain farming on Lopez?” Since then multiple farmers have been working on sourcing and growing seed varieties suitable to our climate, finding scale appropriate equipment, and increasing soil fertility. [[Renewing grain farming on Lopez](#)] When Island Grist began milling local grain in their stone mill and Barn Owl Bakery began baking bread, an actual local grain economy was formed. Barn Owl continues to lead the way with variety trials, growing grain, and baking, while new farms and bakers such as Northstar Farm are diversifying and strengthening the local grain economy. [[For Two Lopez Bakers, the Island Is Part of the Recipe](#)]
- **Policy:** Support for regenerative agriculture is growing at the state level. Signed by Gov. Jay Inslee in April 2020, the **Sustainable Field & Farms Bill** is a new grant program that will fund carbon sequestration practices in the agricultural community, aimed at combating climate change. [[Washington Legislature Passes Sustainable Farms & Fields Bill](#)]

San Juan County’s State Rep. Debra Lekanoff serves on the **Rural Development, Agriculture, and Natural Resources Committee** (RDANR) in the Washington State



Legislature, and has committed to an Ag Green New Deal to bolster diversity, equity, and environmental justice. [[Debra Lekanoff Fantastic Friday email update](#)]

[See [Land](#) for details on **San Juan County Comprehensive Plan Update**; see [Water](#) for details on **Voluntary Stewardship Program (VSP)**]

- **Recognition of importance of ag in local culture and stewardship:** In the 2018 San Juan Islands Visitor Study, rural scenery and local foods ranked first and seventh, respectively, among fifteen reasons for visiting the islands. [[San Juan Islands Visitor Study](#)] Two local Transition Towns groups have also recognized the role of agriculture in land stewardship, advocating for a local self-sustaining food economy, thoughtful land stewardship, and protecting and conserving our aquifers and public waters. [[Transition San Juan Island Food Guild](#); [Transition Lopez Food/Water Security Guild](#)]

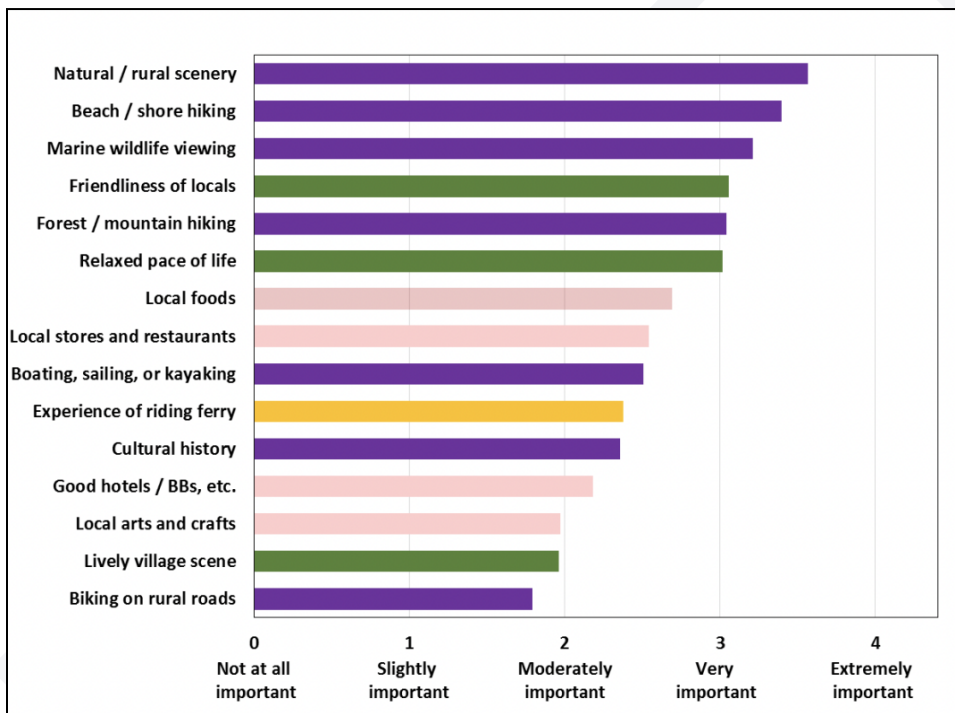


Figure 36: Average importance ratings of 15 possible reasons for visiting the San Juan Islands [[San Juan Islands Visitor Study](#)]

- **Season Extension:** The High Tunnel System, commonly called a “hoop house,” is increasingly utilized by farmers in the county to increase production. High tunnels protect plants from severe weather and allow farmers to extend their growing seasons. There is cost share financial assistance through the USDA’s Environmental Quality Incentives Program (EQIP). [[Environmental Quality Incentives Program | NRCS](#)]

# Fishing & Aquaculture

## Sector Overview

The San Juan Islands sit at the confluence of great tidal currents that move water from the Pacific Ocean, the Strait of Georgia, and the Puget Sound. While these rich waters have supported people for millennia, the current local food system is mostly decoupled from the marine resources that were once its mainstay. The local fishing fleet has dwindled. With a few exceptions, seafood, including salmon, crab, urchin, sea cucumber, scallops, and prawns caught commercially in the islands are sold outside the county.

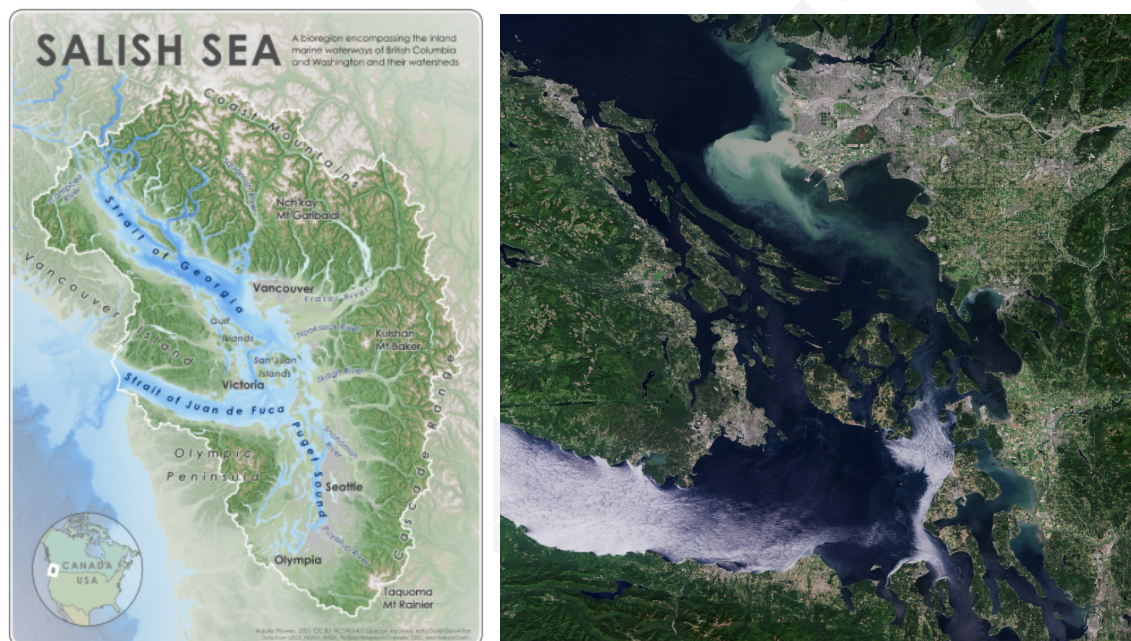


Figure 37 and 38: (left) map, and (right) aerial photograph of the Salish Sea [[Salish Sea bioregion map](#); [The State of the Salish Sea](#)]

## History

Unlike the other Snapshots in this Assessment that focus primarily on the modern context, more background information is needed to understand the current conditions in fishing and aquaculture in the islands.

For millennia, Indigenous people of the west coast used a range of techniques and practices to maintain or increase the production of culturally important foods. Clam gardens are ancient intertidal features made by constructing rock walls at the low tide line along the edges of bays and inlets, transforming naturally sloping shorelines level beach terraces and expanding the zone of the beach where clams thrive. [[The Clam Garden Network](#)]

Reef-net fishing is unique to the Salish Sea, where it was devised at least 1,800 years ago as a method to intercept vast midsummer runs of salmon as they passed through the San Juans and southern Gulf Islands on their way to the Fraser River. A complex technology and social organization mechanism, reef-net fishing provided dependable winter food supplies for the harvesters, as well as a substantial surplus for trade. [[Coast Salish Reef-net Fishery. Part 1 | HistoryLink](#)]

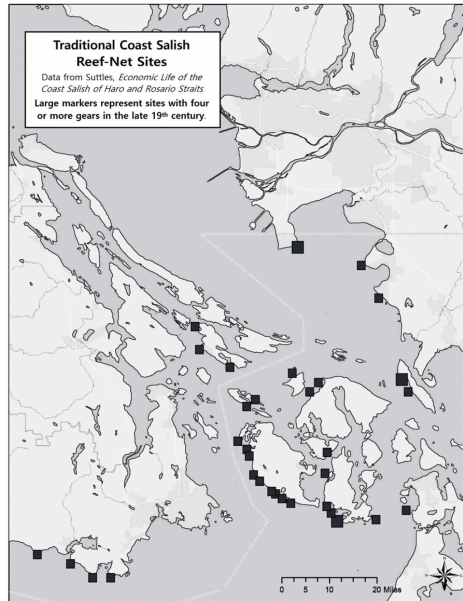


Figure 39 and 40: Traditional Coast Salish Reef-Net Sites [[Coast Salish Reef-net Fishery. Part 1 | HistoryLink](#)]; Chevalier reef-net gears, Stuart Island, San Juan County, ca. 1940 Courtesy UW Special Collections (NA1937) [[Coast Salish Reef-net Fishery. Part 2 | HistoryLink](#)]

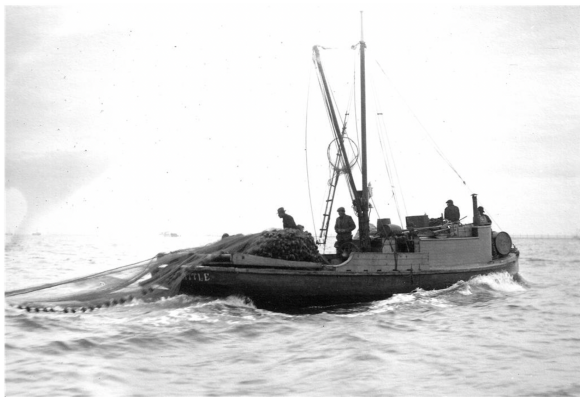
Coast Salish reef-net sites remained productive as non-native settlement in the region grew through the second half of the nineteenth century. By selling their catch to the salmon canneries springing up around the Salish Sea, Coast Salish reef-netters found a source of cash income. The rise of commercial fishing ultimately led to a significant decline in reef-netting, as reef-netters faced fierce and sometimes violent competition from fish-trap operators and fishing boats, and overfishing led to declines in salmon numbers. [[Coast Salish Reef-net Fishery. Part 2 | HistoryLink](#)]

By the late nineteenth century, four commercial methods were used in the San Juan Islands: hook and line (trolling), encirclement (purse and beach seining), entanglement (gillnetting), and entrapment (reef-netting). Outside investment in Washington's commercial fishing industry resulted in the adaptation and expansion of local Indigenous fishing methods on a massive scale. The reef-net method of entrapment bred the fish trap, a stationary system designed to trap as many as 70,000 fish in one "lift," which were loaded onto scows and hauled to canneries. By 1912, the newly organized Friday Harbor Packing Company ranked fifth of 19 canneries in the greater Puget Sound/Northern Straits region. [[Salmon Bank \(San Juan Island\) | HistoryLink](#)]



*Figures 41 and 42: Workers on fish trap hauling in salmon, San Juan Island, ca. 1900 Courtesy San Juan Historical Society and Museum; Cannery processing floor, Friday Harbor Packing Company, San Juan Island, ca. 1910 Courtesy San Juan Historical Society and Museum* [[Salmon Bank \(San Juan Island\) | HistoryLink](#)]

The cost of fish traps was severe for native fishermen, who were largely displaced from traditional reef-net sites. [[Salmon Bank \(San Juan Island\) | HistoryLink](#)] By the 1930s, a growing number of purse seiners fished the same bays as reef-netters in the islands. [[Coast Salish Reef-net Fishery, Part 2 | HistoryLink](#)] Purse seiners allied with sport fishers to campaign for a statewide ban on fish traps; in 1934, Washington voters approved Initiative 77 with 65 percent in favor, and overnight the fish traps were gone and jobs were reduced dramatically. Many cannery workers returned to family farms, raising crops for the pea canneries, and those who could afford to bought purse seiners. [[Salmon Bank \(San Juan Island\) | HistoryLink](#)]



*Figure 43: Purse seiner playing out net, Salmon Bank off San Juan Island, ca. 1911 Courtesy San Juan Historical Society and Museum* [[Salmon Bank \(San Juan Island\) | HistoryLink](#)]

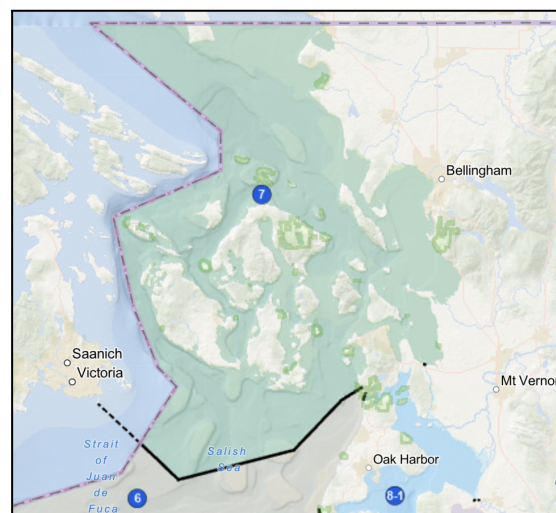
After fish traps were outlawed, reef-netting experienced a revival in the islands in the mid-twentieth century, with many non-native fishermen adopting the Coast Salish technology. Salmon runs continued to dwindle, however, and the number of reef-net gears operating in San Juan County declined from more than 100 in the 1960s, to around 20 in the 1980s, to just 3 by

2021. [[Coast Salish Reef-net Fishery, Part 2 | HistoryLink](#)] The purse seine and gillnet fleets have declined as well due to lack of fish and the short time that they are allowed to fish each year. In 2019, there were a total of seven days of commercial fishing for Sockeye and Pink salmon; in 2020, the Chum salmon fishery was only open for twelve days in September and October. [[San Juan County Marine Resources Committee](#)]

## Co-management

In 1974, the Northwest Indian Fisheries Commission (NWIFC) was created by the twenty treaty tribes in western Washington that were parties to U.S. v. Washington (Boldt decision; see [People on the Land](#) for more details). The litigation affirmed the tribes' treaty-reserved salmon harvest rights, and established the tribes as natural resources co-managers with the state. The NWIFC is an intertribal organization that assists member tribes with their natural resources co-management responsibilities, provides broad policy coordination, acts as a forum for tribes to address issues of shared concern, and enables the tribes to speak with a unified voice. [[Northwest Indian Fisheries Commission 2022 Annual Report](#)]

Today Washington state fisheries are co-managed by treaty tribes, the Washington Department of Fish and Wildlife (WDFW), federal fishery managers, and international forums. These co-managers work closely to manage commercial and recreational fishing and shellfishing industries in the state (including salmon and salmon fisheries, marine fish, crab, prawns, shellfish and seaweed), and to develop and implement conservation plans for all marine fish stocks in Puget Sound and along the Pacific Coast. [[Northwest Indian Fisheries Commission 2022 Annual Report](#); [Commercial fishing | Washington Department of Fish & Wildlife](#)]



Figures 44 and 45: Marine Area 7 [[Northwest Indian Fisheries Commission 2022 Annual Report](#); [Washington Department of Fish & Wildlife](#)]

To protect and preserve a variety of marine fish, shellfish, and habitats, WDFW has established marine reserves at several sites in Puget Sound, including in the San Juan Islands (Marine Area 7). These are generally known as Marine Protected Areas (MPAs), and have either broad or focused restrictions on the harvest of marine resources within specified boundaries [[WDFW Marine Protected Areas](#)]

Washington State Dept of Fish and Wildlife (WDFW) licenses commercial catching, harvesting, and sales of fresh raw fish and shellfish. State regulations for fish and shellfish licenses are related to the specific products, sales and marketing activities. [[Factsheet on Selling Fish and Shellfish](#)] For example, commercial fishers that sell their catch directly are required to have a Limited Fish Seller Endorsement from WDFW, which exempts them from permitting requirements of the State Food Service Code. That also means that these fishers don't need to get a permit from San Juan County Health and Community Services if selling only fresh, whole fish, or fresh fish that has been cleaned and dressed. [[San Juan County Health and Community Services staff, personal communication, March 29, 2022](#)]

## **Aquaculture**

Aquaculture comprises another facet of the local food system, and involves raising crops and livestock in water, including fish, shellfish, and kelp. [[Shoreline Master Program - Aquaculture](#)] Shallow bays fed by the cold waters of San Juan County offer habitat for shellfish grown on aquaculture farms, including Shoal Bay on Lopez, Buck Bay on Orcas, and Westcott Bay on San Juan Island. [[Growing Our Future](#)] Though facing significant threats related to climate change including warmer ocean temperatures and acidification, aquaculture shows potential as a next incarnation of maritime-based industries.

