Voluntary Stewardship Program

January 5, 2018

Acknowledgments

This work plan was developed by the San Juan County Voluntary Stewardship Program Watershed Work Group appointed by San Juan County Council, with contributions from the San Juan Islands Conservation District, San Juan County Agricultural Resources Committee, San Juan Islands Agricultural Guild, WSU Extension, and consultants.

Watershed Work Group Members

Sector	Affiliation		Participant
Agricultural Producers	Lopez Island	Sweet Grass Farm	*Scott Meyers*
		Horse Drawn Farm	*Kathryn Thomas*
		Helen's Farm	*Julie Bottjen*
	San Juan Island	Thor Black Farm	*Thor Black*
		Red Roof Acres	*Matt Claussen*
		Good Earth Farm	*Amy Plant*
	Orcas Island	Taproot Farm	*Sarah Ross*
		Morning Star Farm	*Steve Diepenbrock*
		Crozier Farm	*Jim Litch*
			Rachel Bishop
		West Beach Farm	*Kathy Morris*
Agricultural Organizations	San Juan Islands Agricultural Guild		*Candace Jagel*
	San Juan Islands Conservation District		*Vicki Heater*
San Juan County Advisory Committees	Agricultural Resources Committee		*Learner Limbach*
	Water Resource Management Committee		*Kimbal Sundberg*
San Juan County Departments	Public Works, Environmental Resources		*Kendra Smith*
	Community Development		*Erika Shook*
	Salmon Recovery		*Byron Rot*
	WSU Extension		*Brook Brouwer*
Environmental Organizations	Friends of San Juans		*Kyle Loring*
Tribal Nations	Lummi Nation		*Alan Chapman*
	Swinomish Tribe		*Stan Walsh*
	Tulalip Tribes		*Terry Williams*

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1. Introduction

In the San Juan Islands, we savor the natural beauty and healthy environment as much as we savor our locally grown food and working farms. Both are integral to the culture of the islands. The islands lie within the Salish Sea, which is the ancestral territory of British Columbia Coast Salish Nations and Western Washington Tribes. Since time immemorial, the Coast Salish people, related by languages and bloodlines, have lived in the mountains, shorelines and watersheds of the Salish Sea. The treaty tribes of the Point Elliot Treaty of 1855 still depend on the San Juan Islands for sustenance and their lifeways. In Coast Salish terms, "when the tide is out, the table is set" and today these tribes are still part of this rich natural resource fabric.

In the 1700s, Europeans began settling the area and established a community of farms that produced dairy, livestock, grains, peas, strawberries, cherries, plums, apples, pears, and peaches. Today, less than half the number of farms remain from the peak of 566 farms and 68,513 acres of farmland in the 1920s[1].

San Juan County does not have large industrial agriculture; however, agricultural activities are often closely intertwined with environmentally critical areas such as streams, riparian areas, and wetlands. Agriculture relies on clean water, fertile soils, and open space. Protecting critical areas that provide these resources is part of a stewardship ethic that is closely tied to agricultural production. There can be negative effects of agricultural production, such as decreased water quality and increased soil erosion, for example. Agriculture in San Juan County is faced with a number of challenges including geographic isolation, high production costs, lack of available infrastructure and access to reliable markets, seasonal drought, and an aging farmer population. There is a need to address these challenges and find solutions that protect and enhance environmentally critical areas while maintaining and improving viable agriculture.

To address these challenges, the Washington State Legislature charged the Ruckelshaus Center in 2007 to examine the conflict between maintaining viable agriculture and protecting critical areas as defined by the State's Growth Management Act (GMA, RCW 36.70A). The result of the Ruckelshaus Center report was the Voluntary Stewardship Program (VSP, RCW 36.70A.700), adopted by the legislature as a part of the Growth Management Act in 2011.[2]

VSP is a voluntary alternative to Critical Areas Ordinance (CAO) regulations adopted by local governments in compliance with the GMA. Each county has an option to participate in the Program. The VSP is a collaborative and incentive-based approach to protecting Critical Areas while also promoting agricultural viability. VSP only applies when agricultural activities, as defined by RCW 90.58.065[3] and the State's Shoreline Management Act, intersect with Critical Areas as defined by GMA (RCW 36.70A). The GMA defines Critical Areas as:

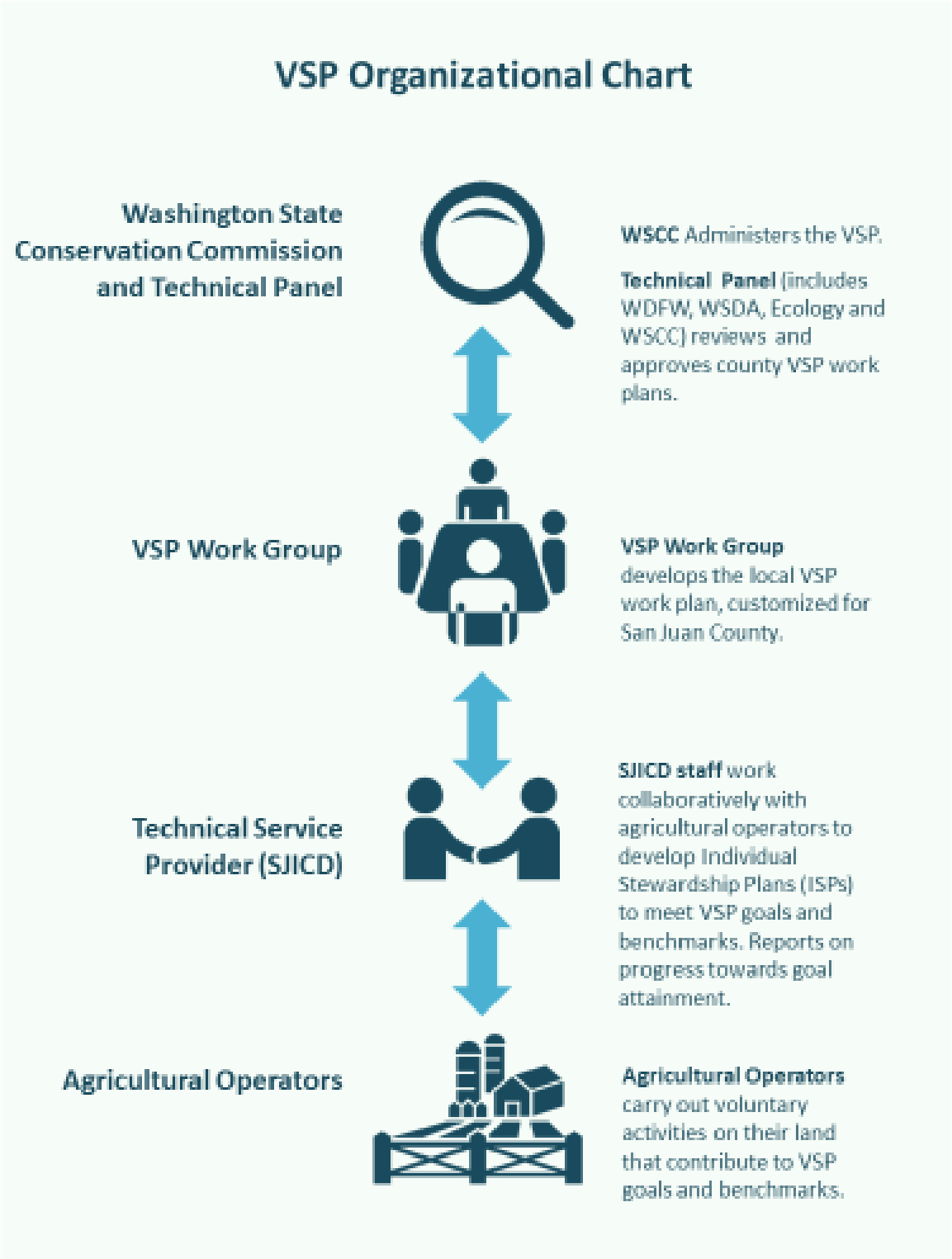
- Wetlands
- Fish and Wildlife Habitat Conservation Areas
- Geologically Hazardous Areas
- Critical Aquifer Recharge Areas
- Frequently Flooded Areas

[1] Growing Our Future, An Agricultural Strategic Action Plan for San Juan County, WA, June, 2011

[2] A copy of the VSP statute is included in Appendix A.

[3] Agricultural Activities are defined by state statute at RCW 90.58.065. A copy of the definition is included in Appendix B.

Figure 1. VSP Organizational Chart



A key distinction between the CAO and the VSP approach is that the overall focus of the VSP is to demonstrate Critical Areas protection at a watershed scale. Critical Areas protection must be documented with data. In contrast, it is assumed that compliance with CAO measures, such as regulatory buffers, equates to Critical Areas protection on the ground at the parcel scale, and that such protection extends to the watershed scale. To document Critical Areas protection, there are monitoring and reporting requirements associated with the VSP that are not required as part of CAO compliance. Jurisdictions that adopt the VSP must establish goals and benchmarks and demonstrate protection and progress towards goal attainment at a watershed scale with reporting requirements after each biennium and every five years following receipt of state funding to implement the VSP[4].

Table 1. Comparison of Critical Areas Ordinance and Voluntary Stewardship Program

	Critical Area Ordinance	Voluntary Stewardship Program
Approach	Prescriptive regulations including fixed buffers on wetlands and streams.	Voluntary participation to protect critical areas while also supporting agricultural viability.
Protection Standard	Preserve the functions and values of the natural environment, or safeguard the public from hazards to health and safety (WAC 365-196-830)	Prevent the degradation of functions and values (RCW 36.70A.703(8)). Maintain agricultural viability (RCW 36.70A.720(1)
Enhancement Standard	None	Improve the processes, structure, and functions…of ecosystems and habitats associated with critical areas (RCW 36.70A.703(4)) Improve long-term viability of agriculture and reduce the conversion of farmland to other uses (RCW 36.70A.700(2)(a))
Scale	Parcel by parcel, as development permits are conditioned.	Collective, watershed basis
Monitoring	None required	Monitoring and reporting required to demonstrate critical area protection.
Adaptive Management	Periodic updates required based on best available science	Adaptive management required if protection benchmarks are not met.
Other County, State, and Federal Regulations	Continue to apply	Continue to apply

[4] See 36.70A.720(1)(j) and (2)(b).

