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FIR ISLAND FARM RESTORATION FEASIBILITY STUDY
AGRICULTURE BASELINE MEMO

Author: Mike Shelby – Western Washington Agriculture Association

History of Skagit Delta Agriculture

The Skagit River is one of the great rivers of the West. It originates in the North Cascades Range and descends the mountains to the foothills, and then to a broad floodplain and delta in the Puget Sound lowlands. On the delta, downstream about 10 miles before the river's mouth, the river splits into two major distributaries, the North Fork and South Fork. The river has built an extensive delta bounded on the north by Padilla Bay, on the South by Skagit Bay, and to the west by Fidalgo Island and the Swinomish Slough. The smaller Samish River flows on the northern part of the greater Skagit River delta. Today, when talking about this area, the Skagit and Samish delta areas are most often collectively referred to as the "Skagit Delta."

The Skagit River provides 30 percent of all fresh water that flows into Puget Sound. And, it is the most important salmon-producing basin within Puget Sound in terms of abundance, population diversity and types of habitat. Native peoples inhabited nearly all of the Skagit basin and delta, and have long taken advantage of this bountiful area. Euro-American settlement of the Skagit River basin began in the 1860's. Those who came to farm found on the delta some of the most fertile soils in the world. The challenge was to wrest control of the delta area from the river and sea. And they did! The rich soils, flat topography, and moderate climate of the Skagit delta provide some of the most optimal farming conditions in the world.

Over several decades a complex system of dikes and drainage infrastructure was developed to make the lower river delta lands suitable for farming. By the turn of the century the lower Skagit River and Samish River delta areas had an extensive network of dikes, levees, tide gates and drainage ditches to protect these new agricultural lands from flooding and tidal inundation. By the 1960's the delta's complete flood protection and drainage infrastructure was in place, essentially as it exists presently. The Skagit delta is often referred to as "The Agricultural Heartland of Western Washington," and is legendary worldwide for its agricultural productivity. Today, the agricultural landscape prevails on the delta, encompassing approximately 70,000 acres.

Skagit Delta's Agricultural Economy

Skagit Valley farmers raise more than 80 different high-value crops generating about $200 million annually for the local economy. The value of Skagit County's agriculture extends beyond the direct economic benefits. From every dollar of revenue generated, there is a $.51 cost in public services. This compares to residential development that

costs $1.25 in services for every $1.00 of generated revenue (American Farmland Trust 1999). Agriculture in the Skagit Delta is still dominated by small family farms, many of which are third or fourth generation landowners. There are at least 5,650 people engaged in employment generated by the local agricultural industry. There are three major ag-supply dealers in Skagit County.

Cauliflower and broccoli are primarily grown for the fresh market in Washington, Oregon and British Columbia. Potatoes (reds, whites, yellows and some russets) from the Skagit for the fresh market are also in demand for their high quality. The Skagit Delta area is a major producer of cabbage, kale, table beet, brussel sprout, and spinach seed. There are seven vegetable seed companies in the county most of which market worldwide. About half of the world's supply of beet and Brussels sprout seed is grown on the delta. More tulips, daffodils, and iris bulbs are produced in Skagit County than in any other county in the United States. Additionally, about 50 million cut flowers are grown in greenhouses and fields on the Skagit delta. Organic acreage in Skagit County is on the increase. Skagit County also ranks third in dairy production in the state. Skagit farmers have shown a great resiliency as market conditions change to be able to modify cropping patterns and products grown to continue to be economically viable. In the 1960's and 1970's vegetable and fruit crops for freezing and canning were the dominant productions crops. These included green peas, cauliflower, broccoli, sweet corn, carrots, strawberries, raspberries and blueberries.

As vegetable and fruit processors moved to the Columbia Basin and other locations and many consolidations were taking place, local farmers were forced to find alternative crops. The fresh market potato business became a primary economic crop. The fresh market and on farm processed berry production became a major crop for the Skagit Delta. Today, a crop rotation pattern would likely include potatoes every one in four years, wheat in one or two of the four year rotation, and some type of vegetable seed production in one of the four years. Other crops that would work in the rotation depending on farmer and available options would be corn for silage, grass for forage, flower bulb production, strawberries, cucumbers for pickles, nursery production. Each individual farm operations adjust the rotational crops to their own equipment availability or access to special markets such as pickle production.

Individual crops require special rotational strategies that interrupt the disease and pest cycles that could affect the production of each type of crop. Potatoes for example, require a four year rotation (15,000 acres annually require 60,000 acres to be available). Vegetable seed production requires and 8 to 12 year rotation depending on species. Thus 5000 acres of production would require 40-50,000 acres to maintain a good rotation. Wheat should not be planted two years in a row on the same land.

Though several major food processors have left the area in recent years, two major companies and several smaller on-farm operations continue to secure and process raw products from Skagit delta growers. Major crops grown for freezing are raspberries, strawberries and blueberries. Cucumbers for pickling are re-gaining prominent role. These crops are noted for their superior quality.