One example of this potential is seaweed farming. Kelp and other seaweeds can be grown for food, animal feed, organic fertilizer, biofuels and other sustainable products. In Washington State, kelp aquaculture grew out of ocean acidification research: because macroalgae absorbs nutrients and carbon dioxide as it grows, co-cultivation of macroalgae alongside farmed marine species can help recycle waste, and may buffer vulnerable organisms from the corrosive effects of ocean acidification. [[Kelp Aquaculture – Washington Sea Grant](#)]

The state is supporting efforts to develop a market for locally grown native kelp by piloting ways to prepare and preserve fresh harvest, helping ensure that products meet food safety standards, and connecting growers and local culinary individuals. [[Inventory of State Laws Affecting Commercial Seaweed Aquaculture](#)] Supporting organizations also include the Puget Sound Restoration Group, the Nature Conservancy and the National Oceanic and Atmospheric Administration (NOAA). [[Seaweed farming comes to the shores of Vashon](#)]

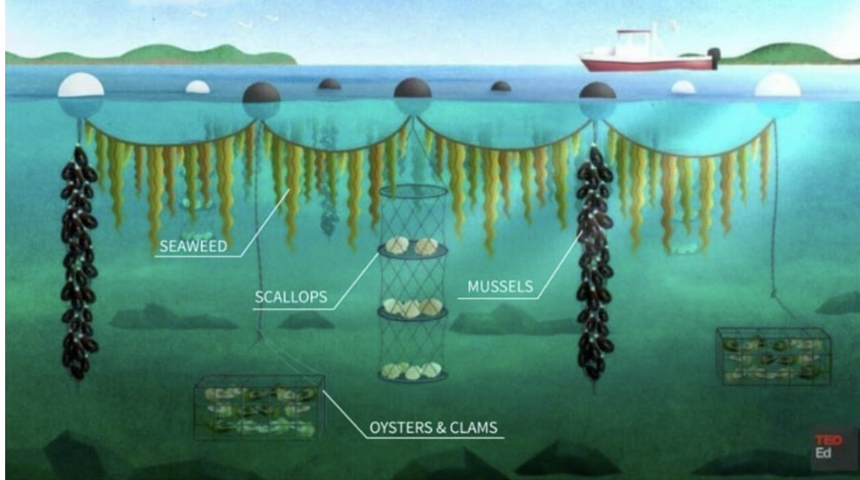


Figure 46: Illustration of a multi trophic aquaculture system, which optimizes synergies associated with cultivating shellfish and seaweed in the same three dimensional water space. [\[GreenWave; Kelp farming and the potential for new maritime markets in Puget Sound | College of the Environment\]](#)

### Recreational fishing

In contrast to local agricultural sales, the majority of the commercial seafood caught or raised in island waters leaves the county, making recreational fishing the primary way that local seafood is consumed in San Juan County. As is the case for commercial fisheries, recreation must be balanced with conservation and future fishing opportunities by state and tribal co-managers. Following high angler success during a 2021 mid-summer fishery, in which 185 percent of the total summer quota was taken in one week, fishery managers decided not to reopen the San Juan Islands to salmon fishing for the remainder of the season. [\[Conserving salmon for the future: San Juan Islands not reopening to salmon fishing this fall | The Washington Department of Fish and Wildlife\]](#)

	Chinook	Coho	Chum	Pink	Sockeye	Lingcod	Halibut
# fish	741	1612	0	2	0	598	102

Figure 47: 2020 recreational fishing totals from San Juan County [\[2020 Marine Area 7 creel report | Washington Department of Fish and Wildlife\]](#)

### Challenges

- **Abrogation of treaty rights:** In spite of the Boldt decision, tension among sports and commercial fishers, the State of Washington, tribes, and tribal fishers has persisted. [\[NWIC Tribal Community Food Sovereignty\]](#) Salmon habitat is being damaged and

destroyed faster than it can be restored, raising grave concerns that declining fish populations are rendering treaty rights meaningless. [[Understanding Tribal Treaty Rights in Western Washington](#)] Shoreline armoring, private ownership and restricted beach access further complicate and limit traditional foodways and treaty rights for Coast Salish people.

For decades, state and tribal salmon co-managers have reduced harvest in response to declining salmon runs: since 1985, tribes have cut harvest by 80 to 90 percent; after harvesting only 21 of 30 ceremonial chinook allocated in 2020, the Stillaguamish Tribe again reduced its ceremonial harvest to take just one fish in 2021. [[Northwest Indian Fisheries Commission 2022 Annual Report](#)]

Fifty percent of the statewide catch is split between all treaty tribes (in which some tribes in the state are not included), and there are simply not enough fish to meet the need. Coordinating and aligning federal agency actions is necessary if salmon are going to be recovered successfully and for the federal government to uphold its trust obligation to tribes. [[Understanding Tribal Treaty Rights in Western Washington](#)]

- **Climate Change:** Each passing year presents more and more challenges for tribal and state fisheries co-managers, who must adapt management strategies to ocean warming, ocean acidification, hypoxia, harmful algal blooms, and marine heat waves. Salmon populations continue to decline with the ongoing loss of freshwater salmon habitat combined with increased temperatures in oceans and rivers from climate change. In western Washington, climate change and urban development negatively affect both water quality and quantity, and the health of aquatic ecosystems is predicted to worsen with the state's continued explosive growth. [[Northwest Indian Fisheries Commission 2022 Annual Report](#)]
- **Lack of infrastructure for local fisheries:** As fisheries in San Juan County has declined, the infrastructure necessary to support the industry has largely disappeared. This marks a cultural shift, where a food source that has been a staple in the islands for thousands of years is no longer as visible in the community. Given these infrastructure constraints, it is easier for island retailers to buy from larger suppliers.
- **Salmon declines:** Despite considerable investments, **salmon habitat** in western Washington is being damaged and destroyed faster than it can be restored. [[Treaty Rights at Risk](#)] The link to development is clear: 90% of shorelines are developed and/or armored, making development the biggest bottleneck to salmon recovery and leaving nowhere for outgoing juvenile salmon to hide. [[Jaime Donatuto, Community Environmental Health Analyst, Swinomish Indian Tribal Community, personal communication, Jan 11, 2021](#)] Salmon populations in coastal rivers have not shown the same declines, suggesting that the problem lies with factors within the Salish Sea. [[Salish Sea Marine Survival Project](#)]



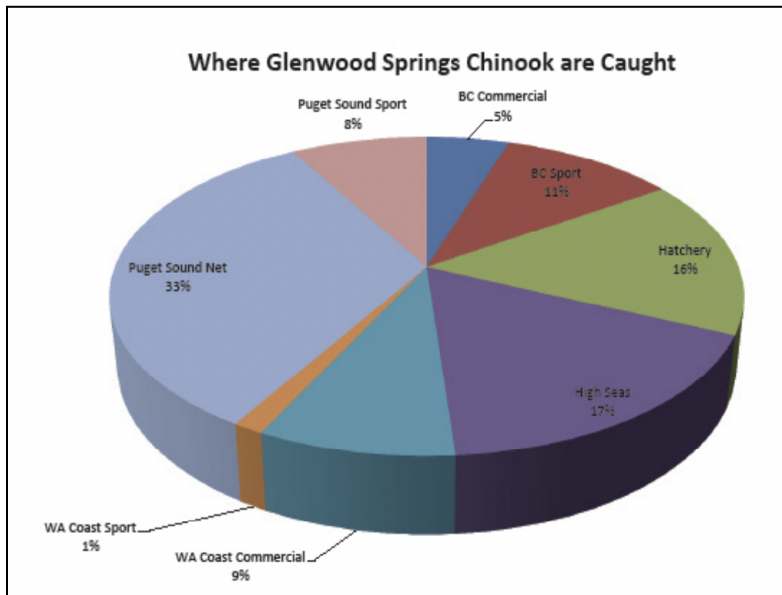
**Industrial net pen aquaculture** also poses a serious threat, with a poor environmental safety record that includes thousands of escaped salmon, a major viral outbreak, and decades of pollution. [[Our Sound - Our Salmon](#)] In March 2018, Washington state's legislature voted to phase out the farming of non-native finfish after some 500,000 Atlantic salmon escaped from a Cooke Aquaculture farm near Cypress Island in San Juan County the previous year. [[Cooke Aquaculture gets key permits for steelhead transition in Washington](#)]

Cooke's final Atlantic salmon harvest was completed in October 2020; however, Washington's Department of Ecology has approved four permits to Cooke Aquaculture to farm sterile, all-female steelhead/rainbow trout in net-pens it formerly used to raise Atlantic salmon. [[Cooke Aquaculture gets key permits for steelhead transition in Washington](#)] The State has yet to complete a full Environmental Impact Statement to weigh the risks of this change in species, including water quality and pollution, virus and parasite spread to wild salmon and steelhead, escapement, and the fact that this domesticated form of steelhead has never been reared in net pens at the proposed industrial scale in Puget Sound. [[Our Sound, Our Salmon - Cooke's Back at It](#)]

The role of **hatcheries** in salmon recovery is a controversial one. On one hand, hatchery fish can compromise the genetic fitness of their wild counterparts if they are allowed to mate [[Long Live the Kings](#)]; opponents to hatcheries argue that we must choose between having hatchery fish or having wild salmon. [[More Hatchery Fish Needed | NW Treaty Tribes](#)]

On the other hand, more than half of the salmon harvested in western Washington come from hatcheries [[NW Treaty Tribes - More Hatchery Fish Needed](#)], making hatchery-raised salmon vital in maintaining fisheries, meeting tribal treaty obligations, and supporting struggling southern resident orcas. Given that no wild Chinook originate in the San Juan Islands, Glenwood Springs Hatchery on Orcas geographically separates hatchery Chinook from the wild Puget Sound Chinook populations that reproduce only in mainland rivers. [[Long Live the Kings](#)]

Salmon populations are further threatened by the **interaction of other overlapping factors**, including: hydroelectric dams, changing water temperatures, reductions in food supply such as plankton and forage fish, marine mammal increases, contaminants, and disease. [[Salish Sea Marine Survival Project](#)]



*Figure 48: Glenwood Springs Hatchery on Orcas Island raises chinook salmon: approximately ten percent return to Glenwood Springs Field Station, approximately four times that many fish are harvested in Washington State fisheries, and an unknown number of Glenwood Chinook provide food for southern resident Orcas and other natural predators. [[Long Live the Kings](#)]*

## Current Collaborations + Key Developments

- Fish Tales of the San Juans – Now and Then project:** San Juan County’s Environmental Stewardship Department is conducting interviews with native and non-native elder fishers of their experiences from decades past when Chinook were plentiful in island waters, as well as those fishing our waters today to spotlight current patterns and extraordinary challenges in the San Juan Islands. Interviews will be compiled to tell a broader story in an effort to instill a conservation ethic in both residents of and visitors to the San Juan Islands. Interviews can also be shared with project collaborator Salmon Nation for their Salmon Story project, where hundreds of stories are being collected about why wild salmon are important to people from all walks of life. [[Fish Tales of the San Juans – Now and Then project](#)] (See [Fish Tales of the San Juans](#) for interview recordings)
- Indigenous Aquaculture:** Indigenous aquaculture refers to biocultural systems of management found in coastal places by Native communities. These cultivated ecosystems have existed for millennia and are based on Indigenous knowledge and place-based observations of the land and water. In communities of practice throughout the Pacific, including in the Salish Sea, these systems strengthen community access to

traditional and customary foods, increase local seafood production, deepen relationships, create solutions for climate adaptation and coastal restoration. [[Indigenous Aquaculture](#)]

Clam gardens are one example of Indigenous aquaculture technology. These intertidal features are made by constructing rock walls at the low tide line along the edges of bays and inlets, transforming naturally sloping shorelines level beach terraces and expanding the zone of the beach where clams thrive. Clam gardens have been recorded or observed from Alaska, through British Columbia, and into Washington State. [[The Clam Garden Network](#)] This technology offers an adaptation strategy for the impacts of climate change on mariculture systems, including rising water levels and ocean acidification, as well as a way to foster food sovereignty and the availability of culturally appropriate food. Research is underway to investigate the presence of clam gardens in the islands.