The intent of the VSP statute is to:

a) Promote plans to protect and enhance critical areas within the area where agricultural activities are conducted, while maintaining and improving the long-term viability of agriculture in the state of Washington and reducing the conversion of farmland to other uses.
b) Focus and maximize voluntary incentive programs to encourage good riparian and ecosystem stewardship as an alternative to historic approaches used to protect critical areas;
c) Rely upon RCW 36.70A.060 for the protection of critical areas for those counties that do not choose to participate in this program;
d) Leverage existing resources by relying upon existing work and plans in counties and local watersheds, as well as existing state and federal programs to the maximum extent practicable to achieve program goals;
e) Encourage and foster a spirit of cooperation and partnership among county, tribal, environmental, and agricultural interests to better assure the program success;
f) Improve compliance with other laws designed to protect water quality and fish habitat; and
g) Rely upon voluntary stewardship practices as the primary method of protecting critical areas and not require the cessation of agricultural activities.[5]

Because all of San Juan County is designated as a Critical Aquifer Recharge Area, VSP applies to all agricultural activities in the County. San Juan County's participation in VSP does not exempt agricultural operators from compliance with other laws, rules, or permitting requirements outside of the Critical Areas Ordinance.

San Juan County is one of 27 counties in Washington State that has opted to participate in the VSP. While San Juan County elected officials opted to participate in the VSP in 2012, funding to implement the VSP in San Juan County became available in 2015, and the County initiated the process to establish a Watershed Work Group (hereinafter Work Group) to develop a Work Plan in compliance with the VSP statute. The Work Plans establish each county's road map to compliance with the VSP statute—they specify the purpose, goals, and objectives for enhancing agricultural viability while protecting and enhancing critical areas within each county. The reporting requirements for the VSP in San Juan County are detailed below in Table 2. To demonstrate that Counties are meeting watershed-based goals, there are monitoring, reporting, and adaptive management requirements as a part of the framework of the VSP. The Work Group's roles and responsibilities are also identified in the statute (RCW 36.70A.720). San Juan County administers the program at the local level through the San Juan Islands Conservation District.

The purpose of the VSP is to involve all parties at the state, local, tribal, and federal level in both maintaining and enhancing agricultural viability while also protecting critical areas. The primary means of achieving these goals is through Individual Stewardship Plans that 'encourage good riparian and ecosystem stewardship as an alternative to historic approaches used to protect critical areas[6]. An organizational chart of the parties involved in the VSP process is shown in Figure 1. The duties of the parties are outlined in the VSP statute and summarized in Figure 2.

[5] RCW 36.70A.700(2)

[6] 36.70A.700(2)(B) Purpose-Intent

Table 2. Reporting Requirements and Work Group Meeting Schedule

Work Group Meeting Dates	2-Year Reporting Activities	5 & 10-Year Reporting Activities
October 2018	Review 2017 survey data and revise survey as needed.	
August 2019	1st Biennial Report due. Work Group will review: 1. 2019 Ag Viability Survey Data 2. Biennial Report on program implementation 3. Review outline and procedures for 5-year reporting.	
May 2020		5-year Comprehensive Monitoring and Implementation Report due July 2020. Work Group will review 5-year draft report and provide feedback.
August 2021	2nd Biennial Report due. Work Group will review: 1. 2021 Ag Viability Survey Data 2. Biennial Report on program implementation	
August 2023	3rd Biennial Report due. Work Group will review: 1. 2021 Ag Viability Survey Data 2. Biennial Report on program implementation	
May 2025		10-year Comprehensive Monitoring and Implementation Report due July 2025. Work Group will review report and provide feedback.
Ongoing every 2 and 5 years following 2025	Biennial Reports every 2 years	5-year Comprehensive Monitoring and Implementation Reports every 5 years.

1.1 An Overview of the VSP Process

The VSP process is overseen by dual authorities—the Washington State Conservation Commission (WSCC) and the State Technical Panel. WSCC administers the VSP and the WSCC Executive Director has the authority to approve or reject Work Plans submitted by each participating county. The State Technical Panel reviews the Work Plans and provides recommendations for approval or denial to the

WSCC Executive Director. The State Technical Panel is composed of representatives of state agencies who have an interest in promoting agricultural viability and protecting Critical Areas in the state, including representatives from the Washington State Departments of Fish and Wildlife, Ecology, Agriculture, and the WSCC. The State Technical Panel's review process and the timeframe for review are also addressed in statute RCW 36.70A.725.

At the local level, each county has the authority to opt in or out of the VSP. Each county also designates the coordinating entity of the VSP and the Work Group participants. The county's duties are fully described in the RCW 36.70A.715. In San Juan County, the San Juan Islands Conservation District (SJICD) is the coordinating entity that facilitated the development of the Work Plan. The SJICD is also the primary technical assistance provider for Work Plan implementation in San Juan County.

Members of the VSP Work Group were appointed by the San Juan County Council in December 2015. Members were selected through an iterative process with County staff, County Council, and the Conservation District to ensure inclusive and broad participation by all agricultural and environmental interests in the islands. In appointing Work Group Members, the County Council made an effort to ensure that there would be input from Tribes, agencies, and appropriate stakeholders concerned with agricultural viability and critical areas protection in San Juan County in compliance with RCW 36.70A.720(b).

The members of the Work Group have been active participants in the community in support of either or both agricultural viability and environmental protection. As indicated in the Watershed Work Group Table on Page 2, the Work Group is composed of representatives from:

- Multiple San Juan County departments, including Community Development, Public Works Environmental Resources division; Salmon Recovery, and WSU Extension;
- All relevant county agricultural and environmental advisory committees, including the Agricultural Resources Committee and the Water Resource Management Committee;
- Multiple agricultural producers representing each of the three main islands, large and small producers; and a variety of organic and conventional farming interests, including livestock, horses, hay, grain, fruits and vegetables, and value-added products;
- Primary and long-standing agricultural organizations within the islands, including the Agricultural Guild and the San Juan Islands Conservation District;
- Friends of the San Juans, which is the primary long-term environmental advocacy organization within San Juan County;
- Tribal representatives, including Lummi Nation, Tulalip Tribes, and Swinomish Tribe. These tribes all have usual and accustomed treaty rights within the islands and are all active members with our Local Integrating Organization. To date, the Tulalip Tribes representatives have actively participated in a work group meeting and work plan drafting. Lummi Nation and Swinomish Tribe representatives have been consulted in non-work group meetings and email discussions.
- State agency staff are not voting members, but have been actively involved, including representatives from the Departments of Ecology and Fish and Wildlife.

The duties of the Work Group are to develop a Work Plan with goals and measurable benchmarks to protect Critical Areas while maintaining the viability of agriculture in San Juan County, following the criteria set forth in RCW 36.70A.720 as follows:

a) Review and incorporate applicable water quality, watershed management, farmland protection, and species recovery data and plans;
b) Seek input from tribes, agencies, and stakeholders;
c) Develop goals for participation by agricultural operators conducting commercial and noncommercial agricultural activities in the watershed necessary to meet the protection and enhancement benchmarks of the Work Plan;
d) Ensure outreach and technical assistance is provided to agricultural operators in the watershed;
e) Create measurable benchmarks that, within ten years after the receipt of funding, are designed to result in:
    i the protection of critical area functions and values and
    ii the enhancement of critical area functions and values through voluntary, incentive-based measures;
f) Designate the entity or entities that will provide technical assistance;
g) Work with the entity providing technical assistance to ensure that Individual Stewardship Plans contribute to the goals and benchmarks of the Work Plan (where Individual Stewardship Plans are the site-by-site tool used to document each agreement);
h) Incorporate into the Work Plan any existing development regulations relied upon to achieve the goals and benchmarks for protection;
i) Establish baseline monitoring for:
    i Participation activities and implementation of the voluntary stewardship plans and projects;
    ii Stewardship activities; and
    iii The effects on critical areas and agriculture relevant to the protection and enhancement benchmarks developed for the watershed;
j) Conduct periodic evaluations, institute adaptive management, and provide a written report of the status of plans and accomplishments to the county and to the commission within sixty days after the end of each biennium;
k) Assist state agencies in their monitoring programs; and
l) Satisfy any other reporting requirements of the program. Review and incorporate applicable water quality, watershed management, farmland protection, and species recovery data and plans.

The roles and statutory responsibilities of the parties involved are provided in Figure 2 below.

Participation and Outreach

The Work Group convened its first meeting in January 2016. It has met 12 times with the Work Group as a whole, and held several sub-committee meetings to discuss environmental protection and agricultural

viability in detail. Dates and participants in these meetings are detailed in Table 3. Work Group meetings and sub-committee meetings have regularly included representatives from the Washington State Departments of Ecology and Fish and Wildlife, as well as occasional participation from the Washington State Conservation Commission and Farm Bureau. Tulalip tribal representatives participated in one of the work group meetings, provided input on the Work Plan, and expressed support for the process. Members of the facilitation team (San Juan Islands Conservation District director and lead consultant) also met separately with representatives from Tulalip and Swinomish Tribes to provide an overview of the process and seek input.

The facilitation team has also conducted outreach and sought input from the San Juan Islands Agricultural Guild, the San Juan County Agricultural Resources Committee, agricultural producers, and the public at large. Staff from the San Juan Islands Conservation District met with interested stakeholders throughout the work plan development process. In addition, VSP workshop sessions were offered at the 2016 and 2017 San Juan County Agricultural Summits to engage agricultural producers and public outreach sessions were held on Lopez, Orcas, and San Juan Islands in October 2017. Details on planned outreach going forward are provided in the Outreach Plan in section 6.1.