The Skagit Delta's Agricultural Infrastructure

Levees, dikes,tidegates and drainage ditches have protected over 70,000 acres in the Skagit Delta floodplain since the 1860's. As the early settlers discovered over 100 years ago, the Skagit delta soils require drainage to be farmed. These levees, dikes and associated tidegates prevented flooding and facilitated drainage necessary for agricultural use. Much of the historic estuarine habitat of the Skagit Delta is currently diked, drained, farmed, and developed. Today the lower delta floodplain is characterized by a vast agricultural landscape surrounded by about 147 miles of levees and dikes, with nearly 380 miles of drainage ditches and approximately 130 tide and flood gates.

The dikes or levees were originally constructed with the use of shovels and slip-scrapers along the South and North forks of the Skagit River and its main stem as well as along the eastern edge of Skagit Bay. Embedded in the dikes are tidegates (the outlet valves of the drainage infrastructure). The future of agriculture in Skagit County is related to farmers being able to farm with acceptable risks. On-farm drainage supported by a well-maintained drainage infrastructure provides the foundation for the future. Early settlers realized the absolute necessity to provide both surface and subsurface drainage in order to grow crops. Lands in the delta were cleared, diked, drained, leached, and farmed in that order. Early drainage technology was simple and consisted of open drainage ditches on-farm with larger drainage district ditches that led to tidegate outlets. It was common to take advantage of the swales, sloughs, and old channels to route drainage water. When dikes and levees were first built, the land could not be used for crops for about 2-3 years due to salinity effects. The early crops first grown on the delta consisted of oats and barley that are relatively salt tolerant. Today, many of the crops grown in the Skagit Valley are 2-3 times more salinity sensitive.

As time progressed, technology replaced the horse with the tractor, and some tidegates with pumps or better gates and drainage improved the ability of the land to support a larger variety of crops. Throughout the 1950s, 60s, and 70s, new drainage technology and active agronomic research made Skagit County a world leader in the production of several vegetable seed crops, flower bulbs, as well as other crops. By the late 1970s, Skagit farmers were actively installing thousands of feet of subsurface patterned drainage systems rather than the old random systems in low spots in the fields. All of these new systems required an adequate outlet provided by a drainage district. The dikes and associated tidegates prevent flooding and facilitate drainage necessary for agriculture and other uses. Tidegates are one-way check valves embedded in the dikes. They provide three major functions: 1) tidegates prevent saltwater intrusion, which is necessary because salt kills crops and water in drainage systems may be used for irrigation and therefore must be salt free (Soil Conservation Service 1960); 2) tidegates maximize drainage potential thereby keeping the water table low to reduce soil saturation and increase the length of the growing season by allowing an earlier start in the spring; and 3) tidegates create a reservoir between tides in which water can be collected for dispersal during the next low tide.

Today, there is a dedicated group of small individual public dike, drainage and irrigation districts, actively coordinating and working with county, state and federal agencies to maintain these critical flood, drainage and irrigation structures.

Current Fir Island Farm Cropping

In 1980's the Von Moos property was purchased by WDFW to be used as a primary focal point for providing winter protection and forage for a limited Snow Goose population. The land was to be managed for this purpose and to that end, has been continuously farmed and managed with annual cropping rotations that allow the property to be planted in the fall with crops that provide winter snow goose forage .

An agreement was formed with an adjoining landowner\farmer to farm WDFW's land with annual cropping patterns in exchange for planting and maintaining the Snow Goose forage crops in the winter months. This program has been working well for the farmer and WDFW.

Due to the necessity to plant winter snow goose forage, the adjoining landowner/farmer is not able to plant commercial crops that overwinter such as wheat, grass for dairy feed and fall planted seed crops such as cabbage and kale. In addition, the adjoining landowner/farmer is not able to plant permanent crops such as berries and nursery production. . As such, the adjoining landowner/farmer is not able to implement what may be considered a "normal" crop rotation.

These cropping selection and rotation limitations require the farmer to only plant summer annual crops that can be planted in the Spring and harvested, for the most part, in time to plant and establish the forage crops that will be utilized as winter snow goose forage. The common available crops that can be planted under this scenario currently include spring planted vegetable seed crops such as spinach, red beets and radish or annual summer crops such as potatoes and broccoli. Late harvested crops are problematic since they do not allow time to establish adequate forage crops to meet the contract obligations with the agency.

The land located within WDFW's Fir Island Farm is highly productive and capable of growing virtually any of the crops typically grown in the Western maritime climate and the Skagit and Samish deltas. The only farming limitations are the contractual requirements to produce winter Snow Goose forage.

The farming agreement between WDFW and the adjoining landowner\farmer to farm WDFW's Fir Island Farm is perceived as a favorable agreement within the agriculture community because it keeps the land in useful agricultural production while still providing a waterfowl benefit. This is the type of collaboration that will help to maintain viable long-term agriculture in the Skagit delta.