- **Local salmon recovery and restoration projects:** The goal of the Pulling It All Together (PIAT) project is to bring together various assessments and data sets to create a tool for prioritizing protection and restoration actions for salmon recovery efforts in San Juan County. [[Salmon Recovery Portal](#)] Other agencies involved include the San Juan County Salmon Recovery Lead Entity [[Salmon Recovery | SJC Environmental Stewardship](#)], the San Juans Local Integrating Organization [[San Juans Local Integrating Organization](#)], and the Salmon Recovery Funding Board [[Salmon and Orca Recovery - Recreation and Conservation Office](#)].
- **Northwest Indian Fisheries Commission (NWIFC) regional collaborations:** Because of their unique vulnerability and place-based rights, coastal Indigenous cultures are leaders in adaptation and mitigation, particularly in response to events driven by climate change. The NWIFC collaborates regionally on issues including Puget Sound recovery, water resources, ocean resources, and forestry management. [[Northwest Indian Fisheries Commission 2022 Annual Report](#)]

Habitat protection and restoration are essential for recovering wild salmon in western Washington. Tribes have restored thousands of miles of habitat, and continue to collaborate with the state of Washington to fix the fish-blocking culverts that were the subject of a 2018 U.S. Supreme Court case. The Supreme Court affirmed a ruling that state blockages of salmon habitat violate tribal treaty rights, and the state was ordered to remove barriers to fish passage. [[Northwest Indian Fisheries Commission 2022 Annual Report](#)]

There are several recent studies and pieces of legislation that would support the work of treaty tribes, such as a study to better define the concept of “net ecological gain” and recommend how to apply it to state environmental and land-use laws, and the Lorraine Loomis Act which provides incentives for landowners to create and maintain riparian zones, as well as regulatory backstops when compliance isn’t voluntary. [[Northwest Indian Fisheries Commission 2022 Annual Report](#)]

- **Pacific Northwest Crab Research Group (PCRG):** Formed in 2018, PCRG is a project of the Puget Sound Restoration Fund. Made up of a group of diverse researchers including state and tribal co-managers, federal agencies, academics, and non-profit organizations, PCRG seeks to address multiple critical data gaps to promote and support the sustainable management and harvest of Dungeness crab. [[Pacific Northwest Crab Research Group](#)]
- **Salish Sea Marine Survival Project:** A joint effort of more than sixty U.S. and Canadian organizations, the Survival Project seeks to determine why juvenile Chinook, coho, and steelhead are dying in Salish Sea waters. This holistic study of the physical, chemical, and biological factors impacting salmon and steelhead survival serves as a model for ecosystem-scale collaborative science. [[Salish Sea Marine Survival Project](#)] Results will facilitate management and stronger returns, and can act as a roadmap for priority action, research, and policy in the dire situation that salmon face. [[Cross-border Salish Sea study finds key puzzle pieces of wild salmon die-off](#)]
- **The State of the Salish Sea report:** With the help of contributors from around the region, this report is an effort to synthesize and characterize the most pervasive problems and state of the Salish Sea ecosystem. The report ends with a spectrum of specific needs and associated opportunities for how governments, organizations, and individuals can work together to meet the needs of science and science-driven management for the Salish Sea — as well as questions to open substantive dialogue and prompt collective action across the seascape. [[The State of the Salish Sea](#)]

# Economy & Labor

## Sector Overview

From settler homesteading days until the 1970s, fishing and farming were the economic mainstay of the San Juan Islands. In the highly seasonal tourism-driven economy of recent decades, the labor force swells during the summer months and contracts during off-peak seasons. The dependency on tourism was felt acutely in 2020, with employment plummeting by 2,280 jobs (32%) as a result of the pandemic. [[2020 SJC Profile | Employment Security Dept](#)]

The average annual wage (payment on a daily or weekly basis) was \$38,163, or roughly half of the statewide average. The San Juan County average annual wage ranked 37th out of 39 Washington counties, largely due to the dramatic seasonality of local employment. [[2020 SJC Profile | Employment Security Dept](#)] Income (wages plus other income sources) inequality in San Juan County is the most unequal in the state, and Washington State ranks tenth in the country. The top 1% of the population makes 39.6 times more than the bottom 99%, with the average income of the top 1% at \$2,004,457 and the average income of the bottom 99% at \$50,582. [[Economic Policy Institute: Income inequality in the US](#)]

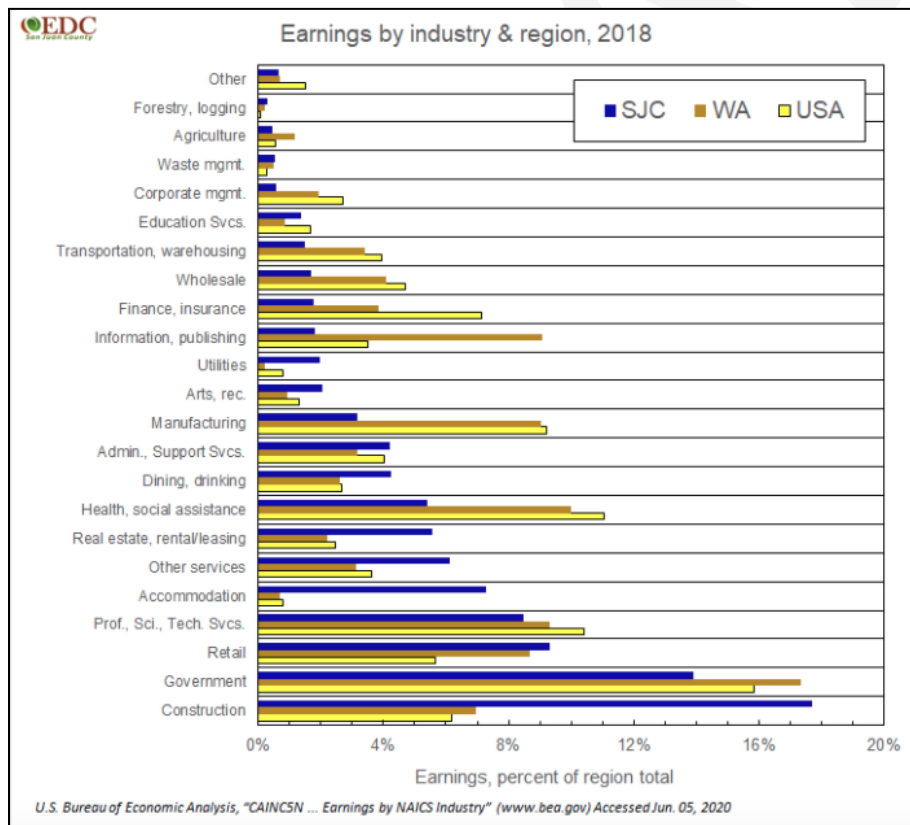


Figure 49: Earnings by industry and region, 2018 [[Bureau of Economic Analysis](#)]

Many households receive income from sources outside the county, from rental property income, or from transfer payments such as state and federal benefits. Despite a high per capita income, local wage earners are hard pressed to earn a living wage. Meeting basic needs, such as housing, food, childcare, transportation and healthcare, is highly challenging for about one third of local residents. [[SJC Comprehensive Plan Draft Housing Element / HNA](#), [SJC Affordable Housing FAQ](#)]

The flip side of the income/wage disparity is that wealth in the county supports local food production and consumption. Higher-income residents have more disposable income for local farm products. Many share farmland with local producers and contribute philanthropically to support agricultural and food-access programs.

Total non-farm employment in the county is estimated at 5,460 jobs. [[Washington employment estimates | ESDWAGOV](#)] Total food sector employment (downstream of farms) is estimated at 70 jobs in food manufacturing, 438 for food services and drinking establishments, and 338 for food and beverage stores [[Covered Employment \(QCEW\) | ESDWAGOV](#)]

In 2019, there were 282 jobs in agriculture, with agricultural workers representing 2.4% of San Juan County employment. [[BEA Updated SJC employment data 2015-2019](#)] Most farmers are self employed and according to the 2017 Ag Census there were 576 producers on 316 farms in the county. [[2017 USDA Ag Census](#)] In contrast to declining state and national numbers, the number of farms and the total employment in agriculture in San Juan County are increasing or are projected to increase in the coming years. [[Economic Analysis of Resource Lands](#)] [[BEA Updated SJC employment data 2015-2019](#)]

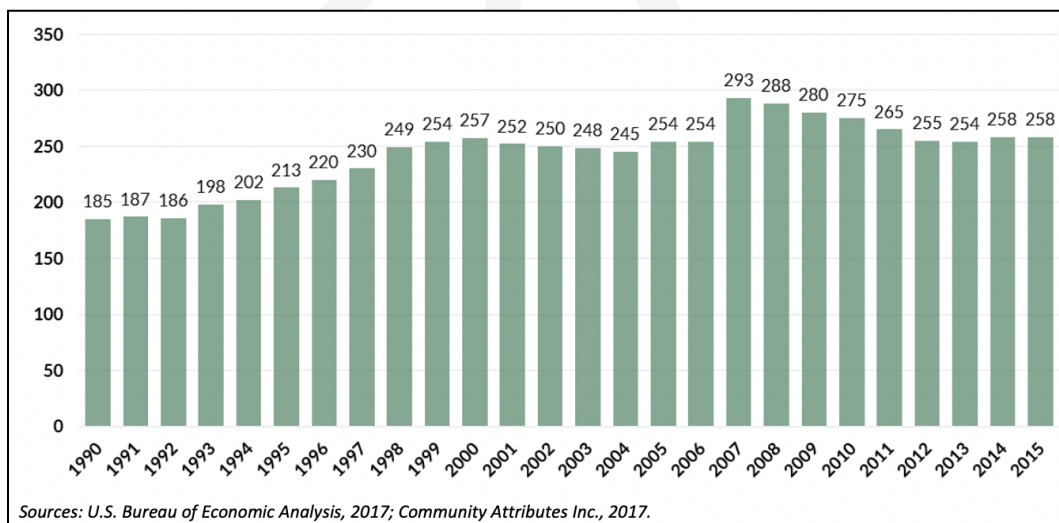


Figure 50: Employment in agriculture, San Juan County, 1990-2016 [[Economic Analysis of Resource Lands | SJC Comprehensive Plan](#)]

However, the economic impacts of agriculture stretch beyond employment numbers. Agriculture still underlies many other sectors of the local economy, with tourism partially relying on the rural

and pastoral character of the islands. [[Comp Plan - Economic Analysis of Resource Lands, San Juan Islands Visitor Study](#)] Increasing demand for local food and the growing agritourism sector offer opportunities to educate consumers about the many benefits of a local food system and to provide additional revenue to local farmers and farm-related businesses. [[Growing Our Future](#)]

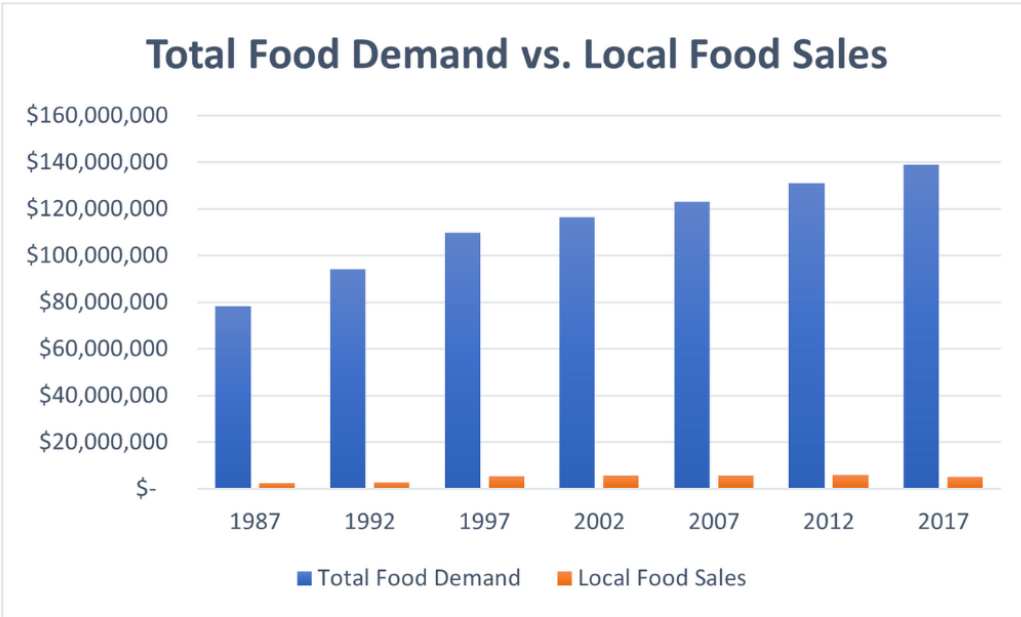
Total demand for food by residents and visitors of San Juan County is estimated at \$138.4M per year, of which \$90.8M is attributed to residents and \$47.6M to visitors. Total local food (grown, produced, or made in SJC) sales in the county are estimated at \$5.1M per year, which accounts for 3.7% of total food demand. Per resident, average annual spending is \$188 for local food, \$2,644 for non-local food purchased at island businesses, and \$2,272 for mainland food. [[SJC Food Economy Table](#)]

<b>Food Sales</b>	<b>Definition</b>	<b>Customers</b>	<b>Estimated retail value</b>
Mainland	Food purchased off island (e.g. Costco, restaurants)	SJC residents	<b>\$40.4M</b>
Imported	Imported food sold in SJC (e.g. island grocery stores)	SJC residents, visitors	<b>\$92.9M</b>
Local	Food grown/raised/made in SJC, sold locally or exported	SJC residents, visitors	<b>\$5.1M</b>
Total food sales	Sum of all food purchases	SJC residents, visitors	<b>\$138.4M</b>

*Figure 51: Food Sales - Where and how are we spending our food dollars*  
[\[SJC Food Economy Table\]](#)

There is a large gap between reported food sales from businesses and food expenditure data reported by consumers. Initial research indicates that \$40.4M in resident spending is unaccounted for by local grocery stores, restaurants, and bakeries. This is likely due to off-island food spending because of higher prices and lack of available products in the islands. [[San Juan Islands Food Impact Economic Analysis](#)]

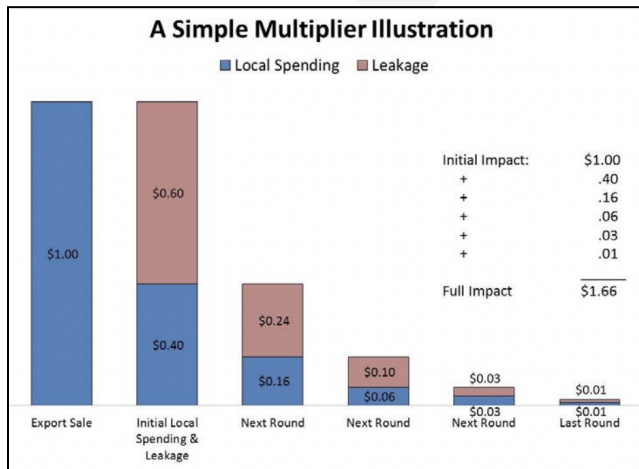
With the total demand for food in San Juan County estimated at \$138.4M per year and sales of local food accounting for only \$5.1M of that, there is an estimated supply gap of \$133.3M. Part of the supply gap is unlikely to be met by local food, including residents' food expenditures while traveling and imported foods that cannot be produced locally; this topic requires further study to understand opportunities and limitations. However, it is clear that there is sufficient demand to support increased local production, and not enough supply to meet this demand. [[San Juan Islands Food Impact Economic Analysis](#)] (See [Processing & Distribution](#) for details on supply-side infrastructure challenges.)



San Juan County Food System Team. 2022. Community Food Assessment.. Economy & Labor Snapshot.

Figure 52: Graph showing the increasing gap between total food demand and local food supply. [SJC Food Economy Table]

An economic multiplier effect demonstrates how changes in one part of the economy ripple throughout the whole of the economy. [The Economics of Local Food Systems Toolkit] The average economic multiplier effect of agricultural goods in San Juan County is 1.428, which is to say that for every \$1,000 of agricultural production \$1,428 is generated in the local economy, suggesting that any increase in production would have a positive economic impact. [San Juan Islands Food Impact Economic Analysis]



This diagram illustrates the concept of a local multiplier.