Table 3. Meetings and Participation

Work Group Meeting Dates		
January 27, 2016	November 7, 2016	June 23, 2017
March 28, 2016	February 3, 2017	August 2, 2017
April 25, 2016	April 17, 2017	October 4, 2017
September 12, 2016	June 8, 2017	October 17, 2017
Work Group Meeting Participants		
Lynn Bahrych, WSCC and SJICD	Kyle Loring, attorney, Friends of San Juans	
Kristina Bayas, WSU Extension staff	Kathy Morris, West Beach Farm, Orcas Island	
Thor Black, Black Family Enterprises, San Juan Island	Samantha Martin, SJICD Staff	
Peggy Bill, Agricultural Resources Committee	Scott Meyers, Sweet Grass Farm, Lopez Island	
Brook Brouwer, WSU Extension Executive Director	Amy Plant, Talking Horse Farm, Agricultural Guild, San Juan Island	
Matt Claussen, Red Roof Acres Farm, San Juan Island	Sarah Ross, Taproot Farm, Orcas Island	
Bill Eller, WSCC	Scott Rozenbaum, Rozewood Environmental Services	
John Evans, Agricultural Producer, Orcas Island	Byron Rot, SJC Public Works, Environmental Resources, Salmon Recovery Coordinator	
Sam Gibboney, SJC Public Works, former Environmental Resources Manager	Evan Sheffels, Farm Bureau	
Patti Gobin, Tulalip Tribes	Angie Shephard, SJICD Staff	
Bruce Gregory , Mitchell Bay Farms, SJICD Staff	Erika Shook, SJC Community Development Director	
Vicki Heater, SJICD Board Member, retired SJC Groundwater expert	Ron Shultz, WSCC	
Candace Jagel, Agricultural Guild, Agricultural Resources Committee	Kendra Smith, SJC Public Works, Environmental Resources Manager	
Julie Bottjen, Helen's Farm, Lopez Island	Kimbal Sundberg, SJC Water Resource Management Committee	
Nick Jones, Jones Family Farms, Lopez Island	Kathryn Thomas, Horse Drawn Farm, Lopez Island	
Mak Kaufman, Water Quality Program, Department of Ecology, Bellingham Field Office	Doug Thompson, Area Habitat Biologist, WDFW	
Learner Limbach, Agricultural Resources Committee, Orcas Island	Robert Walters, SJICD Staff	
Jim Litch, Agricultural Producer, Orcas Island	Terry Williams, Tulalip Tribes	
Agricultural Viability Subcommittee Meeting Participation – facilitated by Linda Lyshall		
Peggy Bill	Learner Limbach	
Brook Brouwer	Samantha Martin	
Bruce Gregory	Sarah Ross	

Candace Jagel	Kathryn Thomas
Mak Kaufman	
Critical Areas Subcommittee Meeting Participation – facilitated by Jennifer Thomas	
Brook Brouwer	Byron Rot
Vicki Heater	Erika Shook
Mak Kaufman	Kimbal Sundberg
Kyle Loring	Doug Thompson
Meeting Facilitators	
Nora Ferm Nickum	Jennifer Thomas
Linda Lyshall	

Figure 2. Roles, Responsibilities, and Work Plan Location

	Statutory Citation	VSP Work Group (Appointed by County Council)	San Juan Islands Conservation District Staff (Implementing entity of VSP for San Juan County)	San Juan Islands Conservation District Consulting Team	Location in the Work Plan
Create Goals & Benchmarks	RCW 36.70A.720 (1)	Provide input and approve goals related to critical areas and agriculture.	Review and provide input.	Propose goals & benchmarks related to critical areas and agriculture.	Agriculture, section 4 Critical Areas, section 5
VSP Process	b	Participate in discussions and provide input.	Review and provide input.	Review and provide input.	Input from tribes, agencies, and stakeholders, section 1.1
Background Information	a, h	Review bibliography.	Serve as primary author of section.	Provide bibliography.	Review of existing plans, section 3 Regulatory framework, section 3
Baseline Conditions	i	Review and approve baseline conditions report and evaluation plan.	Review and provide input.	Develop GIS maps in collaboration with SJC GIS to document baseline conditions.	Baseline monitoring for participation, stewardship, and effects on critical areas and agriculture, section 2
Measurable Benchmarks	c, e, i	Provide input and approve measurable benchmarks for critical areas.	Review and provide input.	Propose measurable benchmarks to protect and enhance critical areas.	Benchmarks, section 4
	c, e, i	Propose and approve measurable benchmarks for agriculture.	Review and provide input.	Provide input on measurable benchmarks for agriculture.	Benchmarks, section 5
Outreach and Technical Assistance Plan	c, d, f, g	Provide input on plan, designate technical assistance entity.	Develop and implement plan in collaboration with partners.	Review plan.	Outreach and technical assistance, section 6
Monitoring, Reporting, and Adaptive Management	j, k, l	Review and make final decision on monitoring and adaptive management approach.	Review and provide input on plan. Conduct monitoring, provide data and written reports every two, five, and ten years.	Develop baseline monitoring approach and adaptive management thresholds.	Monitoring, reporting, adaptive management, section 7 and Appendix E
	j, k, l		Assist state agencies in monitoring and addressing concerns.		Appendix E

1.2 How Does VSP Work?

Implementing the VSP to achieve Critical Area protection and enhancement is very similar to the current process that the San Juan Islands Conservation District (SJICD) uses for farm planning and cost-share assistance. Under the VSP, agricultural operators can voluntarily develop an Individual Stewardship Plan (ISP); there is no penalty for individual operators in San Juan County who choose not to develop an ISP and agricultural activity will not be restricted by the existing CAO for those who do not choose to participate in the VSP. The VSP is incentive based and will not restrict new or existing agricultural activities. As stated in the statute, the intent of the VSP is to rely upon voluntary stewardship practices as the primary method of protecting critical areas and not require the cessation of agricultural activities[7].

The primary difference between the VSP and the current SJICD farm planning process is that the VSP requires monitoring, and reporting at the watershed scale. SJICD will compile all monitoring data and complete all required reporting. Reporting requirements under the VSP are not the responsibility of the farmer or agricultural operator. From the perspective of the farmer or agricultural operator in San Juan County, there will be very little difference between developing an ISP and the current farm plan and BMP implementation process.

Because the VSP process is so similar to the existing farm planning process, Conservation Districts across the state are the most commonly designated technical assistance providers under the VSP. In San Juan County, the SJICD is designated as the technical assistance provider of the VSP. As the designated technical assistance provider, SJICD staff will work closely with each agricultural operator who chooses to participate in developing site-specific goals and objectives that are consistent with VSP goals and objectives and seek to both enhance agricultural viability and protect and enhance Critical Areas.

The standard basic steps for an agricultural operator developing an Individual Stewardship Plan (ISP) under VSP in San Juan County are as follows:

1. The first step is to contact the San Juan Islands Conservation District and request an Individual Stewardship Plan.
2. A SJICD-certified farm planner confers with the applicant to determine their needs and goals for agricultural activities and Critical Area protection or enhancement.
3. The SJICD planner generates maps of existing information for the property using existing County Critical Areas map data, including Wetlands, Fish and Wildlife Habitat Conservation Areas, Geologically Hazardous Areas, and Frequently Flooded Areas. These maps will show the extent of overlap, if any, between the mapped Critical Areas and agricultural activities. The planner will ground-truth the maps during the first site visit to determine the accuracy of Critical Areas base maps and determine if there is a need for additional information. If

[7] RCW 36.70A.(1)(g)

needed, the SJICD planner, in coordination with the property owner/agricultural operator, may consult with outside experts (i.e. wetland biologists) to develop management practices for Critical Areas protection or enhancement as needed.

4. The SJICD planner and agricultural operator conduct an initial site visit together and collaboratively develop the Individual Stewardship Plan, utilizing the Individual Stewardship Plan Checklist (see Appendix C).
5. All Individual Stewardship Plans will include a management plan that identifies site specific goals and benchmarks relevant to the property and the agricultural operator's interest, and suggested best management practices (BMPs) to achieve those goals. The SJICD planner will review and certify the final Individual Stewardship Plan in collaboration with the property owner and/or agricultural operator.
6. Once the Individual Stewardship Plan is certified, the agricultural operator becomes eligible to apply for financial cost-share assistance through SJICD for BMP implementation. The agricultural operator then typically implements the BMPs identified in the Individual Stewardship Plan to improve agricultural production and protect and enhance critical areas. Cost-share is not awarded for practices that will negatively impact critical areas.
7. The SJICD planner monitors BMP implementation annually, collects aggregate data on all farms with an ISP, and reports on watershed- and county-wide progress towards achieving goals and benchmarks of the VSP every 2 and 5 years as required by the statute.

Alternatively, an agricultural operator can choose to develop their own Individual Stewardship Plan, or receive assistance from the Natural Resources Conservation Service (NRCS), a private consultant, or another entity to develop an Individual Stewardship Plan. If this is the case and the agricultural operator wants to be eligible for cost-share incentives through the SJICD, the SJICD-certified planner will need to conduct a site assessment, go over the ISP checklist with the agricultural operator, and certify the ISP. Farms with existing farm plans are automatically eligible for cost-share assistance.

VSP and Agricultural Viability

The second and equal goal of the VSP is "to maintain and improve the long-term viability of agriculture…and reduce the conversion of farmland to other uses"[8]. Section 4 discusses the goals, objectives, and strategies identified by the VSP work group to achieve this goal.

Adaptive Management Following Reporting

If watershed reporting shows a decline in Critical Area protection as measured against the baseline acreage of wetlands or streams (where they intersect with agriculture) present in 2011, the date of statutory adoption of the VSP, the SJICD will begin implementation of adaptive management procedures. This will consist of:

- Identifying areas of concern and developing a management plan to address the concern.

[8] RCW 36.70A.700(2)(a)

- Working with landowners with affected properties and prioritizing related funding to assist with BMP implementation.