Figures 53 and 54: Two illustrations of the economic multiplier effect. [The Economics of Local Food Systems Toolkit]



Currently, the average amount of annual per-resident food spending on local food is relatively low compared to total food spending (\$188 out of \$5,104). Given the economic multiplier effect, increasing per-resident spending on local food by just \$25 per year would have a meaningful impact on local producers and the broader local economy. [[SJC Food Economy Table](#)]

Another beneficial shift for the local economy would be to increase on-island purchasing of imported food. All off-island food purchases cause a leakage of dollars. Re-localizing agricultural transactions, in addition to reinforcing local food supply chains and networks, leads to a reduction in the volume of money that leaks out of the local economy, thereby enhancing the impact of new or redirected local food sales on the local economy. [[The Economics of Local Food Systems Toolkit](#)]

Shifting spending from the mainland to island businesses, from the mainland to local producers, or both, would vastly benefit the local economy. For example, if the unaccounted for \$40.4M food dollars were instead spent in the islands, it could generate total sales of approximately \$54.9M for imported food or \$57.7M for locally-produced food. [[San Juan Islands Food Impact Economic Analysis](#)]

In recent decades, agricultural sales have increased 12% on average for each five-year interval. [[2017 USDA Ag Census](#)] Following the current trajectory, it is reasonable to assume that there will be around a 12% increase in local food sales every five years going forward with similar market conditions and the current level of support and interventions. However, population growth and inflation must also be taken into account. Average annual inflation for all food has been 2.4% over the last twenty years; over a five year period that equals 12.59%. [[USDA ERS Food Price Outlook](#)]

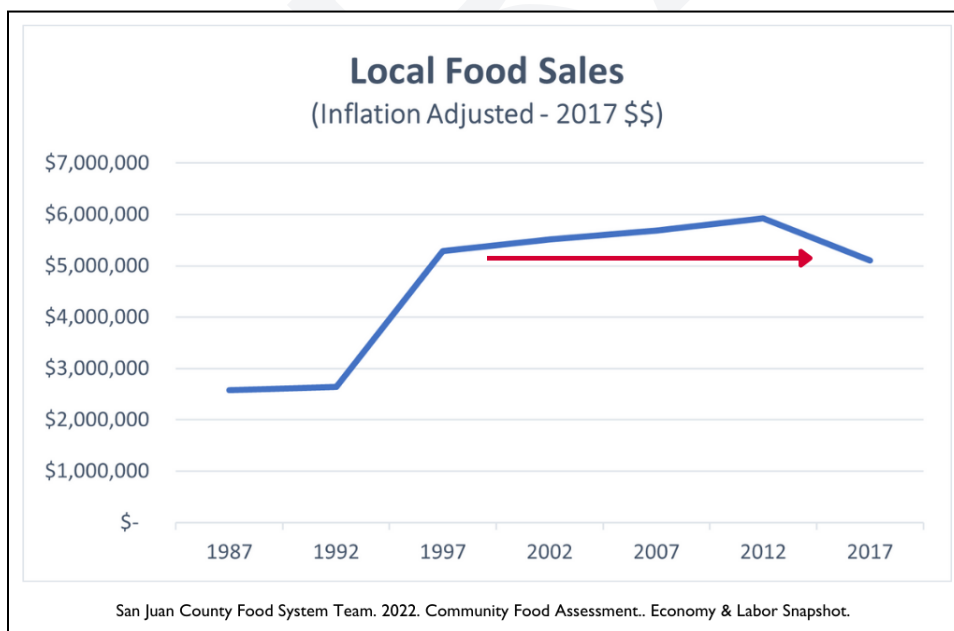
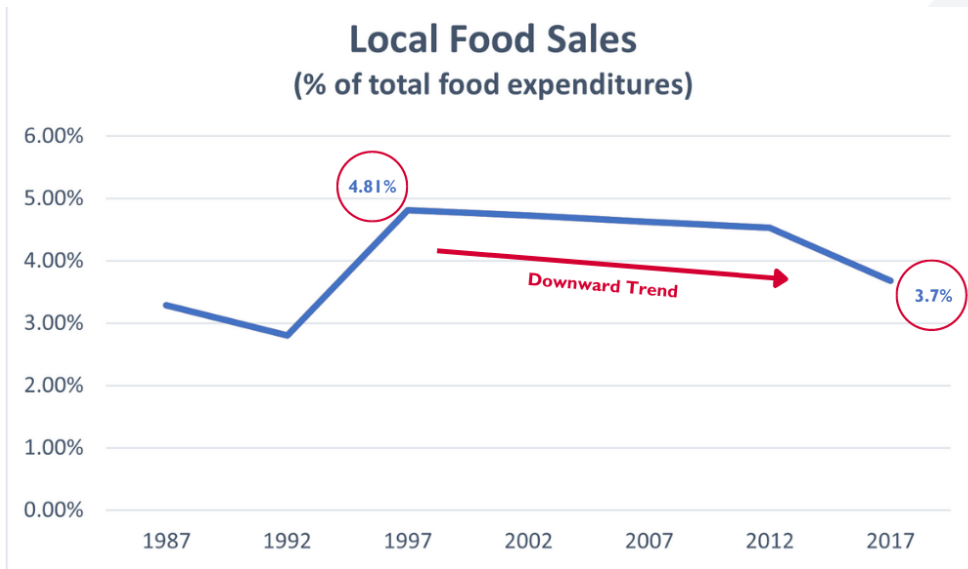


Figure 55: Local food sales, adjusted for inflation, 1987-2017; arrow indicates flat local food sales over the past 20 years [[SJC Food Economy Table](#)]

Therefore the 12% increase in local ag sales can be attributed to inflation, with overall production having remained flat over the past 20 years. When the population increase is factored in, this would represent a reduction in per resident local food spending, meaning that over the past 20 years local food has made up a progressively lower percentage of the overall food spending. Any serious efforts to scale up the local food supply to address the \$133.3M unmet demand for food will require more serious interventions and investments. [[SJC Food Economy Table](#)]



San Juan County Food System Team. 2022. Community Food Assessment.. Economy & Labor Snapshot.

Figure 56: Local food sales as a percentage of total food expenditures, 1987-2017; arrow indicates downward trending local food sales as a percentage of overall food spending over the past 20 years. [[SJC Food Economy Table](#)]

## Challenges

- Food system workforce and wages:** As described above, **housing** is a limiting factor for the food system workforce in San Juan County. The number of workers seeking affordable housing while working for the wages offered by farms, restaurants, and food businesses creates a competitive environment both for rental units and for employees. In 2021, an unprecedented number of island employers from food stores to restaurants were unable to hire or retain employees because there was no place they could afford to live. [[Orcas Island restaurants struggle with more tourists, fewer workers, high cost of living | Seattle Times](#)] When island farms have farmworker housing onsite it can offer an advantage in their ability to secure and retain employees. The need for farmworker housing was reported by 25% of farms as extreme in 2021. [[2021 Agricultural Viability Report](#)]

While San Juan County workers' **average annual earned incomes are among the lowest in the state**, the median hourly wage is \$22.59. This is due to many jobs being seasonal or part time, including those in agriculture and the food system. This means that for San Juan County farms, restaurants and grocery stores must often pay more for entry level workers than their mainland counterparts. In 2021 the unemployment rate in San Juan County was 3%. [[2020 SJC Profile | Employment Security Dept](#)]

In 2020, the **cost and availability of skilled labor** was reported as a challenge by 33% of farmers. Of those who indicated that they wanted to expand their operation, 86% stated that they needed additional labor. [[2021 Agricultural Viability Report](#)]. People who have agricultural skillsets are often able to find employment in the landscaping and estate management sectors for a much higher wage.

Farms need employees with many different skill sets: from animal husbandry to irrigation to mechanics to crop production. Many farms host interns as a way to reduce labor costs only to find that they are trading time for money and are continually teaching skills without retaining skilled labor.

- **Severe shortage of affordable/available housing:** The shortage of affordable housing has been a long standing issue in San Juan County, but the gap between housing prices and the ability of service workers to afford them has never been wider. [[HAC Tiny House Report FINAL 2021](#)]

Housing projections indicate that the challenges in housing San Juan County's projected future population is not a function of supply but rather of affordability and availability. [[San Juan County Housing Needs Assessment](#)] The housing problem is further compounded by the seasonal nature of a substantial share of the employment in the county, which coincides with the summertime (occasional) use of approximately 29 percent of the housing stock. [[Comp Plan - Housing Element](#)]

For every 100 very low-income renters, there are only 20 affordable rental units; for aspiring homeowners, the gap between the cost of housing and what an average household can afford continues to widen. [[SJC Affordable Housing FAQ](#)] San Juan County remains by far the least affordable county for housing in the state, with a **Housing Affordability Index (HAI) of 57.7** (HAI measures the ability of a middle-income family to make mortgage payments on a median price resale house, with 100 representing a balance between the family's ability to pay and the cost. [[Washington Center for Real Estate Research reports](#); [HAC Tiny House Report FINAL 2021](#)]) The Median Resale Price in the county during the second quarter of 2021 was \$889,600, a 42% increase from the second quarter of 2020 and a 62% increase since 2018. [[Washington Center for Real Estate Research reports](#)]

For affordable housing programs, employers and property owners, building even modest structures continues to become increasingly expensive. The **cost of construction**

materials increases nearly every week; developing a site with utility hookups is estimated to be between \$70,000-\$100,000 per unit, not including the costs of building a shelter. The concept of building our way out of the housing dilemma appears to be less and less feasible. [[Sandy Bishop, personal communication, Feb 22, 2021](#)]

During the **COVID-19 pandemic**, a strong combination of market forces has sent county real estate prices soaring at a time when county residents were already struggling to find affordable places to live. While home prices fluctuate over time, it is clear that the price of homes in San Juan County will remain beyond the reach of many individuals and families who live and work here. This crisis directly affects essential services on which every county resident depends, including within the local food system for general workforce housing as well as on- and off-farm housing. [[HAC Tiny House Report FINAL 2021](#)] Affordable and available housing for workers is critical if local employers are to have a reliable source of experienced workers to provide the goods and services needed by island residents. [[Comp Plan - Housing Element](#)]

(See [Farming](#) for details on farm worker housing)

## Current Collaborations + Key Developments

- **Food, Agriculture, Relationships, Markets Fund; L&I Farm Internship program ([FARM Fund](#))** (see [Agriculture](#))
- **San Juan Islands Food Hub (SJIFH)** (see [Processing & Distribution](#))
- **Food System Housing Study:** The lack of available and affordable housing is a challenge that impacts all food-system partners: farmers, food producers, grocers, retailers, food banks, restaurants, cafes, chefs, and caterers. With funding from a Regional Food System Partnerships grant, a team consisting of the San Juan Islands Agricultural Guild, the Food System Team, the San Juan Makers Guild, OPAL Community Land Trust, and the Lopez Community Land Trust has contracted with Monaghan Consulting to conduct a Food System Housing Study. [[Request for Proposals for Food System Housing Study](#)]

The housing study is designed to support county-wide efforts to increase locally grown food and agricultural products and address the housing needs of food system employers. The goal of the study is threefold: to measure workforce housing needs and barriers, to quantify economic multiplier impacts and community wellbeing indicators, and to identify potential affordable housing solutions. [[Request for Proposals for Food System Housing Study](#)] The study will be conducted in the first half of 2022, with the final report expected by June.

- **Island Grown in the San Juans / Eat Local First Collaborative:** this collaborative is made up of regional partner organizations from around the state that are working

together to merge different online farm finder tools into a single easy-to-use platform, including [Island Grown](#) and other regional partners. The goal of the project is to facilitate connections between consumers and farm/food businesses across Washington by merging various online farm maps into a single, easy-to-use platform. This will enable the collaborative to work more efficiently to promote local agriculture while building a valuable resource for consumers seeking to connect to local farmers. [[Eat Local First Collaborative](#)]

- **Local Food Economic Impact Assessment:** In 2019, the Agricultural Resources Committee laid out a recommendation to secure fund an analysis of the current and projected economic impact of local food production and sales in San Juan County, in order to track progress and inform future policy. [[ARC Comp Plan rec's: Economic Development](#)] The current draft of the Comprehensive Plan update lists this recommendation as a goal. [[Comprehensive Plan Economic Development draft](#)]

The Food System Team took up the task and commissioned Western Washington University's Center for Economic and Business Research to conduct this study in 2021, with funding from the Regional Food System Partnerships grant. The [San Juan Islands Food Impact Economic Analysis](#) report quantifies the impact of local food production and consumption, clarifies the gap in supply and demand for local food, and provides a rule-of-thumb for calculating the economic multiplier effect of local food production. The report, along with future updates and data analysis, will serve as tools for decision makers in the county.

- **Local Foods Promotion Project (LFPP) Grant:** 2020 USDA LFPP grant funding will cement the long-term sustainability of the San Juan Islands Food Hub through hiring part-time staff to undertake the core food hub business processes (originally done by volunteers), and by adding a wholesale marketing coordinator to grow sales. The growth in Food Hub income over the next four years is projected to cover the cost of these additional resources after grant funding ends. This project will also provide necessary Food Hub infrastructure and food safety training to producers and staff.
- **New Sales Technologies:** COVID presented many challenges but also inspired new market opportunities within the local food system. Local producers have adopted and adapted sales technologies, including accepting credit cards, self-serve kiosks, and utilizing online ordering with pickup and delivery. Customers are now comfortable with these adaptations and the methods have become normalized. Local food banks have also contracted with local producers as part of pandemic relief measures, a mutually beneficial development.
- **San Juan County Home Fund:** Approved by voters in November 2018, the Home Fund is a one-half of one percent (.5%) real estate excise tax (REET) for affordable housing. [[San Juan County 2018 Home Fund FAQ](#)] Projected to generate \$15.2 million over a 12-year period, the Home Fund will be used exclusively for the development of

affordable housing, including acquisition, building, rehabilitation, and maintenance of housing for very low, low, and moderate-income persons and those with special needs. [[San Juan County Home Fund](#)]

The Home Fund is managed by San Juan County Health & Community Services with oversight from the Housing Advisory Committee and the County Council, with revenues disbursed through a competitive grant and loan process to eligible recipients (nonprofit agencies, housing authorities, private for-profit affordable housing providers, and other public agencies). [[San Juan County Home Fund](#)] Over \$2.9 million dollars have been disbursed since 2019, including five projects totaling \$1,782,734 in 2020 which contributed to the construction of 59 total new affordable housing units and the preservation of another 19 affordable housing units, all units with long term affordability restrictions. [[\\$1.7 Million from affordable housing REET awarded to 5 projects](#)]

- **San Juan Makers Guild:** The beneficiary of a new USDA-funded Rural Business Development Grant (RBDG), the Makers Guild is working with farm, food, arts, design, economic, manufacturing and technology businesses and organizations to provide an inclusive picture of San Juan County makers' capacities, current needs, and future opportunities. Through asset mapping, needs assessment, and a San Juan Makers Market Plan, the overarching goal is to develop a robust Guild that serves all Makers in San Juan County and gives our Makers a voice in developing a sustainable economy. [[San Juan Makers Guild](#)]
- **Tiny Houses and Tiny House Communities:** The Housing Advisory Committee (HAC), an advisory body to the San Juan County Council, has submitted recommendations for a small number of code amendments to support the development of tiny house communities. Because they cost less to build, can be developed more quickly, and use less water and energy, tiny houses have tremendous potential to increase affordable housing and are receiving attention nationally and in Washington State. The HAC's recommended amendments would remove policy barriers and allow development of a limited number of tiny house communities in the county. [[HAC Tiny House Report FINAL 2021](#)]

The amendments would not change existing land use regulations, infrastructure requirements, or density designations. Existing provisions would ensure that rents and purchase prices in tiny house communities located in rural residential clusters are affordable and remain so for many years. Rentals would have to be for a minimum of six months and vacation rentals would not be allowed, to help ensure that tiny house community occupants are full-time residents, workers, and/or service providers. Allowing a limited number of tiny house communities would be a meaningful step toward increasing the availability and affordability of housing for people wishing to live and work in San Juan County. [[HAC Tiny House Report FINAL 2021](#)]

- **Vocational education programs:** There are several robust ag/food programs in the county. Given that the islands have separate school districts, each program is unique with different funding sources, curriculum focus, and connections to local food sources. The Food For Thought (San Juan), Lopez Island Farm Education (LIFE), and Orcas Island Farm to Cafeteria programs offer freshly prepared meals with locally sourced products, garden-based learning opportunities and vocational training. [[Growing Our Future](#)] Farm Education and Sustainability for Teens (FEAST) is now focusing on middle school students as a segue between 5th grade garden program and high school Farm-to-Cafeteria program; this year students will investigate existing island food systems, to be able to go more in depth in subsequent years. [[Orcas Island FEAST Program](#); [Rosedanie Cadet, personal communication, Feb 11, 2021](#)]

DRAFT

# Processing & Distribution

## Sector Overview

Currently, most of the infrastructure for production of the food we eat is located on the mainland as part of the “just-in-time” supply chain. In the early to mid 1900’s, at the peak of agricultural production in the islands, there was infrastructure for food storage and processing, including root cellars, granaries, smokehouses, canneries, fruit/dairy/poultry barns, prune dryers, nurseries, strawberry barreling plants, milk houses, silos, and water towers. Most of this infrastructure has lapsed, fallen into disrepair, or disappeared. [[Island Farming: History and Landscape of Agriculture in the San Juan Islands, Boyd C. Pratt](#)]

This diverse historic infrastructure is an indicator of the level of investment necessary for a vibrant local food system. The geographic isolation of the islands, which can be accessed only by water or by air, brings added complexity and cost to local supply-chain infrastructure (hereafter referred to as “infrastructure”, including on- and off-farm infrastructure for the processing, storage and distribution of locally produced foods). These inherent challenges have inspired ingenuity and creativity: to be competitive in the market, local producers have formed collaborations and started new businesses to fill the needs in distribution and the creation of value-added products.

A notable and nationally-recognized example of creative problem solving is the Island Grown Farmers Cooperative (IGFC) USDA-inspected mobile slaughter unit, a model that originated in the San Juan Islands. [[Services | IGFC](#)] Previously, USDA-inspected slaughter services were available only at mainland facilities, requiring livestock farmers to transport their animals via ferry to the mainland.



Figure 57: IGFC mobile slaughter unit on Lopez Island. [[Lopez Island Kitchen Gardens](#)]



The IGFC mobile unit serves the three main San Juan Islands, as well as farms in four mainland counties, with humane on-farm slaughter of beef, pork, lamb, and goat. Carcasses are then taken to the IGFC facility at the Port of Skagit to be aged, cut, and wrapped. [\[Island Grown Farmers Co-op services\]](#) Island farmers have the added expense of paying ferry fares for the unit, which is shared among island producers, and of transporting their own processed product back to the islands. USDA inspection of meat processing allows farmers to sell their products by the cut to restaurants, to stores, or directly to customers.

The regulatory environment concerning food processing and food safety is complex and often confusing. There are multiple agencies that support farmers and value-added producers in navigating food safety regulations and accessing funding for value-added production. Continuing education is offered through the Northwest Agriculture Business Center, the San Juan Islands Agricultural Guild, WSU Extension, and the Washington State Department of Agriculture. The San Juan County Department of Health and Community Services also provides guidance on value-added production when it falls under regulation by the county. [\[San Juan County Health Department, personal communication, Dec 20, 2021\]](#)

For on-farm cool and frozen storage, most producers use cool-bots and chest freezers; a handful of farms have walk-in coolers/freezers. Commercial cool and frozen storage is limited to Taproot and Fork in the Road Farm on Lopez Island, and Sasha’s Food Connections on San Juan Island; as of yet, none of these have a back-up generator which is a necessity for island power outages. During the pandemic and other emergencies, private businesses and schools have come forward to offer to fill short-term cold storage needs.

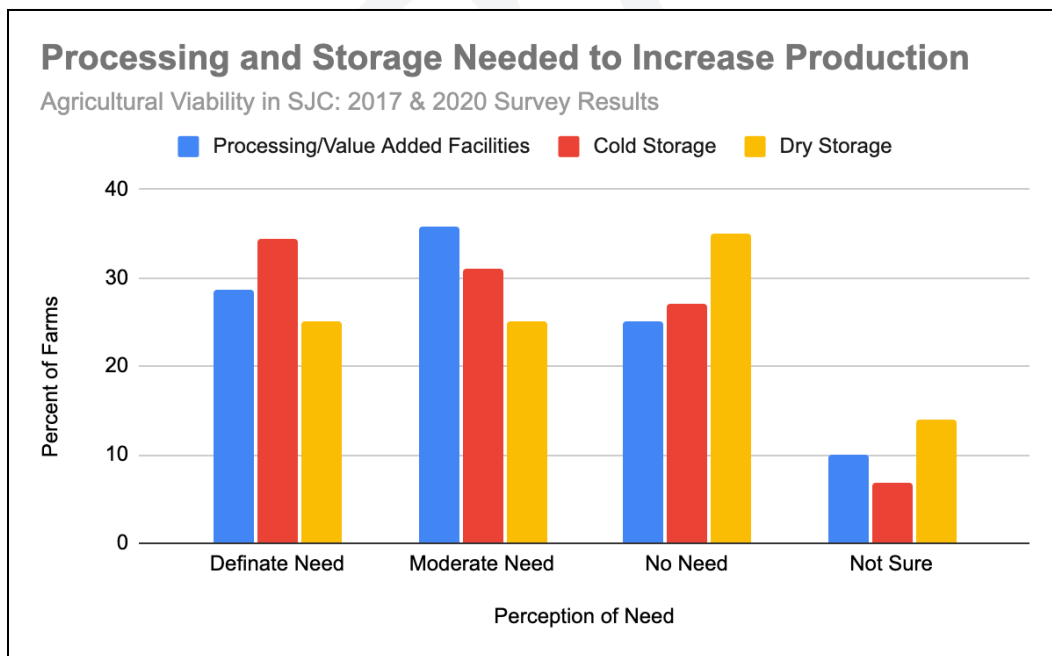


Figure 58: Perception of need for processing and storage needed for San Juan County farmers to increase production. [\[2021 Agricultural Viability Report\]](#)

Island producers currently have limited options for affordable local food distribution. Sasha's Food Connections is the only refrigerated distributor that provides both mainland and inter-island delivery. Both the San Juan Islands Food Hub and the Puget Sound Food Hub contract with Sasha's Food Connections for deliveries in the San Juans. [\[Sasha's Food Connections\]](#) While several farms take on their own mainland and inter-island deliveries, many farms sell solely on their own island due to distribution expenses. Producers on the outer islands without ferry service have the added expense of transporting their product to one of the main islands.

Available market channels for local producers include direct-to-consumer (farmers markets, farm stands, CSAs), direct-to-wholesale (grocers, restaurants, other institutional buyers), and food hubs. San Juan Islands Food Hub and Puget Sound Food Hub offer retail and wholesale customers the ability to shop with multiple farms and value-added producers online. Products are aggregated for the customer's order and shipped together with one invoice; producers' costs are reduced through shared infrastructure. [\[San Juan Islands Food Hub, Puget Sound Food Hub\]](#) As a result of the pandemic, more farm stands and local retailers have developed online ordering with curbside pick-up, more farm stands now accept credit cards, and grocery store delivery services are continuing.

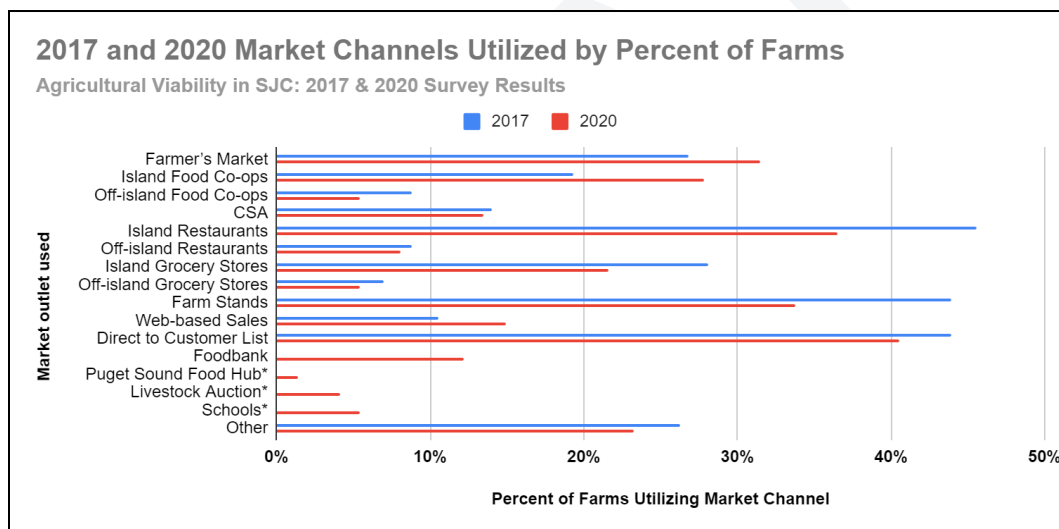


Figure 59: Market channels utilized by producers in San Juan County. [\[2021 Agricultural Viability Report\]](#)

## Challenges

- Affordable access to processing equipment and commercial kitchens:** Equipment and kitchen access continue to be limiting factors for both producers and food purveyors in meeting current demand. [\[SJC Food Hub Feasibility Study; ARC 2020 Listening Sessions folder\]](#) Regulatory requirements for establishing commercial kitchens are cost-prohibitive. Travel to and from the mainland for these services is timely and costly,

and acts as a limiting factor for farmers and value-added producers. [[Lopez Food Center - Feasibility Study Phase 2 Report](#)] The lack of processing and kitchen space also limits the amount of gleaned produce heading to local food banks. (See “Complexity of regulations”, below.)

- **Challenging distribution:** The complexity and high cost of inter-island and mainland distribution channels impacts both imports and exports. Limited inter-island distribution mechanisms create a disconnect between buyers and producers; as a result, the majority of sales channels utilized by local producers are on-island, by both direct market and wholesale accounts. The higher costs for inputs inhibit production and increase price points, limiting the consumption of local food in the county and making it hard to compete on a regional level. [[SJC Food Hub Feasibility Study](#).]
- **Competing on a regional scale:** As a result of the above challenges, the majority of producers are limited to serving customers on their own islands. Of the thirty-four respondents to the Food Hub Feasibility Study survey, thirty-six percent of farmers identified a need for regional distribution, with meat producers as the largest producer demographic looking to access regional markets. One hundred percent of value-added producers expressed interest in both inter-island and regional distribution. [[SJC Food Hub Feasibility Study](#)]

Although San Juan County has not reached market saturation for local goods, local producers are hard pressed to compete with regional prices because of higher labor, housing and transportation costs. (See [Agriculture](#) for details on how lack of certifications inhibits access to regional markets.) The small economy of scale in the county presents another obstacle. In order to invest in processing and distribution infrastructure, a threshold of local raw product must be available; this situation presents a dilemma for producers, who need processing and distribution channels to exist before ramping up production.

- **Complexity of regulations:** The Food Safety Modernization Act (FSMA) was passed in 2011 but came into full regulatory effect in 2020 for Food Safety Plans, Good Agricultural Practices, and Value-added regulations. [[Food Safety Modernization Act \(FSMA\) | FDA](#)] The FSMA made sweeping changes to laws regarding the growing and processing of fruits and vegetables, leading to a regulatory burden that can be onerous for small-scale operations.

Although most vegetable producers in the county are exempt from inspections, they still need to comply with practices. Compliance costs for the smallest exempted farms are estimated to be as high as seven percent of their annual produce sales compared to the largest farms who would pay an estimated 0.33 percent of their annual sales. [[Estimated Costs for Fruit and Vegetable Producers To Comply With the Food Safety Modernization Act's Produce Rule](#)] Many producers find the regulations for permits and licenses to be confusing, and there is a clear need for general education and information referral.

While commercial kitchens are available on each island, there is a significant need for additional permitted commercial kitchen space that meets WSDA and/or County food safety certifications for value-added producers' processing and retail food services. The high cost of constructing and meeting regulatory requirements for commercial kitchens is a barrier for most startup and small value-added food processors. In addition there is limited dry and cold storage at most facilities, presenting logistical gaps for producers wanting to utilize existing commercial kitchen spaces.

- **Ferry service disruptions:** Frequent ferry service disruptions have become commonplace during the pandemic, further complicating inter-island and mainland distribution and highlighting the islands' vulnerability to supply shortages. As the only county served by Washington State Ferries that does not have an alternative road-based egress, San Juan County has been inequitably impacted by ferry outages. Businesses, including farmers and grocers, reported large financial losses and stress on employees and clients, as well as spoilage of produce and suffering of livestock. [[Ferry Survey 2021 | San Juan Economic Development Council](#)]

Reduced ferry service has disrupted deliveries from the mainland, which is in turn driving an increase in prices and a reduction in product consistency and reliability. Local food retailers have expressed hesitancy around ordering from Food Hubs because of ferry disruptions and distribution issues. IGFC has canceled scheduled trips to the islands because of ferry disruptions and the lack of ferry reservations to and from Lopez Island, exacerbating a scenario where there was already a much higher demand than capacity for local meat slaughter and butchering. [[2021 LFPP Funded Projects | USDA](#)]

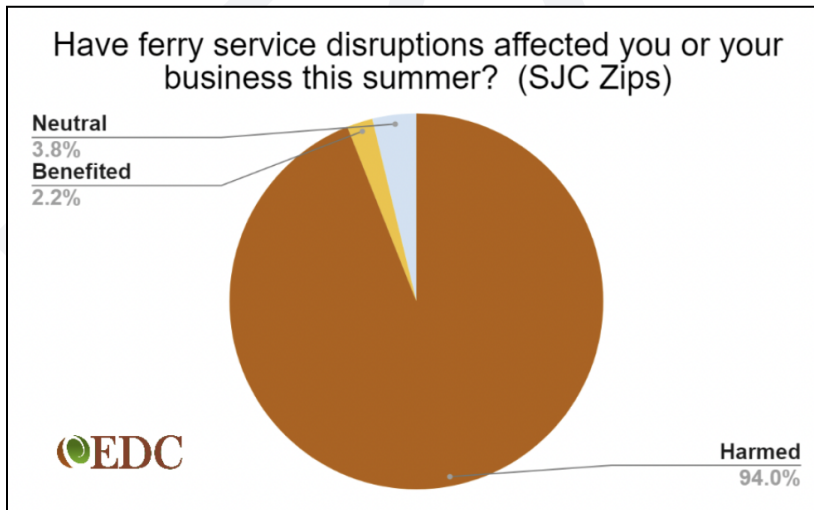


Figure 60: Percent of responses to the San Juan County Economic Development Council's survey indicating harmful, neutral, or beneficial effects of ferry service disruptions (447 responses). [[Ferry Survey 2021 | San Juan Economic Development Council](#)]

- **Insufficient infrastructure:** Current infrastructure is matched to the scale of local food production and in many instances is inadequate for meeting these needs, let alone a significant expansion of local food production. Producers who do grow to a tipping point of sales volume are forced to go off island in order to scale up, making use of mainland co-packing and other facilities. If local producers are to scale up and keep operations functioning in the islands, infrastructure is a primary need and glaring barrier.
- **Storage:** Lack of storage is another critical constraint to food businesses looking to scale up their capacity. Many food and farming businesses do not have back-up power sources for the county's frequent power outages, especially outside business centers. [[Lopez Food Center - Feasibility Study Phase 2 Report](#)] Operations that do not have a permitted food storage warehouse space must distribute products within 24 hours, an added pressure for producers of perishable goods. [[Keren LaCourse, WSDA Regional Manager, personal communication, Jan 10, 2022](#)]

Seasonality plays greatly into storage challenges, especially for value-added producers and restaurateurs. In a highly seasonal economy, storage is short in the busy months, and few businesses can afford to pay for adequate summer infrastructure throughout the rest of the year. Similarly, local producers' need for extra frozen storage extends into winter as the harvest is processed. New storage infrastructure and operational capacity must be designed for both current demand and future expected growth. [[Lopez Food Center - Feasibility Study Phase 2 Report](#)]

- **Workforce challenges:** As part of "The Great Resignation", food production operations in San Juan County are struggling with a limited trained workforce. This shortage has shown up throughout the food system, from farms to grocery stores and restaurants, from IGFC staff to ferry workers and truck drivers. The remaining staff are left to shoulder a heavy burden, putting many in the workforce at risk of burnout. (See [Economy & Labor](#) for more details)

## Current Collaborations + Key Developments

- **Infrastructure to support local food processing & distribution:**
  - **Island Grist:** A stone mill that provides historic machinery to harvest, clean, mill, and store local grains and flour, Island Grist is a key element of Lopez Island's local grain economy. [[Barn Owl Bakery](#)] (See [Agriculture](#) for more details.)
  - **Lopez Food Center:** A partnership with the Lopez Island Family Resource Center, the San Juan Islands Food Hub, Taproot Commercial Kitchen, and the Lopez Locavores, the mission of the Food Center is to increase access to local foods and create opportunities for local farmers and food producers through shared purpose and effort. Having completed the feasibility study in 2020 the

Food Center team is exploring options for a shared-use Food Center, and will conduct a survey of specific processing, storage and distribution needs. [[Lopez Food Center - Feasibility Study Phase 2 Report](#)]

Discussions are under way on Orcas and San Juan to determine the best way to address storage, aggregation, and commercial kitchen access needs for both for-profit and non-profit use.