In the event that the VSP goals are not achieved, the Work Group will be re-convened to reassess the Work Plan strategies. If adaptive management is unsuccessful in meeting a protection goal, the County must comply with the regulatory requirements for Critical Area updates and agricultural activities under RCW 36.70A.735. Section 7 of this work plan includes a more detailed discussion on monitoring, reporting, and adaptive management, and Section 4 includes identification of Critical Areas goals, benchmarks, objectives, metrics and thresholds that trigger adaptive management. Adaptive management for agricultural viability is also discussed in detail in Section 4.

2. Baseline Conditions

2.1 Agricultural Viability

Many factors contribute to agricultural viability in San Juan County, some of which can be managed locally; however, there are also factors beyond local control, such as climate and global events. The VSP will attempt to identify linkages and measure factors that are directly associated with local agricultural viability. The metrics in the tables below were identified by an agricultural viability sub-committee of the Work Group.

Establishing baseline conditions for agricultural viability will provide a benchmark against which to measure progress over time. Table 4 provides a compilation of baseline data that directly relate to the indicators discussed in Section 4 and represents baseline metrics for measuring agricultural viability in San Juan County. Information presented in Table 4 reflects data from July 2011 (the date of statutory adoption of the VSP) to March 2017 gathered from several local organizations including SJICD, NRCS, the San Juan Preservation Trust (SJPT), the San Juan County Land Bank (SJCLB), local schools, and the County Assessor's office. Table 5 provides a summary of results from a local agricultural viability survey conducted in early 2017 (see Appendix G and a discussion of the survey below). These indicators will be tracked over time to assess changes in agricultural viability in the County.

Table 4. San Juan County Baseline Data

Information presented here reflect data from July 2011 to the present.

Metric	As of 2011	2011-2017	Explanation/ Data Source
Number of farm plans created	45	58	SJICD
Number of acres farm plans have served	1016	2,380	SJICD
Total number of BMPs implemented on agricultural land (NRCS & SJICD)	0 SJICD	92	SJICD & NRCS
Total linear feet of fencing installed	0 SJICD	24,262	SJICD & NRCS
Number of compost facilities installed	0 SJICD	12	SJICD & NRCS
Number of Heavy Use Areas installed	0 SJICD	16	SJICD & NRCS
Total farm acreage protected by Heavy Use Areas	0 SJICD	509	SJICD & NRCS
Number of agricultural acres protected: Acquisition	702	968	2011 Data from Growing Our Future, 2011
Number of agricultural acres protected: Conservation Easements	4,165	119	2017 Data from SJPT & SJCLB
Total acreage of land in farms (ag. activity)	14,930	13,942	2011 total from Growing Our Future (2011). 2017 total from VSP Mapping

Metric	As of 2011	2011-2017	Explanation/ Data Source
Total acreage in SJC designated as Open Space-Agricultural land, 2017. (Current Use Farm and Agriculture)	Not Available	10,086	San Juan County Assessor
Number of school garden programs in the County, 2017	4	5	Local Schools, 2017; Growing our Future, 2011

As of June 30, 2011, the SJICD had developed 32 farm plans. Between August 2011 and May of 2017, the SJICD wrote another 58 farm plans. Combined, SJICD staff have developed a total of 103 farm plans, serving 3,396 acres. In addition to farm plans, both the SJICD and the NRCS have offered cost-share programs to facilitate the implementation of specific BMPs in San Juan County. The total amount of agriculture-related BMPs (92) that have been implemented by both agencies between 2011 and 2017 are presented in Table 4. San Juan County Baseline Data.

Table 4 also displays a variety of metrics that illustrate the amount of total farmland in the County. For example, it lists the total number of agricultural acres protected. In the 2011 Strategic Action Plan, "Growing Our Future,[9]" this is referred to as "Conserved Land." This is defined as all land protected by either a conservation easement or land acquisition—specifically owned by either the SJPT or the SJCLB. Another way of assessing the amount of farmland in the County is by using data from the USDA census. The most recent census data state that as of 2012 (listed in the "2011" column since it is the closest census data to 2011), 15,669 acres were being farmed in San Juan County, which is down from the 2007 census, which reported 21,472 acres (USDA Ag Census). Using different methods than the USDA, extensive efforts have been made throughout the development of this Work Plan to map the amount of current agricultural activity in San Juan County through the County's GIS mapping and on-the-ground reconnaissance and local knowledge. Based on these methods, it is estimated that approximately 13,942 acres are in agricultural activity in San Juan County as of October 2017.

Finally, yet another way to estimate the amount agricultural land in San Juan County is to look at the total land currently enrolled in the Current Use Farm and Agricultural tax designation (CUFA). As of 2017, 10,086 acres are in Current Use Farm and Agricultural tax designation, which has decreased from previous years.

Agricultural Viability Survey Results

An agricultural viability survey specific to San Juan County was concluded in early 2017. The agricultural viability survey was created by a team of VSP Work Group members, SJICD staff, and Agricultural Resource Committee members and staff, in consultation with WSU's Social and

[9] Growing Our Future: An Agricultural Strategic Action Plan for San Juan County, WA. 2011. San Juan County Agricultural Strategic Action Plan Steering Committee. http://islandgrown.net/sjcarc/files/2012/06/SJC_SAP_Full.pdf

Economic Sciences Research Center (SESRC), and Dr. Mike Brady, WSU economist and survey specialist. During February and March of 2017, the agricultural viability survey was implemented by SESRC in collaboration with SJICD throughout San Juan County to "help better understand how to increase the profitability for farmers and support agriculture in San Juan County" (Krebill-Prather & Miller, 2017; see Appendix G for full report and survey results). The survey was sent to established farms with the option to respond via either the paper survey or online. Overall, 71 respondents completed or partially completed the survey.

Highlights of the data are presented in Table 5. Summary Data Collected Through a Local Agricultural Viability Study Conducted in 2017. This data reflects the responses of 59-71 respondents of the survey and is not a complete picture of the total values throughout the County. We may obtain broader participation in future surveys.

Table 5. Summary Data Collected Through a Local Agricultural Viability Study Conducted in 2017.

Respondent Type	Percentage	Total
Farms that sell goods off-island (restaurants and grocery stores)	**46%**	27/59 respondents
Gross Annual Sales 2015		
Less than $10,000	**50 %**	30/59 respondents
Between $10,000 - $50,000	**27%**	16/59 respondents
Between $50,000 - $100,000	**7%**	4/59 respondents
Above $100,000	**15%**	9/59 respondents
Net profit 2015		
Less than $10,000	**74%**	42/57 respondents
Between $10,000 - $50,000	**25%**	14/57 respondents
Between $50,000 - $100,000	**0 %**	0/57 respondents
Above $100,000	**2 %**	1/57 respondents
Number of acres farmed 2014 (owned and leased)	**2,952**	71 respondents
Number of acres farmed 2015 (owned and leased)	**3,259**	71 respondents
Number of acres farmed 2016 (owned and leased)	**3,230**	71 respondents
Number of farms that have developed business plans in last five years	**44%**	27/61 respondents
Average age of farmers (years)	**63**	71 respondents
Number of farms (including commercial and non-commercial)	**59**	59/71 respondents
Number of farms that are solely commercial	**39**	39/71 respondents
Farmers who find access to affordable farmland to be a moderate to extreme challenge	**10%**	6/58 respondents
Farmers who find access to equipment/farm machinery to be a moderate to extreme challenge	**37%**	22/59 respondents
Farmers who find access to capital to be a moderate to extreme challenge	**51%**	31/61 respondents
Farmers who find the cost/availability of skilled labor to be a moderate to extreme challenge	**52%**	32/62 respondents

According to the survey, the ability of local producers to find affordable, skilled labor is one of the greatest challenges farmers face in San Juan County. Another interesting finding was that the average age of respondents was 63 years old, which reflects an aging population of farmers and raises a potential concern for farm transitions.

Other important aspects of viability presented in Table 5, Summary Data Collected through a Local Agricultural Viability Study Conducted in 2017, include total acres of land farmed by respondents, gross annual sales, the number of commercial farms, and the percentage of respondents who sell their goods off-island. Farmers reported on the total number of acres that they farmed in 2014, 2015, and 2016, which shows a 10% increase between 2014 and 2015. It should be noted that this is the total acreage from a subset of farmers in the County (71 respondents) and does not reflect total agricultural activity in San Juan County. Farming in San Juan County tends to be done on a relatively small scale. For example, the USDA 2012 Census states that the median size of farms in San Juan County is 26 acres with an average size of 57 acres. Statewide the median farm size is 24 acres with an average size of 396 acres. Market value of agricultural products sold in San Juan County was $15,492 on average per farm, according to the USDA 2012 Census, while statewide the average per farm was $244,859.

Though the survey does not reflect total agricultural activity or values in San Juan County, repeating the survey in the future enables metrics to be tracked over time. This will allow interested parties to better assess any changes in agricultural success in San Juan County in the future in the context of the VSP agricultural viability goals.

US Department of Agriculture Census Data

The USDA Census data also contribute to establishing a baseline against which to measure agricultural viability. As new USDA Census data are available, they will be incorporated in measuring agricultural viability. Data from prior census years can also provide useful trend data, such as market value of products, size of farms, and number of farms.

According to the USDA Census, market value of agricultural products in San Juan County increased consistently from 1997-2012 while the average size of farms decreased, and the number of farms and acreage in agricultural production fluctuated (USDA, 2012).

Figure 3. San Juan County Agricultural Trends from 1997-2012

The USDA data depicted in the charts above are estimated based on USDA census responders and may not fully reflect all agricultural activity in the County (response to the USDA census is a requirement of the Code of Federal Regulations).