- **Taproot Community Kitchen:** A community kitchen and food storage provider on Lopez Island, Taproot's primary purpose is to create and sustain jobs that feature abundant fresh farm produce from San Juan County. Taproot Kitchen is a 501(c)(3) non-profit organization certified by WSDA and SJC Food Safety Department, which means that foods processed there can legally be sold to the public. [[Taproot Lopez Community Kitchen](#); Joan Egan, Taproot treasurer, personal communication, Jan 3, 2022]

Taproot has secured significant grants and private donations to support local food processing. Grant funded improvements include a walk-in refrigerator and freezer, value added food product processing equipment, and a backup generator. Grant funding will also support hiring a kitchen manager, a community outreach person, and an administrator for a county-wide mentorship program. Stipends are provided for people to use the kitchen as they develop their products through the mentorship program. [[Taproot Lopez Community Kitchen](#); Joan Egan, Taproot treasurer, personal communication, Jan 3, 2022]

- **Island Grown Farmers Cooperative (IGFC) new facility and increased capacity:** IGFC opened its new plant on April 30, 2022 on land that they lease from the Port of Skagit. The new facility doubles capacity, increases freezer storage, and allows room to grow. IGFC has plans and space for a kill floor at the plant, as well as smoking and curing infrastructure. With a waitlist of farms wanting to join the coop, this increase in capacity and investment in infrastructure will serve island and regional livestock producers into the future. [[IGFC Meats](#), [Island Grown Farmers Cooperative plans plant expansion](#)]
- **Island Poultry Resilience Collaborative:** As part of the Transition Network movement, the Collaborative's mission is to foster a more resilient, self-reliant community by providing to islanders the means to increase their production of poultry eggs and meat through education and equipment sharing. In cooperation with the San Juan Island Grange, members are currently investigating: incubator, brooder and processing equipment acquisition; a network of fertile egg providers; an online library and monthly newsletter to keep collaborative members abreast of developments. Membership to the collaborative is free, though there may be a nominal fee to borrow equipment. [[Transition San Juan Island](#)]

- Orcas Food Co-op & Sasha's Food Connections Partnership:** Sasha's Food Connections (SFC) and Orcas Food Co-op (OFC) are in the final stretch of transferring ownership of SFC to the OFC, with the goal of maintaining and expanding inter-island and mainland distribution and aggregation to support the distribution needs of local producers as well as sourcing needs of co-ops, restaurants, schools, food banks, and value-added food businesses. This partnership will strengthen local and regional ties by increasing collaboration between the San Juan Islands Food Hub, Puget Sound Food Hub and the Orcas Food Co-op.
- San Juan Islands Food Hub (SJIFH):** The multi-stakeholder cooperative was launched in April 2020 as a retail online marketplace for local food and agricultural products, with the goal of eventually offering products for the wholesale market. The Food Hub now allows retail and wholesale customers to buy directly from producers across the county; aggregated orders have thus far been delivered to each island via Sasha's Food Connections. [[San Juan Islands Food Hub](#)] With funding from a three year USDA Local Food Promotions Program grant, the Food Hub has been working to expand the offerings available to wholesale markets, supporting producers to become certified in Produce Safety Alliance and GAP, and offering education in value-added production.



Figure 61: Food Hub model diagram [[SJC Food Hub Feasibility Study](#)]

# Consumption

## Sector Overview

Total food consumption by residents and visitors in San Juan County is estimated at \$138.4M per year, of which \$90.8M is attributed to residents and \$47.6M to visitors; mainland food spending by San Juan County residents totals \$40.4M. Total local food (food that is grown, produced, or made in SJC) sales in the county are estimated at \$5.1M per year, which comes to 3.7% of total food demand. To supply the islands with the 96.3% of food that is not locally produced, island vendors receive daily deliveries from the mainland. Per resident, average annual spending is \$188 for local food, \$2,644 for imported food purchased at island businesses, and \$2,272 for food purchased on the mainland. [[SJC Food Economy Table](#), [San Juan Islands Food Impact Economic Analysis](#)]

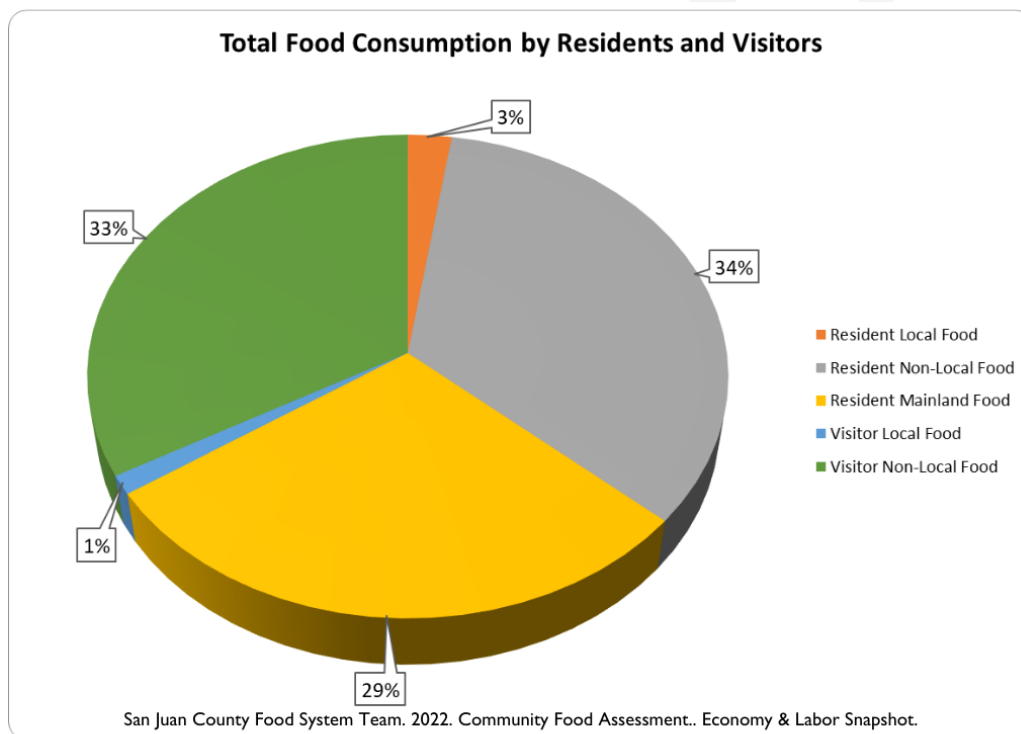
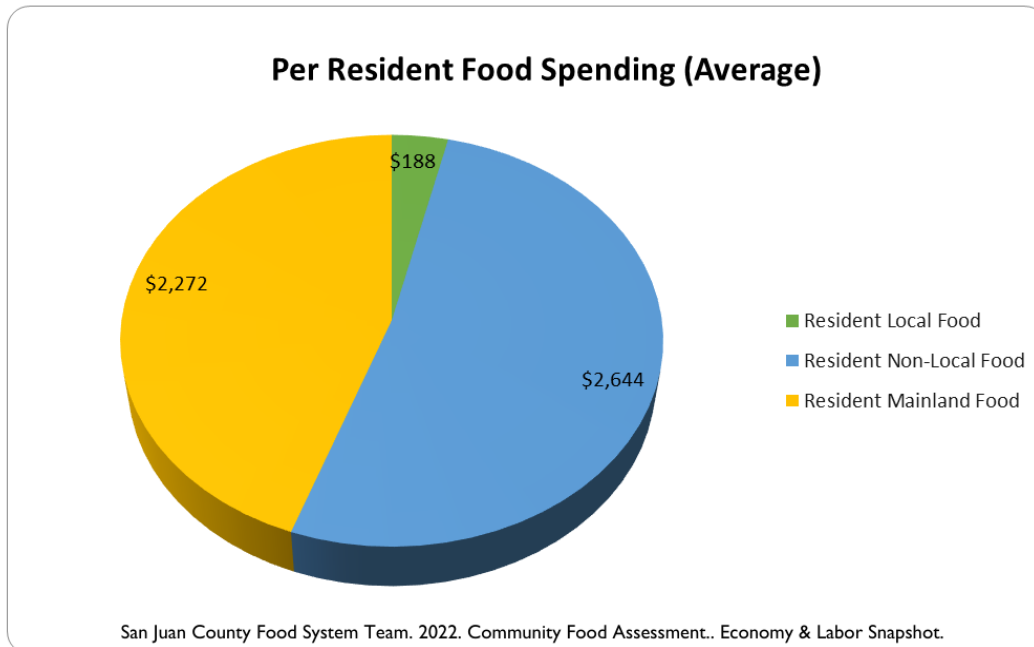


Figure 62: Total food consumption by residents and visitors in San Juan County [[SJC Food Economy Table](#)]





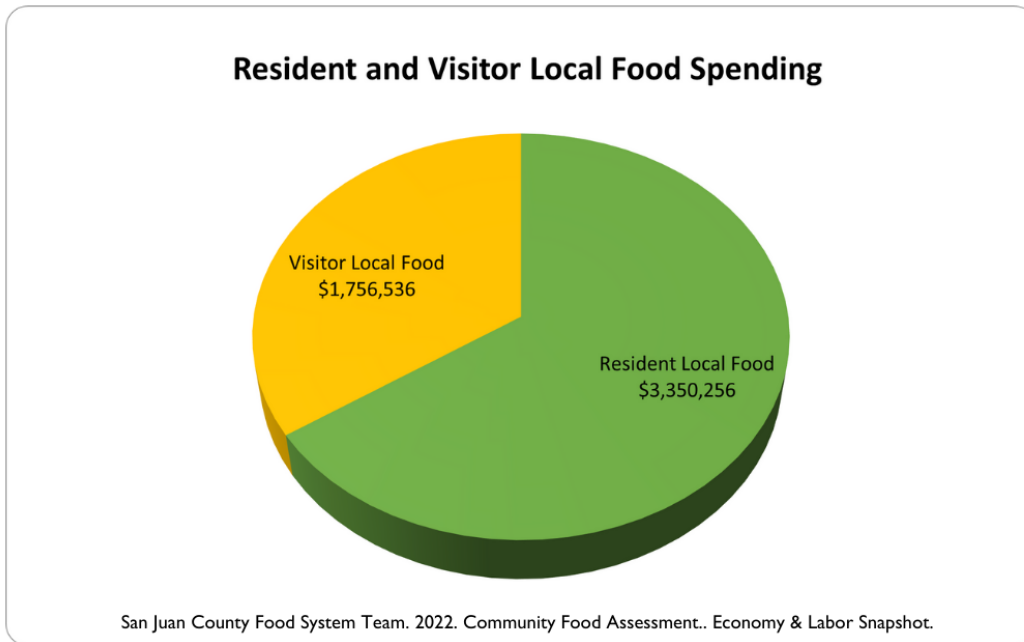
*Figure 63: Average per resident spending on mainland, non-local, and local food. [SJC Food Economy Table]*

Food consumption by visitors to the islands also plays a significant role in the county's food system, especially during peak tourism season (July 4th through Labor Day). According to the 2018 Visitor Study, "natural/rural scenery" ranked first and "local foods" ranked seventh of fourteen reasons for visiting the islands. [San Juan Islands Visitor Study] In 2019, roughly one million visitors spent \$47.6M on food and beverages (20% of their total trip spending); with visitor spending increasing by nearly 4% per year, the role of visitors in the food system will likely continue to expand. [San Juan Islands Visitors Bureau 2019 report]

The San Juan County [Department of Emergency Management](#) has noted that in the event of a natural disaster that disrupts transportation to the islands, existing food inventory on grocery store shelves would likely meet the caloric needs of all residents for much less than one week. Given intrinsic vulnerabilities to the island food delivery system, the importance of preparedness on an individual and community scale, and enhancing the capabilities of the island food system for local production, cannot be overstated. [SJC Dept Emergency Management, personal communication, Feb 7, 2022]

Most contemporary consumers, including islanders, are accustomed to a diverse and subsidized food basket. Most San Juan County residents buy at least some of their food off-island for greater product diversity, lower price points, and access to big box stores. Currently, the county's climate, population size, and agricultural practices make it impossible for the islands to provide product availability, diversity, and price points to match the expectations of consumers. [Lopez 2025]

Residents in San Juan County have a long history of homesteads that produce fruits, vegetables, meat, dairy and eggs for home consumption. This tradition is very much alive. Forty-one percent of respondents to the 2021 San Juan County Local Food Survey indicated that they grew or raised some of their food in the last 12 months. [[2020 SJC Local Food Survey Data Report](#)]



*Figure 64: Resident and local food spending* [[SJC Food Economy Table](#)]

As measured against the ALICE (Asset Limited, Income Constrained, Employed) Threshold, one third of county residents struggle financially to meet basic needs such as housing, food, childcare, transportation, and healthcare. This problem is exacerbated as wages fail to keep pace with the high cost of living in the islands. Thirty-seven percent of Lopez households, 42% of Orcas households, and 31% of San Juan households live below the ALICE Threshold.

[[ALICE Project – Washington](#)]

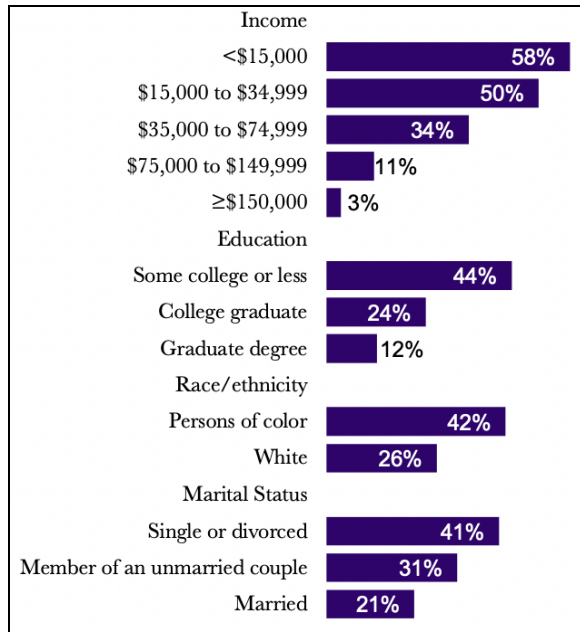


Figure 65: Food insecurity in Washington state by socio-demographics, 2020 [[Economic Security and Food Access in Washington State During the COVID-19 Pandemic](#)]

Food insecurity is a symptom of poverty, as the result of low incomes and limited access to resources. Seasonality of employment presents an additional economic hurdle, especially in communities like San Juan County that are dependent on industries such as tourism. Food insecurity rates are also disproportionately higher for households with children headed by single women. [[Poverty in Working Washington: San Juan County](#)]

Income inequality significantly affects access to local food. Based on the ALICE threshold, in 2018 the Household Survival Budget for San Juan County, which is an estimate of the minimum cost of living in the islands for a family of four, was \$1,008 per month for food expenditures. [[ALICE Project – Washington](#)] The higher price point of local food is an additional barrier to local food access for many wage earners. The economic landscape has changed dramatically since 2018: wages have largely stagnated and the cost of living has increased, resulting in a survival budget that now far exceeds the ALICE threshold. (See [Economy & Labor](#) for details on income inequality; see [Challenges](#) below for details on the price difference of local food.)