2.2 Methodology for Mapping Agricultural Activity

Maps depicting agricultural activity in San Juan County were developed over a 10-month period by working directly with members of the San Juan County Work Group. Initially, areas zoned as "agricultural" were identified using existing San Juan County GIS land use data. San Juan County's Assessor's office manages the County's Open Space, Agricultural, Timber, Current Use, and Conservation Futures (CUFA) program in compliance with RCW 84.34. Some lands managed by this program also include agricultural lands that were incorporated into the mapping activity. Lands used or historically designated as agricultural lands but not enrolled in the County's CUFA program were also identified. In addition, the San Juan Islands Visitor's Bureau and WSU Extension each maintain a database of existing farm operations. These databases were merged and the farms were mapped. Where current information was unavailable on type of agricultural activity, an attempt was made to contact the individuals listed in these databases to determine what type of operation

they are managing and to ensure that the agricultural activity maps identified both the parcel and the type of agricultural activity in which each operator was engaged. There are approximately 250 agricultural operators on the list.

The definition of agricultural activity in the VSP is much broader than that used in the CUFA program. Therefore, agricultural activity was mapped as broadly as possible based on the statutory definition (RCW 90.58.065) and local knowledge of Work Group and community members who are familiar with agricultural activity in the County. These groups reviewed draft maps, island-by-island from September 2016 through May of 2017, to determine the most accurate identification of agricultural activity on the ground.

Final changes to the maps were made in June of 2017. These maps were then used as the basis for determining agricultural activity in San Juan County as it exists in 2017. The maps are a work in progress and will be updated as new information is available. SJICD staff will coordinate with San Juan County GIS as needed to update map layers.

Once the data layer of agricultural activity was determined and reviewed again by members of the Work Group and the public, it was used as the base layer over which Critical Areas, as mapped by San Juan County GIS per SJCC 18.35.110, were overlaid to determine the areas of intersection between Critical Areas and agricultural activity, either by acre, or by stream miles. As is stated in San Juan County Code, "many of these areas are depicted on maps; however, these maps are only a guide and in all cases conditions in the field shall control" (SJCC 18.35.110). However, the existing County GIS map layers represent the most accurate estimate of the area and location of Critical Areas within the County. Therefore, the County GIS Critical Areas map layers were used to estimate the area of intersection between existing agricultural activity and mapped Critical Areas.

Maps for Critical Aquifer Recharge Areas were not developed, as the entire County is mapped as a Critical Aquifer Recharge Area. Instead, priority watersheds for water quality and habitat purposes are identified in the "Streams and Agricultural Activity" map overlay set for the County. Priority watersheds were identified where existing agricultural activity overlaps with priority watersheds as identified by both Salmon Recovery Plans in San Juan County and watersheds with known water-quality contaminant concerns.

2.3 Critical Areas Intersection with Agricultural Activity

San Juan County regulates the following Critical Areas through its Critical Areas Ordinance in Chapter 18.35 of the San Juan County Code (SJCC). The VSP relies on the San Juan County Code definitions within the chapter. The following are identified and defined as Critical Areas:

- Critical Aquifer Recharge Areas
- Wetlands
- Fish & Wildlife Habitat Conservation Areas (including streams and marine shorelines)
- Geologically Hazardous Areas
- Frequently Flooded Areas

The VSP comes into play only where agricultural activity and critical areas intersect. The degree of intersection varies by mapped critical area. The total acreage of agricultural activity in the San Juan Islands encompasses 13,942 acres or 12% of the total land area of the County.[10]

All agricultural activity intersects with Critical Aquifer Recharge Areas (CARAs) since 100% of the County is considered Critical Aquifer Recharge Area. Freshwater in the San Juan Islands is a limited resource and relies on annual precipitation for replenishment. Aquifer recharge rates vary significantly in the islands but are estimated to be approximately 2 inches per year (USGS, 2002). The San Juan Islands are located in the rain-shadow of the Olympic Mountains, and precipitation varies considerably throughout the islands. Mean annual precipitation (1961-1990) at low to moderate altitudes ranges from 26 inches in the southern part of the county to about 35 inches in the north, and is about 48 inches at the highest land-surface altitudes on Orcas Island (USGS, 2002). In addition, the geology of the islands is composed primarily of bedrock; aquifers occur in the interstitial areas in the bedrock and are not always a reliable source of groundwater.

After CARAs, the largest intersect between agricultural activities and critical areas occurs with wetlands at 1,910 acres of possible wetlands within agricultural areas (14% of agricultural areas) and streams (under Fish and Wildlife Habitat Conservation Areas) at 280,119 lineal feet within agricultural areas (or 53 miles of stream), respectively. Streams in San Juan County are protected under the County's Fish and Wildlife Habitat Conservation Areas Ordinance as 'aquatic' Fish and Wildlife Habitat Conservation Areas (SJCC 18.35.130).

Appendix D summarizes the extent of the intersection between agricultural activity and mapped critical areas acreage in San Juan County by island and watershed. Table provides a summary overview of the intersection of agricultural activities with Critical Areas in San Juan County. Maps illustrating this intersection are provided in Appendix H.

For the purposes of mapping the intersection of agricultural activities and aquatic Fish and Wildlife Habitat Conservation Areas, the focus was on streams because this is the greatest area of intersection between Fish and Wildlife Habitat Conservation Areas and agricultural activity. Over 53 miles of streams intersect with agricultural activity in the County, whereas only about 0.01% (162 acres) of agricultural activity in the County intersects with marine shoreline habitats and species (which are protected as Fish and Wildlife Habitat Conservation Areas).

However, though the intersection of agricultural activity and marine shoreline in the county is limited, marine shoreline habitats and the species that rely on them are of such ecologic and economic significance that the County wishes to ensure the protection and preservation of these habitats and species at the highest level. Therefore, agricultural activity in the marine shoreline in San Juan County is subject to regulatory review in compliance with the Shoreline Master Program, which incorporates Critical Areas Ordinance requirements for aquatic Fish and Wildlife Habitat Conservation Areas. Many of the plans cited in Section 3.2 of this document focus on the marine near-shore resources, and the importance of protecting these resources. This includes Volume 2 of

[10] San Juan County GIS, total land area of San Juan County is 176 square miles or 111,360 acres.

the Puget Sound Salmonid Recovery Plan, the San Juan Initiative, the San Juan Adaptive Management and Monitoring Plan and the 4-Year Work Plan Project List, the San Juan Local Integrating Organization's Ecosystem Protection and Recovery Plan, the San Juan County Shoreline Restoration Plan and the San Juan Island Marine Stewardship Area Plan. All of these plans are discussed in more detail in Section 3.2.

San Juan County contains approximately 456 miles of marine shoreline.[11] Development activity within shoreline jurisdiction (200 feet from Ordinary High Water Mark) is subject to the requirements of the County's Shoreline Master Program (SJCC 18.50), as well as its Critical Areas Ordinance (SJCC 18.35), as aquatic Fish and Wildlife Habitat Conservation Areas (SJCC 18.35.110).

Because many of the aquatic fish and wildlife habitat conservation areas defined in the San Juan County Code do not intersect with agricultural activities, no mapping of these habitats or species occurred (for example, southern resident orca; Steller sea lion; humpback whale; gray whale). In addition, the VSP Work Group initially considered including aquaculture under the VSP but decided not to include it based on meetings with aquaculture operators who were not supportive of including aquaculture under the VSP. Aquaculture operations in San Juan County will continue to be regulated under the County Shoreline Master Program (SJCC 18.50) and to be consistent with the existing regulatory framework.

Other aquatic and terrestrial Fish and Wildlife Habitat Conservation Areas as they intersect with agricultural activity will be mapped on a case-by-case basis in compliance with code definitions, existing San Juan County GIS mapping, and habitat management plans developed in cooperation with VSP participants to meet both Critical Areas protection and enhancement and agricultural viability goals.

Relative to Wetlands and Fish and Wildlife Habitat Conservation Areas, there is considerably less overlap with agricultural activity and Geologically Hazardous Areas, with only 841 acres of total possible Category I and Category II Geologically Hazardous Areas, or a 0.06 % intersection with agricultural activity. Finally, Frequently Flooded Areas within San Juan County have relatively minimal intersection with agricultural activity, with only 221 acres of overlap (approximately 1% overlap with all agricultural activity).

By land area, Lopez Island contains the highest percentage of agricultural activity with 4,967 acres, or a total of 26% of the land mass of Lopez Island. San Juan is second, with 6,140 acres for a total of 17 % of the land mass of San Juan Island (with 3,645 acres of that total coming from one watershed – False Bay Creek – equaling 59% of all agricultural activity on San Juan Island), while Orcas Island, though it contains the most land mass by acreage, contains the least amount of agricultural activity as a percentage of total land area, with 2,255 acres of land in agricultural activity, or a total of 6 % of the land mass of Orcas Island.[12] This is consistent with the geology of each island, with Lopez being characterized by open rolling hills and loamy soils, Orcas being characterized by the most

[11] This number provided by Nick Peihl, San Juan County GIS, with the following caution: There are many different ways of defining the length of shoreline: http://oceanservice.noaa.gov/facts/shorelength.html

[12] Land area for each island was provided by Nick Peihl, San Juan County GIS.

mountainous terrain and significant areas of bedrock, and San Juan Island containing a mix of open areas used for agricultural activity and forested mountain areas underlain by bedrock.

A summary of the intersection of agricultural activity by critical area within San Juan County is shown in Table 6. All of the data presented in the table are based on San Juan County GIS mapping. The data are further broken out by island, by watershed, and by the acreage of each critical area as it intersects with agricultural activity in Appendix D. The tables in Appendix D also break out the type of agricultural activity that occurs within each watershed, by acreage (livestock, hay/pasture, vegetables and fruit, flowers, or multiple enterprises. Where we were unable to contact the farmers to determine the type of agricultural operation(s) they undertake, that acreage is identified as 'unspecified').

Table 6. Intersection of Agricultural Activity and Critical Areas

Island	Total Acreage	Agricultural Activity (acres)	Possible Wetlands (acres)	Streams (miles)	Geohazards – Categories I & II (acres)	FEMA Frequently Flooded Areas
Lopez	18,900	4,967	685	18	115	154
Orcas	36,900	2,255	304	10	256	18
San Juan	35,500	6,140	888	23	422	42
Shaw	4,900	180	18	2	10	1
Stuart	1,850	142	11	No streams mapped	31	3
Waldron	2,900	257	4	0.63	7	2
Total		13,942	1910	53[13]	841	221

The San Juan County Code identifies a number of classifications of Geologically Hazardous Areas (SJCC 18.35.060). Table 7 summarizes the extent of intersection between Geologically Hazardous Areas and agricultural activity by island. A breakdown of the acreage intersection between agricultural activity and Geologically Hazardous Areas, by watershed, is included in the tables within Appendix D. For the purposes of mapping, Category I and Category II Geologically Hazardous Areas are those of interest. The maps depicting the areas of intersection are included in Appendix H. Not surprisingly, there is relatively little intersection between Geologically Hazardous Areas (Categories I and II) and agricultural activity, given that farming does not typically occur on bedrock and steep slopes in the San Juan Islands. The primary areas of intersection occur where relatively large acreage, which extends inland, coincides with coastal areas classified as Geologically Hazardous Areas, such as the southern end of San Juan Island within the San Juan de Fuca watershed or the southern end of Lopez Island within the Iceberg Point watershed.

[13] Total acreages and miles are rounded approximations.

Table 7. Intersection of Geologically Hazardous Areas and Agricultural Activity, by Island

Island	Category I	Category II	Total
Lopez		115	115
Orcas	8	248	256
San Juan	4	417	422
Shaw		10	10
Stuart	6	25	31
Waldron	2	5	7
Total			841

For the purposes of mapping, the Federal Emergency Management Agency (FEMA) designates flood zones. FEMA maps have been adopted by San Juan County. SJCC 18.35.075 regulates Frequently Flooded areas. FEMA Flood Zones that correspond with the 100-Year Floodplain have been mapped under San Juan County's VSP and identified as "FEMA Special Flood Hazard Zones." These areas comprise the freshwater terrestrial area that intersects with agricultural activity. Maps of this area and coastal floodplains are included in Appendix H. Table 6 above summarizes the area of intersection (in acres) between agricultural activity and FEMA-designated Special Flood Hazard Management Areas in San Juan County.

2.3.1 Functional Linkages between Critical Areas and Agriculture

On properties where there is an intersection between critical areas and agricultural activity, the key VSP interactions and issues are related to critical area functions and agricultural viability. Some agricultural activities have the potential to degrade critical area functions, while others may benefit those functions. At the same time, the same activity that benefits critical areas, can also benefit agricultural viability. A good example of this is soil quality, which is critical for productive crops and livestock, and which also can determine erosion rates and impact habitat.

The tables below illustrate goals and actions that can benefit both critical areas and agricultural viability. The objectives are not exclusive, but rather work together for mutual benefits in what are called Resource Management Systems. The conservation practices listed in the tables are examples of commonly used practices for agricultural operations near wetlands and fish and wildlife habitat conservation areas that are recommended by SJICD Natural Resource Planners when completing farm plans. These same practices will also be recommended in ISPs. This is not an exhaustive list and there are many other options for conservation practices and specific tools that can be discussed during the technical assistance process and development of each ISP Plan. The application of any particular set of practices is site specific and adaptable to a wide variety of conditions as found in any current condition on a wide variety of land forms and operational situations.

Table 8. Wetlands

Agricultural Goal	Critical Area Goals
• Promote farm stewardship to improve animal health, forage productivity, and nutrient management that maximizes agricultural productivity while reducing impacts to critical areas.	• Protect and enhance wetland functions related to water quality, water quantity, and habitat. • Encourage voluntary wetland restoration.
Agricultural Viability Strategies	**Critical Area Objectives**
• Implement seasonal and rotational grazing to improve wetland grass species richness and diversity, and improve forage value. Allow for flexible riparian area setbacks based on site-specific conditions or utilize a "working buffers" system in seasonal wetlands.	• Protect and enhance wetland native plant communities in critical areas and associated buffers.
• Install temporary or permanent fencing as needed to seasonally protect wetlands as part of on-farm natural resources.	• Protect wetlands by utilizing seasonal livestock fencing, heavy use areas, and livestock exclusion on seasonal wetlands.
• Implement conservation practices that enhance wetland and wildlife habitat with appropriate stewardship practices.	• Encourage wetland protection and enhancement practices that contribute to biodiversity and create functional buffers to protect soil structure, filter surface water runoff, and benefit native wildlife and plant communities.

Related Conservation Practices Related to Goals and Actions			Wetland Functions Affected		
#	Examples	NRCS #	Water Quality	Water Quantity	Habitat
1	Wetland creation	658	X	X	X
2	Wetland enhancement	659	X	X	X
3	Wetland restoration	657	X	X	X
4	Wetland and wildlife habitat management	644			X
5	Grassed Waterway	412	X		
6	Filter Strip	393	X		
7	Fence	382	X		X
8	Hedgerow	422			X
9	Access Control	472	X		X
10	Stream Crossing	578	X		X

Table 9. Fish and Wildlife Habitat Conservation Areas

Agricultural Goals	Critical Areas Goals
• Promote pest and nutrient management that maximizes agricultural productivity while reducing impacts to Fish and Wildlife Habitat Conservation Areas. • Protect agricultural production and crops from wildlife and pest damage.	• Protect and enhance stream and aquatic fish and wildlife habitat conservation areas functions and values. • Protect and enhance habitats and species of local importance. • Encourage the voluntary restoration of fish and wildlife habitat conservation areas.
Agricultural Viability Strategies	**Critical Areas Objectives**
• Implement conservation practices for noxious weeds, pest, and nutrient management.	• Protect and enhance native plant communities that provide habitat structure and function in critical areas and associated buffers.
• Implement fish and wildlife habitat management practices	• Maintain or increase acreage or stream miles of riparian areas protected and enhanced.
• Monitor improved wildlife habitat structure that benefits farm management.	• Maintain or increase acreage of habitat for beneficial wildlife species, listed species, and species of local importance.

Related Conservation Practices Related to Goals and Actions			FWHCAs Functions Affected		
#	Conservation Practice Examples	NRCS #	Water Quality	Water Quantity	Habitat
1	Access control to exclude animals, people, vehicles, and/or equipment from an area	472	X	X	X
2	Brush management for invasive or noxious plants	314			X
3	Conservation cover to provide vegetative cover	327	X	X	X
4	Herbaceous Wind Barriers	603	X		X
5	Seasonal Use Exclusion Fencing	382	X	X	X
6	Hedgerows: wildlife, water quality and delineation	422	X		X
7	Structures for wildlife: raptor and bat nesting box	649			X
8	Tree/shrub establishment	612	X	X	X
9	Upland wildlife habitat management	645			X
10	Watering facility for livestock and wildlife	614	X	X	X
11	Wildlife and pollinator habitat planting	734			X
12	Early successional habitat management	647			X
13	Irrigation system, micro-irrigation	441		X	
14	Irrigation water management	449		X	
15	Prescribed grazing	528	X		X
16	Riparian forest buffer	391	X		X
17	Riparian herbaceous cover	390	X		X
18	High tunnel for soil moisture, extend season	325		X	
19	Streambank and shoreline management	580	X		X
20	Watering facility for livestock	614	X	X	
21	Nutrient Management	590	X		
22	Herbaceous Weed Control	315			X
23	Conservation Cover	327	X	X	

3. Review of Existing Plans

It is the explicit intent of the VSP statute to acknowledge and build upon existing watershed plans and other documents, as well as existing local, state, and federal programs to achieve program goals (RCW 36.70A.700(d)). To that end, this section provides a brief overview of existing plans and programs within San Juan County that may contribute to identifying or prioritizing natural resource protection and applicable water quality, watershed management, farmland protection, and species recovery data within San Juan County (RCW 36.70A.720(1)(a)). Information on existing regulations at the state and federal level, which also support the VSP by providing a regulatory backstop, is found in Section 3.3 of this document.

Many of the plans that have been prepared for the San Juan Islands focus on the marine shoreline and associated habitats and species because they are significant environmental resources in San Juan County. These plans are important to note given that marine and shoreline resources may be affected by terrestrial management practices within contributing watersheds, including agricultural practices. Understanding the goals and objectives of each of the plans identified below helps to inform goals and objectives developed for Individual Stewardship Plans under San Juan County's VSP. VSP Individual Stewardship Plans can also help further leverage and build upon existing plan goals.

3.1 Agricultural Plans

It is the intent of the VSP statute to 'leverage existing resources by relying upon existing work and plans in counties and local watersheds, as well as existing state and federal programs to the maximum extent practicable to achieve program goals'[14]. In addition, the VSP Work Group must "Review and incorporate applicable water quality, watershed management, farmland protection, and species recovery data."[15] To that end, VSP builds upon existing agricultural plans as well as watershed plans, to achieve its goals of protecting and enhancing critical areas where they intersect with agricultural activity while also maintaining and improving the long-term viability of agriculture. The following section summarizes Agricultural Plans, the goals of which are directly relevant to VSP implementation.

Growing Our Future, San Juan County's Strategic Action Plan, 2011

The purpose of the 2011 Strategic Action Plan is to identify existing agricultural resources and to develop key goals and strategies "that will result in the preservation of priority farmland and strategic actions to strengthen agriculture in San Juan County." This plan provides valuable data on agricultural practices in existence at the time of its publication and can serve as a benchmark against which agricultural viability goals, and changes in agricultural use, can be measured into the

[14] RCW 36.70A.700(d)

[15] RCW 36.70A.720(1)(a)

future. The plan states: “Without farmland and farms, we lose our capacity to grow food locally. Having farms and an active farm community supports food security, provides healthy foods for our community, creates jobs, sustains our rural heritage, and enhances our quality of life… A thriving farm economy strengthens and diversifies our local economic base. Farmers are good stewards of the land, contributing to the environmental health of our landscape, while also keeping cost of services lower. No farms, no farmers, no food.” Individual Stewardship Plans implemented under VSP can help contribute to the goals and strategies identified in this plan.