	Food	Housing	Childcare	Transportation	Monthly Total	Annual Total	Hourly wage
Single Adult	\$291	\$772	(N/A)	\$346	\$2,047	\$24,564	\$12.28
2 Adults, 2 Children	\$1,008	\$1,105	\$660	\$815	\$5,167	\$62,004	\$31.00

Figure 66: Household Survival Budget for San Juan County [[ALICE Project – Washington](#)]

Eighteen different food access programs are available to qualifying individuals and families in San Juan County, with funding sources at the federal, state, and local levels. [[SJC Food Access Programs chart](#)] Twenty-four percent of the county's population is eligible for Supplemental Nutrition Assistance Program Education (SNAP-Ed) support, compared to 26% for all of Washington State. However, only 8% of the county's population is currently enrolled in SNAP, due to challenges with applying for benefits and/or the stigma of being on food stamps. [[SNAP Ed Needs Assessment](#)]

Three food banks in the islands help provide food to low-income residents: the Orcas Island Food Bank [[Orcas Island Food Bank](#)], Friday Harbor Food Bank [[Friday Harbor Food Bank](#)], and Lopez Fresh Food Bank (run by the [Lopez Island Family Resource Center](#)). In 2021, the number of unduplicated clients served by local food banks was: Orcas: 750 households, 1,426 individuals; Lopez: 220 households, 615 individuals; and San Juan: 684 households, 1,313 individuals. [[Personal communication, Jan 2022, San Juan County Food Bank Coalition](#)]

The pandemic has significantly exacerbated existing trends, weaknesses, and disparities in food access. According to the Washington State Food Security Survey, the pandemic has caused alarmingly high rates of food insecurity (50-58%) in lower income households and in households with children; rising food costs and reduced safety in food shopping were cited as barriers to food access. [[WAFOOD Washington State Food Security Survey](#)] [see also [National Food Access and Covid Research Team](#)]

Pandemic EBT (P-EBT) food benefits were available to families with children in grades K-12 who qualified for free or reduced-price school meals. P-EBT benefits were extended during school closures due to COVID-19 in 2020 and 2021. One hundred ninety-six students on Orcas, 340 students on San Juan, and 130 students on Lopez qualified for these benefits. [[Pandemic-EBT, Washington Office of Superintendent of Public Instruction](#)]

## Challenges

- **Commercial / Institutional barriers to buying local food in SJC:** Similarly, multiple factors present barriers at the commercial and institutional levels, including a lack of adequate and steady market supply, especially seasonally [[Lopez 2025](#)]; cost of locally grown foods compared with foods from off-island; and a lack of a centralized distribution system for purchasing and delivery. [[Lopez Foodshed Assessment](#)] (see [Processing & Distribution](#) for San Juan Islands Food Hub's work to address this issue)
- **Commodity Shocks:** As a net importer of food, the county is vulnerable to yield and price fluctuations in off-island food producing regions. Shifting precipitation patterns, disease, changing crop yields can all affect both on and off island food prices depending on the magnitude and type of change. The cost of food imports and exports may also increase in response to rising fuel costs and the subsequent effect on supply chains: the resultant rising food prices could pose challenges to both farmers (more expensive for

farmers to use farm equipment for food harvesting and production, necessitating an increase in prices) and island consumers (higher costs for food imports and food purchasing trips). [[Lopez 2025](#)] (See [Processing & Distribution](#) for more details on supply chain disruptions)

- **Consumer barriers to accessing local food in SJC:** Many factors contribute to limited local food access in the county, including the cost of locally grown foods compared with foods from off-island; availability and seasonality of local products; convenience; ingrained personal habits; lack of information about where and when local products are available; and a lack of culturally appropriate local foods. [[Lopez Foodshed Assessment](#)]
- **Cost of living:** The high cost of living in the San Juans means that many families are stretched to afford basic necessities, including food. Food imported to the islands costs more and wages are roughly half of the statewide average, with many positions centered around the service industry at a typically lower wage. [[2020 SJC Profile | Employment Security Dept](#)] (See [Economy & Labor](#) for details on income inequality.) In addition, some low-income islanders have limited or no kitchen access, a lack of infrastructure that compounds cost challenges. [[Orcas Island Food Bank programs](#)]
- **Cultural Relevance:** There remain significant obstacles to accessing culturally relevant food in island establishments. In response to an Orcas Island Food Bank poll, Latinx/Hispanic customers had requests particular to their culture and experience, including dry goods from trusted brands (hominy, menudo, mole, tortillas, dried chiles, masa harina) and fresh produce (chiles, tomatillos, yucca, plantains, chayote) that are not available or feasible to be grown in San Juan County. Poll respondents also noted challenges in getting food to construction crews and others who, in the summer, often work long hours. In addition, there is the challenge of helping undocumented people feel secure about utilizing food bank services. [[How do you say “Food Bank” in Spanish? | Islands' Sounder](#)]
- **Limited access to traditional foods/foodways:** Indigenous people wanting to practice traditional foodways in the San Juans face multiple challenges, including abrogation of treaty fishing, gathering, and hunting rights in usual and accustomed areas. Private property rights, challenges in finding overnight accommodations, and the interruption of Indigenous land management practices further constrain access to practicing traditional foodways. [[Understanding Tribal Treaty Rights in Western Washington](#)]
- **Navigating the landscape of food access programs:** There are a myriad of different food access programs available in San Juan County; however, clients are challenged to understand which programs they are eligible for and how to apply for these benefits. In part due to funding source stipulations, food access programs require different processes to apply and utilize benefits and may have specific age, gender, and income requirements. These factors create a confusing web with multiple barriers to utilization.

- **Price difference of local food:** Food prices in the islands are generally much higher than on the mainland, and local food is generally priced higher than imported food. Cost of food must be higher to cover costs of operating on an island and to compensate delivery drivers, farmers, grocers, and others working in the supply chain. This means that for anyone living on a limited budget, purchasing local food can be out of reach.

Growing the market for local food products much beyond current levels will require creative problem-solving to ensure that everyone has access. While price differences between local food, imported food, and mainland food can vary widely depending on food category and the particular vendors, one survey found that organic produce purchased on Orcas Island was 27.5% higher than organic produce purchased in a mainland food cooperative. In addition, local produce was 27.4% more expensive than imported certified organic produce at the Orcas Food Co-op. [[Orcas Food Co-op Produce Price Survey](#)]

## Current Collaborations + Key Developments

- **Locally managed food access programs:**

[SJC Food Access Programs chart](#)

**Efforts to address cultural relevance:** The San Juan County Food Bank Coalition is working to foster a more equitable food system, including offering a variety of products that honor different household food cultures and specific dietary needs and food items for customers who have limited or no kitchen access. Orcas Island Food Bank is partnering with a Seattle-based organization, Alimentando al Pueblo, to talk in depth with the Latinx community about the obstacles faced around Latinx food access and distribution, and is currently working with other food distributors to create pathways for more equitable food distribution. [[Orcas Island Food Bank programs](#), [San Juan County Food Bank Coalition](#)]

**Fresh Bucks:** Modeled after Wholesome Wave, a national program working to alleviate nutrition insecurity by raising philanthropic funds to double SNAP benefits when spent on fruits and vegetables, the Fresh Bucks food incentive program in San Juan County is privately funded and supports SNAP-eligible customers in purchasing more locally grown fruits and vegetables. The program helps stretch dollars with matching funds to make healthy, local food more affordable and invest in our local farms and community. The program has shown that, when the price hurdle is removed, many people choose to buy local.

The Orcas Fresh Bucks program is a partnership of the Orcas Community Resource Center, San Juan County Health and Community Services, and the Orcas Food Co-op [[Fresh Bucks Orcas Island](#); [Orcas Island Fresh Bucks Pilot Program - 2020 Report](#)]; the

San Juan program is a partnership of Nourish to Flourish, San Juan Island Joyce L. Sobel Family Resource Center, San Juan County Health and Community Services, Friday Harbor Food Bank, San Juan Island Farmers Market, and the San Juan Island Food Co-op. [[Fresh Bucks San Juan Island](#); [Fresh Bucks San Juan](#)]

**Island Grown Food Access Card:** A pilot program launched in 2021, the Island Grown Food Access Card has enrolled 20 local producers as vendors and provided 150 households with a hybrid debit/credit card preloaded with \$150 to buy locally grown/raised EBT-eligible food items. Having a preloaded card allows clients the choice of where to shop, helps reduce stigma attached to using food benefits, and allows farmers to be reimbursed instantly at the point of sale.

**Pandemic response:** In addition to the Island Grown Food Access Card, several other locally managed programs have ramped up services to address the impact of the pandemic on food access. Local food banks have expanded both farm-to-food bank and gleaning programs; in summer 2020, a new Good Food Bag program was launched by several food access programs to provide an assortment of fresh, local produce to clients of the Women Infant Child (WIC) and Senior Farmers Market Nutrition Programs (FMNPs) [[Good Food Bag Article](#)]. Also in response to the pandemic, local grocery stores have increased wholesale purchasing options, increased food bank donations, and added food access coordinator positions.

**SNAP Market Match:** State-funded Market Match program benefits are accepted at the Orcas and San Juan Island Farmers markets, providing up to \$40 in matching dollars to buy fruits and vegetables at these farmers markets when client's use their EBT card (SNAP benefits). [[SNAP Market Match](#)]

- **Recognition of economic impact of healthy food incentives:** As noted above, healthy food incentive programs have increased the purchasing power of low-income families to buy fruits and vegetables at grocery stores and farmers markets. Research has long demonstrated that these programs reduce hunger, improve nutrition, and support local agriculture and retail. What wasn't understood until now is how large the economic impact could be if these programs were expanded. [[The Economic Benefits of Dramatically Expanding Healthy Food Incentives](#)]

The economic return if policymakers in Washington State invest in scaling up these programs is significant. It comes to an economic multiplier of 1.5, meaning that for every \$1 spent on incentives, \$1.50 would be contributed to Washington's economy. The multiplier increases to 2.7 for farm-direct sales, generating 167-352 jobs and \$8M-\$17M in labor income. [[The Economic Contributions of Expanding Healthy Food Incentives](#)]

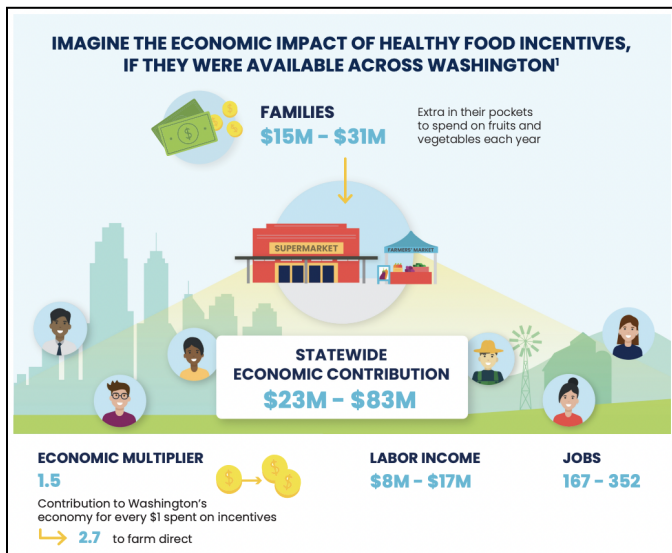


Figure 67: The economic multiplier effect of healthy food incentives [[Expanding Healthy Food Incentives Across Washington State](#)]

- San Juan County Local Food Survey:** The “**Eater Survey**” was designed to better understand food consumption and buying patterns among San Juan County residents in relation to local food. Of the 2,000 randomly selected residential households surveyed from November 2020 to January 2021, 506 completed the survey and 76 partially completed the survey, for a 29.1% response rate. The survey was conducted by the San Juan Islands Agricultural Guild, Transition Lopez, Agricultural Resources Committee of San Juan County, Orcas Food Cooperative, and San Juan County Washington State University Extension, in partnership with the Washington State University Social and Economic Sciences Research Center. [[San Juan County Local Food Survey](#)]
- Sustainable Tourism Management Plan:** Launched in early 2022, the plan aims to embody a balanced approach to tourism that meets the needs of the San Juan Islands community, environment, and economy. Tourism is a major economic driver in the county, including for the local food system; it is also a management challenge for sensitive natural and cultural resources, island infrastructure, and for residents seeking consistent employment and affordable housing in the islands.

Each island community has differing interests and preferences regarding tourism. Coast Salish Tribes are interested in protecting ancestral lands and waters, and the rights they hold in San Juan County. The planning group (an ad hoc committee made up of members from the Lodging Tax Advisory Committee, SJC Visitors Bureau, San Juan Islands National Historical Park, and SJC Department of Environmental Stewardship) hopes work through these issues with the support of three consulting firms, and come to some agreement around tourism management. [[Sustainable Tourism Management Plan Draft Process & Background Materials](#), [Tourism 'Management' Plan is officially underway](#)]



# Waste

## Sector Overview

Waste happens across the food system, from the field; to the processor; to transportation; to stores, restaurants, hospitals, schools, and homes. While one in six Washingtonians are turning to their local food bank or meal program for food assistance, 47% of food waste to Washington landfills was identified as edible. [[WSDA Food Rescue](#); [WA Food Waste Management Evaluation](#)] Washington State generates 2.7 million tons of food waste, and while 1.7 million tons are recovered (by nutrition assistance organizations, animal feed distributors, compost or anaerobic digester facilities), 96% of the remaining 1.0 million tons go to landfills. [[WA Food Waste Management Evaluation](#)]

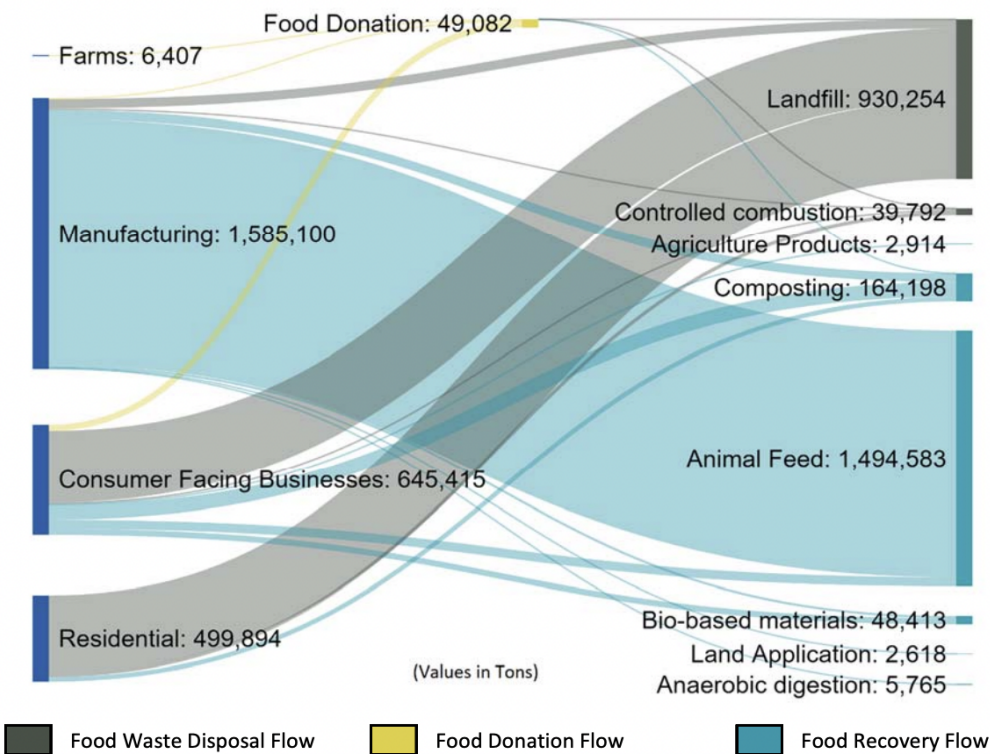


Figure 68: Washington State Food Waste and Wasted Food Management Pathways (tons) [[WA Food Waste Management Evaluation](#)]

Throwing away food wastes water, energy, labor, fertilizer, and land. In addition, food sent to landfills rots and produces methane gas, a greenhouse gas 25 times more potent than carbon dioxide. [[WA DOE Food waste prevention, rescue, and recovery](#)] If food waste were a country, it would be the third largest producer of greenhouse gasses, behind China and the United States. [[WSDA Food Rescue](#)]