San Juan Islands Conservation District Long-Range and Annual Plans

The Conservation District’s long-range plan addresses local natural resource concerns and community needs, including water quality, water quantity, soil health, forest health, wildlife, renewable energy, locally sourced food, and local economy. Strategies focus on contributions to ecosystem recovery; preservation of working lands; sustainable agriculture; forestry stewardship; promotion of water quality and water conservation; and fostering a stewardship ethic. Annual plans include specific actions to implement the long-range plan.

3.2 Natural Resource Management Plans

San Juan Islands Drought Conservation Plan, SJICD, 2016

The plan provides an overview of water management, resource conditions and concerns, and conservation, mitigation, and adaptation strategies to address seasonal drought within the County. The overall goal of the plan is to “achieve improvements in natural resource conditions during drought and provide for the long-term sustainability of resource lands…Objectives include identification of strategies that increase water use efficiency, reduce consumption of water, reduce loss of water, increase re-use of water, and implement agricultural and forestry best management practices.” Strategies identified in the plan are complementary to Critical Area goals under VSP, and should be consulted as part of Individual Stewardship Plan development. See especially Section 5.1.1 Soil Health Practices to Counter Drought and subsequent sections related to agricultural practices.

False Bay Watershed Habitat and Hydrologic Assessments, Water & Land Natural Resource Consulting team for SJICD, 2017

The False Bay Watershed is the largest watershed on San Juan Island, and contains the largest percentage of agricultural lands of any watershed on the island (59% of all agricultural activity on San Juan Island occurs in this watershed). Funded by a Department of Ecology under the Watershed Planning Implementation and Flow Achievement Grant Program (PIFA), this study produced two reports to identify and prioritize the feasibility of restoring salmonid habitat within the lower reaches of False Bay Creek. The first study, produced by Northwest Hydraulic Consultants, developed an HSPF watershed model calibrated to available stream data. Per the study: “*This model is capable of synthesizing a long term time series of stream flows, lake and reservoir storage reflecting the range of climatically driven seasonal and interannual hydrologic*

variation associated with existing land use conditions and water management policies within the watershed. The hydrologic assessment characterizes the existing flow regime based on available data, and the model can be used to determine whether proposed changes to water management could produce instream flows sufficient to effectively support salmonid habitat." The study looked at pre-development conditions, current conditions, and modeled alternative flow scenarios. Recommendations for monitoring locations of surface water flows were also addressed in a Technical Memorandum, also produced by NHC.

A companion study, the False Bay Watershed Restoration Plan: Stream Habitat Assessment Report, co-authored by Essency Environmental in collaboration with Water & Land Natural Resource Consulting and Rozewood Environmental Services, describes existing stream habitat conditions and identifies limiting factors associated with potential habitat rehabilitation in the watershed. This report analyzed the lower 2.6 miles of False Bay Creek and prioritized reaches for riparian habitat rehabilitation using the SVAP2 method developed by NRCS.

False Bay is a priority watershed under VSP. The recommendations from these studies should be implemented through VSP and other programs to the extent possible.

Puget Sound Salmon Recovery Plan, Volumes I & 2 and Supplement, 2006-2007

In 2005, Chinook salmon were listed as Threatened under the federal Endangered Species Act. In response, communities surrounding the Puget Sound pulled together and developed a collaborative response to salmon recovery in the region (Shared Strategy for Puget Sound, 2005). This document was adopted by NOAA Fisheries as the Recovery Plan for Salmonids in Puget Sound in 2006. Volume 1 of the Puget Sound Salmon Recovery Plan is the Regional Chapter and includes issues related to all contributing watersheds. Volume 2 includes watershed-specific strategies and actions, which, if implemented, would result in the recovery of Chinook and other salmonid species in the Region. WRIA 2, the watershed that contains the San Juan Islands, is included in a Chapter within Volume 2. The focus is on nearshore habitat protection. More recently, this focus has been expanded to include restoring and protecting freshwater systems within the San Juan Islands. This new focus on protecting, enhancing and restoring freshwater systems is directly relevant to VSP, as Individual Stewardship Plans may provide opportunities to contribute to this goal. In addition, priority watersheds for VSP are based on priority watersheds as designated in San Juan County's salmon recovery efforts. For the purposes of VSP, the priority watersheds are those watersheds that are both priorities for freshwater restoration, and contain agricultural activity. Those watersheds are:

San Juan Island:

False Bay Creek Watershed (False Bay Creek and San Juan Valley Creek)

Garrison Bay Watershed (Garrison Creek)

Orcas Island:

- Doe Bay Watershed (Doe Bay Creek)
- Deer Harbor Watershed (Fish Trap Creek)
- President's Channel Watershed (West Beach Creek)
- Westsound Watershed (Crow Valley Creek)
- G & G Coves Watershed (Bayhead Creek)

Lopez Island:

- Swift Bay Watershed (Hummel Creek)
- Davis Bay Watershed (Rowboat Cove and Mya Cove)

San Juan Initiative, 2009

The goal of the initiative, which focused on nearshore protection, was to "improve ecosystem health in a manner that supports the prosperity of the community, builds local capacity for ecosystem protection, and acts as a pilot for addressing habitat protection in Puget Sound." The intent was to inform public policy and shoreline protection efforts within the region. Case studies were identified to capture a cross-section of existing conditions (ecological, sociological, and geological). Later efforts built upon the work completed as part of the San Juan Initiative. The mission of the San Juan Initiative was to improve ecosystem protection in a manner that supported community prosperity, built local capacity for ecosystem protection, and served as a pilot for the rest of Puget Sound. The goals included recommending ways to improve shoreline protection in a way that supports other community interests and respects private property rights. As such, the San Juan Initiative paved the way for the stewardship ethic that brings together ecosystem protection and community prosperity, as well as support for private property rights, that are also components of San Juan County's Voluntary Stewardship Program.

San Juan Monitoring & Adaptive Management (M&AM); 4-Year Work Plan Project List

The narrative report reiterates that the focus in the San Juan Islands is to protect existing Chinook habitat in the nearshore, to restore the highest priority habitats, and to assess progress to date. In order to prioritize habitat restoration and protection strategies, a number of studies have been completed. The mapping results of these studies are included in San Juan County's Fish and Wildlife Habitat Conservation Areas map layers. They are also summarized in the Pulling It All Together report (Whitman, 2017). Recovery of freshwater systems is identified for the following systems: on San Juan Island, Garrison Creek and False Bay Creek; on Orcas Island, Cascade Creek within the Eastsound Watershed, Bayhead Creek within the G&G Coves watershed, Doe Bay Creek within the Doe Bay watershed, West Beach Creek within the President Channel watershed, Fish Trap Creek within the Deer Harbor watershed, and Crow Valley Creek within the West Sound watershed; for Lopez Island, Hummel Creek within the Swift Bay Watershed. All of these priority watersheds, where they intersect with agricultural activity, are shown on the maps in Appendix H. Effects of all salmon recovery projects should be monitored. These priority watersheds should receive highest

consideration for freshwater protection and restoration. VSP can leverage this prioritization by giving preference to Individual Stewardship Plan participation within these watersheds.

The 4-Year Work Plan is accompanied by a project list that tracks highest priority projects for funding. Projects are identified through a screening process and include land acquisition, easements, protection, restoration, assessment, and policy work. Projects implemented since 2011 likely contribute to goals developed under VSP and may be counted toward the benchmark associated with the VSP adoption (July 22, 2011). In addition, VSP technical assistance providers should be familiar with this project list to maximize opportunities to leverage VSP Individual Stewardship Plans which may build on or be complementary to 4-Year Work Plan projects. The most current 4-Year Work Plan (dated March 31, 2016) is available from the WRIA 2 Lead Entity Coordinator.

Ecosystem Protection and Recovery Plan, San Juan Local Integrating Organization (LIO), 2016

This document establishes the priorities for the consortium of interested parties who are involved in salmon recovery in the region. It is developed in cooperation with the Puget Sound Partnership (PSP) and is a component of the PSP's Action Agenda. Priority issues and related projects are identified at the local level and are moved forward through this document to be considered for funding. San Juan LIO is one of 14 watersheds participating in the process. In the San Juan Islands, oil spill prevention and response, stormwater runoff, shoreline armoring, and freshwater restoration were identified as priority strategies. Individual Stewardship Plans may also contribute to these priority strategies.

Shoreline Restoration Plan, San Juan County and Herrera, 2016

This document is a companion document and appendix to San Juan County's Shoreline Master Program (SJCC 18.50) and is a component of the "regulatory backstop" which supports the VSP. It specifically identifies restoration opportunities by island within San Juan County. In addition, while it is a component of the Shoreline Master Program, there is no requirement to implement recommended restoration actions, nor is there funding provided through the Shoreline Master Program to implement recommended restoration actions. While the focus of the plan is marine shoreline restoration, there are also opportunities that can be leveraged within the context of VSP Individual Stewardship Plans, such as encouraging daylighting of natural stream outfalls, restoring wetlands, and establishing a monitoring framework and database that could contribute to local understanding of the effects of land management, such as agricultural practices. For example, water quality data collected as part of VSP Individual Stewardship Plans can help inform water quality conditions of priority salmon recovery watersheds where they intersect with agricultural activity.