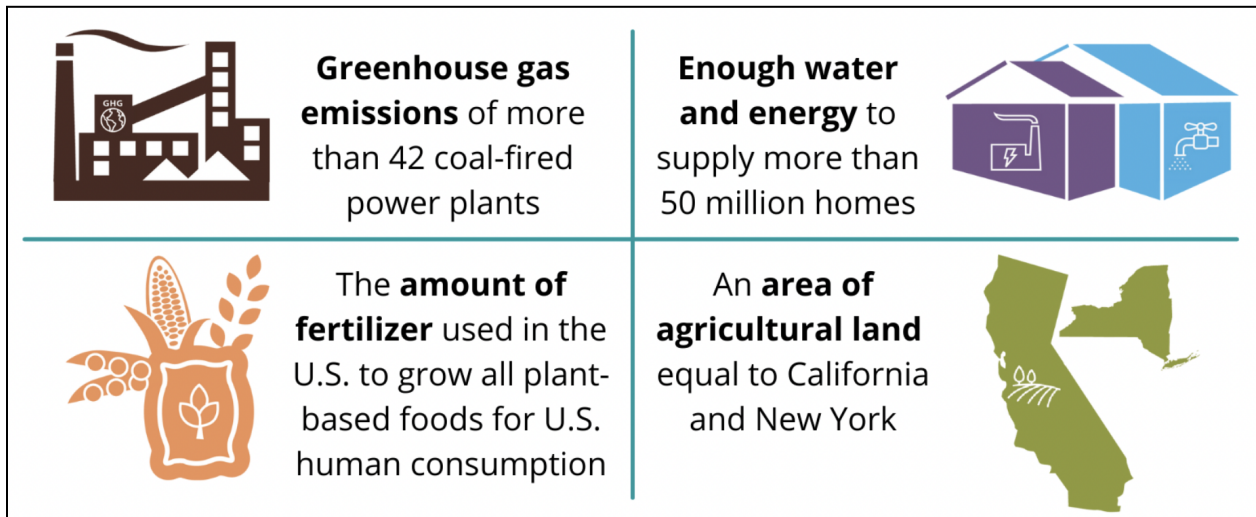


Figure 69: Environmental Impacts of U.S. Food Waste: What resources go into a year of food loss and waste in the U.S.? \*excluding impacts of waste management, such as landfill methane emissions. [From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste]

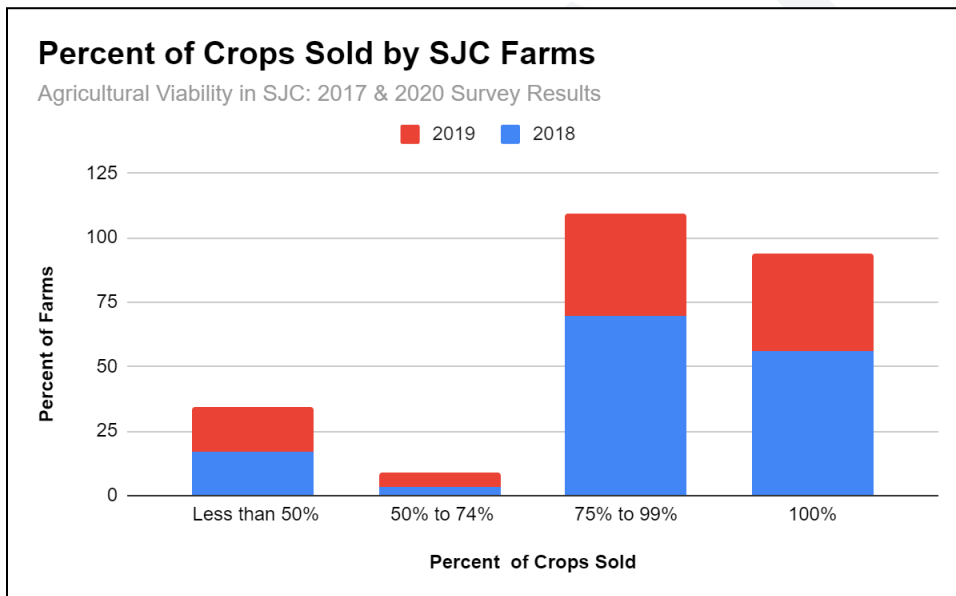


Figure 70: Percent of crops sold by San Juan County farms [2021 Agricultural Viability Report]

In 2016, San Juan County generated garbage and recyclables at the rate of about 5 pounds per person per day, about the same as the national average. Peak waste volume occurs July through September, at the peak of the tourist and construction season. [Solid Waste and Moderate-Risk Waste Management Plan] With resident population and visitor numbers both on the rise, these resource pressures are intensified: in 2020, Lopez Solid Waste saw an increase in tons of garbage hauled off-island of 7% over the previous year. [Unprecedented growth in garbage]



Figure 71: Solid waste facility locations in San Juan County [[Solid Waste and Moderate-Risk Waste Management Plan](#) (2018-2023)]

Garbage from San Juan County follows a winding path to mainland landfills, some hundreds of miles away, with multiple consolidation points and modes of transportation. [[Solid Waste and Moderate-Risk Waste Management Plan](#)] All commingled recyclables—650 tons from Orcas alone each year—go to a sorting facility in Seattle, where they are sorted for use as materials for remanufacture. [[Solid Waste and Moderate-Risk Waste Management Plan](#)] [[ORS 2020 End-of-Year Update](#)] The quantity of material ultimately recycled depends almost entirely on the market for recyclables, so it is impossible to say how much is sold for reuse, versus how much ends up in landfills. [[Lopez 2025](#)]

Agricultural plastics include seed trays, drip tape, mulch film, bale wrap, baling twine, water pipes, and hoop house covers, which cannot be commingled with other recyclables. Some agricultural plastics accepted at solid waste facilities in San Juan County are recycled or reused by local farmers and growers. [[Solid Waste and Moderate-Risk Waste Management Plan](#)]

Organics management in San Juan County is accomplished primarily by individuals who choose to turn their kitchen and yard waste into compost. [[Solid Waste and Moderate-Risk Waste Management Plan](#)] Most island farms have self-contained compost systems, utilizing food scraps, agricultural byproducts, manure, or all of the above to produce compost, which is then applied back to the land to improve soil fertility. [[Lopez 2025](#)] There are informal yard and wood waste drop-off sites on San Juan, Orcas and Lopez islands. Midnight's Farm on Lopez accepts agricultural and yard waste at its Department of Ecology approved compost facility. Yard debris is also taken to island transfer stations where it is treated as garbage and taken to landfills. Composting of food waste is not available at a municipal scale. [[Solid Waste and Moderate-Risk Waste Management Plan](#)]

Biosolids (dewatered sewage waste) generated in San Juan County are either burned or hauled to the mainland. [\[Solid Waste and Moderate-Risk Waste Management Plan\]](#) From Lopez Island alone, 100,000-120,000 gallons of septic waste per year are ferried off island. The Fisherman Bay Sewer District (Lopez village) receives 400,000-500,000 gallons of sewage water per month, which is treated and discharged into the ocean. The water is not treated to the level of potability; however, it meets standards for agricultural irrigation. [\[Lopez 2025\]](#)

Wood waste in San Juan County is generated from land clearing and landscape maintenance. This biomass is either burned or chipped. [\(Lopez 2025\)](#) Aggregated data on the amount of biomass waste generated in the county is not available. Household hazardous waste in the county is handled through annual collection events and is transported by barge off island. Commercial farms must register and pay for hazardous material removal, whereas household hazardous waste removal is free. [\[Hazardous Waste Disposal | San Juan County, WA\]](#)

## Challenges

- **Collapsed recycling system:** For almost three decades, until the Green Dragon initiative in 2017, China was the primary market for our recyclables. Consequently, the United States lacks the infrastructure to process recycled materials, and a significant percentage of recyclables now goes to landfills. [\[ORS 2020 End-of-Year Update\]](#) Glass and metal has been replaced by plastic, and globally 50% of all plastic has been produced in the past 14 years. By 2025, there will be 1 pound of plastic for every 3 pounds of fish in our oceans. [\[ORS Talking Trash Event\]](#)
- **Confusing regulatory overlap for composting:** Solid waste is regulated by the Washington State Department of Ecology; San Juan County also has land-use laws that dictate where compost facilities can be sited. San Juan County has defined agricultural composting and commercial composting in a way that is incongruent with the DOE's regulations, causing confusion for local operations. [\[citation?\]](#)
- **County geography coupled with infrastructure costs:** The complex nature of transportation throughout the county complicates solid waste services, with each island operating under a different system. [\[Solid Waste and Moderate-Risk Waste Management Plan\]](#) Given the islands' geography, prospects of siting landfills are limited; sending garbage and recycling off island renders the impacts of locally-generated waste largely invisible for local residents. [\[Lopez 2025\]](#)

The start-up costs for a compost facility can easily be in the hundreds of thousands of dollars, a cost that becomes compounded when food waste is involved. These facilities are equipment- and infrastructure-heavy, and due to the county's geography each island faces the challenges of placement, funding, and the willpower to realize the project. [\[Composting Business Management: Capital Cost Of Composting Facility Construction\]](#)

## Current Collaborations + Key Developments

- **Biochar:** Biochar, the carbon-rich solid produced by heating biomass under low-oxygen conditions to a temperature where its chemical structure transforms to a more stable form, is utilized as a liming soil amendment and biofiltration substrate. Converting biomass to biochar presents many other opportunities as well, including climate change mitigation, forest and soil health improvements, wildfire risk reduction, bolstering of ecosystem services, and the revitalization of rural economies. [[Biomass to Biochar: Maximizing the Carbon Value | CSANR](#)]

The San Juan Islands Conservation District is currently engaged in a research project with Oregon State University on the influence of biochar on forest soils, data from which will be paired with 2015-2016 research on biochar and agricultural soils in San Juan County. [[San Juan Islands Conservation District staff, personal communication, February 9, 2021](#)] Many island growers are experimenting with on-farm production of biochar, and there is growing interest in finding small-scale pyrolysis units.

Also under consideration is a pilot project for a bioenergy facility in Eastsound, which would be tied to the OPALCO grid and would utilize waste wood for production of energy, hot water, and biochar. The goal of the project would be to bridge the energy gap (the gap between renewable energy and power demand) during winter months as part of transitioning toward energy independence. The facility would also benefit local agriculture by making biochar affordable and locally available at scale. This pilot facility would be an opportunity to connect the forestry and agricultural communities and to deepen local biochar research findings. [[San Juan Islands Conservation District staff, personal communication, February 9, 2021](#)]

- **Composting:** Food waste presents opportunities for significant waste management and reductions. Agencies and local non-profit organizations such as WSU Master Gardeners, WSU Extension Agriculture Program, San Juan Islands Conservation District, and the SJC Agricultural Resources Committee have partnered with the county in past composting education programs. The county's Solid Waste department and operators of local transfer facilities are promoting at-home composting while also evaluating options for expanding composting of yard waste and other feedstock, including food waste from residents and businesses. [[Solid Waste and Moderate-Risk Waste Management Plan; SJC Solid Waste Coordinator, personal communication, March 14, 2022](#)]
- **Food Recovery/Food Waste Prevention:** Gleaned food includes produce which would otherwise be left in the fields because it doesn't meet strict aesthetic requirements of retail markets; gleaning programs offer an opportunity to divert this potential food waste to nourish the community. Given that most commercial farms tend not to have difficulty selling their products, most of the gleaning opportunities in the county are on non-commercial farms.

The Gleaner program on Lopez organizes a harvest team to pick fruit, which is then processed by the Lopez Locavore culinary team in the Taproot kitchen. This collaboration feeds the community through the Lopez Fresh Food Bank, local schools, and Senior Meals (some of the latter recipients being the original fruit tree planters). [[Taproot: Lopez Community Kitchen](#)] The Orcas Food Bank’s gleaning program gleans thousands of pounds of local fruit seasonally, and hired two AmeriCorps members to focus on a community food distribution program and a gleaning and regenerative food systems program. [[Orcas Island Food Bank programs](#); [Food Bank recruiting two AmeriCorps service members for their team](#)]

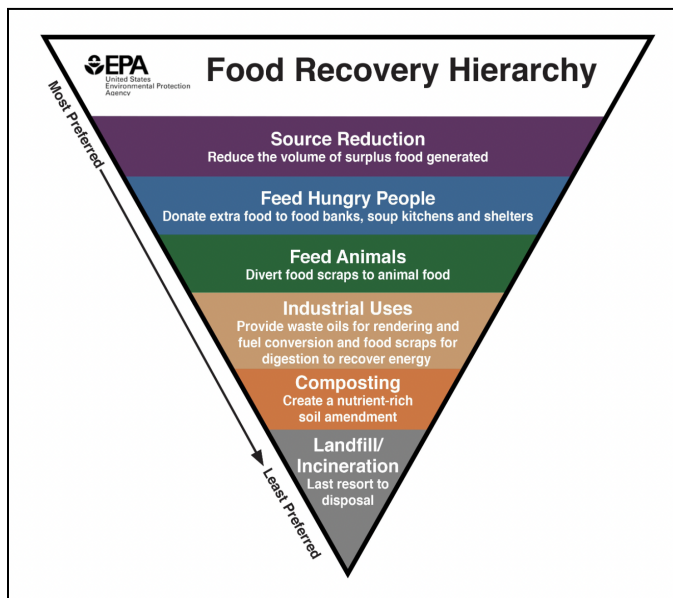


Figure 72: EPA’s Food Recovery Hierarchy [[Food Recovery Hierarchy](#)]

These efforts tackle organic waste upstream through food recovery and waste prevention, and align with recent state-wide efforts. The Washington State departments of Ecology, Health, and Agriculture and the Office of Superintendent of Public Instruction are teaming up to write the “Use Food Well” Washington Plan, intended to cut the amount of food waste in half over the next ten years. The plan includes recommendations for waste prevention, rescue, and recovery that support statewide goals and will create a more resilient food system. [[Use Food Well Washington Plan](#)] (See for more details: [WSDA Food Rescue](#), [ReFED video](#))

- **Local waste stream management:** In 2011, the San Juan County Council elected to cease operating all solid waste facilities in the islands and proposed to outsource waste management to contracted service providers.. Subsequently, citizens of Lopez and Orcas succeeded in creating Solid Waste Disposal Districts and establishing successful “exchange” programs to recycle usable items and material. [[Lopez Solid Waste Disposal District](#)] The Lopez Take-It-or-Leave-It, for example, diverts thousands of otherwise usable items from the landfill each year. [[Lopez 2025](#)]

On Orcas Island, ORS/The Exchange has similarly redirected and redistributed thousands of tons of material and is making significant strides to acquire glass crushing technology and the ability to bale recyclables, including aluminum, steel, cardboard, and plastics. Baling dramatically increases the amount of material that is recycled and significantly decreases the carbon footprint involved by reducing the number of trucks hauling material to the mainland. [[ORS/The Exchange](#); [ORS 2020 End-of-Year Update](#)]

- **Solid Waste Advisory Committee (SWAC):** Waste management in the County is overseen by the SWAC, who reviews and guides the activities of the Solid Waste Utility. Members of the committee represent a diversity of interests and islands. [[Solid Waste | San Juan County, WA](#)] The committee advises on all aspects of solid waste management planning; assists in the development of programs and policies concerning solid waste management; and recommends appropriate public policy to the County Council and the Friday Harbor Town Council. [[Solid Waste Advisory Committee | San Juan County, WA](#)]

## Conclusion & Next Steps

Now more than ever, food system work is essential. San Juan County faces increasing development pressures from a growing population and income inequality. The climate crisis is the foremost reality that we must grapple with in every choice. The pandemic has brought the existing fissures, frailties, and inequities of our food system into stark relief. This unraveling is also an opportunity to build a more resilient local food system.

To solve challenges, we must first be able to describe the underlying issues. To generate a coordinated plan, we must first come to understand both the current conditions and the historical context from which our food system has evolved. This Community Food Assessment is part of an iterative process of observation and interaction, of assessment and planning that will play out over the coming years and decades.

There are inevitably gaps in awareness in this process; to remove these blinders we will need continued community engagement. By investing in ongoing discussion, research, and dialogue to continue the work, we can and will arrive at solutions. We look forward to continuing the conversation to co-create a Food System Plan for San Juan County.