San Juan County Stormwater Basin Plan, Volumes 1 & 2, 2014

The goal of Volume 1 is to provide context, framework, overview, and recommendations for stormwater management within the County to benefit water supplies, protect property, and

support critical natural resources such as streams and wetlands and the species that depend on these habitats. The report provides a summary of existing conditions, the regulatory framework, and a detailed inventory of 37 watersheds within the county that covers existing and future land use, existing stormwater infrastructure, the presence of critical areas, and water quality data where available. It represents the County's stormwater management plan and addresses stormwater issues county-wide. Volume 1 is accessible on-line at: http://www.sanjuanco.com/393/Executive-Summaries

Volume 2 addresses stormwater management planning in the following priority watersheds: Garrison/Westcott Bay and False Bay on San Juan Island, Mud Bay and Fisherman Bay on Lopez Island, and the Eastsound watershed on Orcas Island. This volume identifies specific Capital Improvement Projects by watershed. The specific goal of Volume 2 is to "identify tailored stormwater management strategies for each of the priority watersheds…to address existing problems and prevent future problems that could occur" (SJC Stormwater Basin Plan, V2, 2014). It also includes programmatic, county-wide stormwater management recommendations and strategies. It is likely that some of these strategies could be leveraged by Individual Stewardship Plans implemented under VSP. For example, one of the programmatic recommendations is to identify and prioritize ditches to be retrofitted and/or improved. Bioswales and/or infiltration swales implemented under VSP Individual Stewardship Plans could also contribute to this recommendation. Volume 2 is accessible on-line at:
http://www.sanjuanco.com/documentcenter/view/704

Stormwater Monitoring Program, SJICD

SJICD implements a stormwater monitoring program in collaboration with San Juan County. The water quality monitoring to be performed under VSP builds on previous water quality sampling work completed by San Juan County. It is also intended to leverage on-going stormwater, flow, and water quality monitoring work currently underway by San Juan County as well as the San Juan Islands Conservation District, in collaboration with the State Department of Ecology, and consistent with the intent of RCW 36.70A.705(4).

SJICD staff is currently collaborating with San Juan County Public Works, and the Department of Ecology to coordinate data collection and reporting for water quality monitoring in a manner that is designed to be complimentary to water quality monitoring proposed under the VSP for San Juan County, as well as supporting the Department of Ecology's Ambient Water Quality Monitoring Program goals. The VSP water quality monitoring program, currently under development, is consistent with the VSP's intent of leveraging existing resources and fostering collaboration among local and state interests (RCW 36.70A.700(2)(d-f). It is also consistent with the intent of RCW 36.70A.705(4). A current draft of this monitoring program is included in Appendix E.

Stormwater Technical Memorandum, Stillwater Sciences, 2014: Year 1 Data Report for San Juan County Pilot Stormwater Monitoring Program

San Juan County, in collaboration with the SJICD, implemented a three-year pilot stormwater monitoring program in 2012 to identify sources of water pollution to local freshwater and marine

resources. This document summarizes the results from the pilot and informs prioritization of stormwater management efforts that VSP Individual Stewardship Plan participants may contribute to. For example, results suggest that bacteria levels (fecal coliform, *Escherichia coli*) may be elevated within stormwater in San Juan County. It is possible that VSP Individual Stewardship Plans that incorporate water quality amelioration activities may help address high bacteria levels. This report is accessible on-line at: http://www.sanjuanco.com/DocumentCenter/Home/View/761

San Juan Island Marine Stewardship Area Plan, 2007

In 2007, the San Juan County Council adopted the San Juan County Marine Stewardship Area Plan, the culmination of three years of effort by the San Juan Marine Resources Committee, with contributions from numerous scientists, technical advisors, resource managers, community leaders, business owners, and citizens. The Marine Stewardship Area Plan was developed to sustain the many services that the ecosystem provides for the County's residents, fish and wildlife, and the economy.

San Juan County Water Resources Management Plan, 2004

This plan, developed over four years, established the groundwork for many future plans and policies within San Juan County by identifying key issues of concern with respect to groundwater and surface water characteristics of the islands. It contains important background data and policy recommendations and strategies for water resource management within the islands. It identified the following key issues:

- Very low aquifer recharge
- Seawater intrusion
- Water right allocations that exceed water availability
- Areas where water use exceeded aquifer capacity
- Exempt wells (all new development occurs with exempt wells, which further strain limited groundwater resources)
- Failing individual and community wells during summer months
- Lack of capacity to serve Urban Growth Areas
- A gap in regulatory responsibility and authority between state and county agencies
- Lack of comprehensive monitoring and assessment of water resource capacity
- Lack of coordinated, cooperative resource management

While some of these issues have been addressed, many remain valid and current concerns. Some of these issues could be partially addressed by implementing VSP Individual Stewardship Plan practices focused on increasing water quantity storage and documenting current use requirements via flow meters, for example. In addition, the areas of seawater intrusion identified in this Plan have been carried forward into VSP maps which identify priority watersheds, specifically the Swift Bay watershed on Lopez Island. These maps are included in Appendix H.

Status of Island Marble Butterfly under ESA

The Island Marble Butterfly (*Euchloe ausonides*) is known to occur only within the San Juan Island archipelago. In 2002, the U.S. Fish and Wildlife Service (USFWS) received a petition to list the species under the Endangered Species Act. In 2006, the USFWS found that listing was warranted based on the species status, but listing was precluded by higher priority listing actions. Since that time, the USFWS has continued to monitor and support species protection and recovery efforts within the San Juan archipelago in partnership with local interest groups including the San Juan Preservation Trust, the National Park Service, and San Juan County in collaboration with interested private property owners.

The Island Marble Butterfly is listed as one of the species protected under San Juan County's Fish and Wildlife Habitat Conservation Areas Ordinance (SJCC 18.35.110). Knowledge of the species' habitat needs may provide opportunities for additional species protection and recovery efforts under Individual Stewardship Plans implemented under VSP. For example, if a VSP participant were interested in participating in species recovery efforts and their property coincides with the species' habitat needs, it would be possible to establish plots for species recovery, which could coincide with active grazing or farming of adjacent lands. Many of the existing species recovery plots occur on farmlands under current production. As with all VSP-related activities, participation in such a program to protect Island Marble Butterfly habitat would be voluntary. The advantage of participating in such an arrangement is that, in the event that the Island Marble Butterfly were to be formally listed under the ESA, landowners participating in providing habitat protection plots for the species may not be subject to any additional regulatory requirements under the ESA, given that they are already providing for species protection and recovery by their voluntary participation.

Similar habitat management practices could be set up for other species protected under San Juan County's Fish and Wildlife Habitat Conservation Areas Ordinance in cooperation with the agencies who work with those species. Priority Habitats and Species listed by the Washington Department of Fish and Wildlife (WDFW) that are protected under the County's Fish and Wildlife Habitat Conservation Areas Ordinance would follow that agency's recommendation for habitat protection and recovery, for example—on a voluntary basis—under VSP.

VSP and the Regulatory Backstop

The VSP allows agricultural operators to manage their farms utilizing their own expertise with support from the SJICD and other agencies as needed, without having to negotiate or navigate Critical Area regulations for agricultural activities. If the actions of the agricultural operators collectively result in protection of critical areas, it satisfies the requirements of the VSP.

Additionally, there are regulations that still pertain to agricultural activities outside of VSP. The existing regulatory framework at the local, state, and federal level provides what has been called the "regulatory backstop" to VSP. The intent of this term is to say that VSP, while voluntary, occurs within a context and framework that relies upon existing laws intended to protect habitats and species at the federal, state, and local level. The definition of Critical Areas stems from the State's

Growth Management Act, which required local governments planning under the Act to develop Critical Areas Ordinances to manage development in and around these areas. The VSP itself is a component of the Growth Management Act statute. The regulatory backstop exists as a means for local, state, and federal governmental agencies to carry out their responsibilities to manage development in and around Critical Areas, with the intent of protecting these areas from environmental degradation. The VSP focuses on the intersection of Critical Areas and agricultural activity, protecting and enhancing critical areas while promoting agricultural viability, as defined by each participating County. While VSP itself is voluntary and does not create an enforcement situation, VSP is supported by the existing regulatory backstop.

In San Juan County, the VSP applies to all critical areas with the exception of marine shorelines, which are defined as a type of Fish and Wildlife Habitat Conservation Area. Both marine shorelines and aquaculture operations in San Juan County will continue to be regulated under the County's Shoreline Master Program, which, in this case, provides the regulatory backstop to the VSP with respect to marine shorelines. All other designated Fish and Wildlife Habitat Conservation Areas, as defined by San Juan County's Critical Areas Ordinance, can be managed as components of Individual Stewardship Plans developed under the VSP, where critical areas intersect with agricultural activity.

As the VSP statute states, the VSP "does not limit the authority of a state agency, local government, or landowner to carry out its obligations under any other federal, state, or local law."[16] All applicable local development regulations, such as grading permits or building code requirements, still apply. For example, if an agricultural operator needs to build a new building, or expand an existing building, a building permit, subject to the requirements of the building code (San Juan County Code Chapter 15.04) is still required, regardless of VSP participation – these local permit requirements do not change under VSP.

Given VSP's voluntary nature, there is no enforcement action that accompanies the Program. If an agricultural operator chooses not to develop an ISP or not to implement the Individual Stewardship Plan that they have agreed to, there is no penalty. As the VSP statute states: "agricultural operators implementing an individual stewardship plan consistent with a work plan are presumed to be working toward the protection and enhancement of critical areas" (RCW 36.70A.750(1)). Furthermore, the agricultural operator may choose to withdraw from the program, the procedures for which are described in RCW 36.70A.760.[17]

VSP is aspirational. It assumes that the incentive to participate is the offer of technical and financial assistance, and that, due to its voluntary nature, the participants who jointly develop goals and

[16] RCW 36.70A.702(5).

[17] "An agricultural operator participating in the program may withdraw from the program and is not required to continue voluntary measures after the expiration of an applicable contract. The watershed group must account for any loss of protection resulting from withdrawals when establishing goals and benchmarks for protection and a work plan under RCW 36.70A.720."

objectives for Critical Areas protection and agricultural viability—and who receive technical and financial assistance to do so—will follow the plan of their own making. If agricultural operators choose not to develop ISPs, not to follow an established ISP, or choose to engage in activities which harm or degrade Critical Areas, VSP falls back to the existing regulatory backstop to correct that problem.

What makes VSP different from the CAO is both its voluntary nature and its reporting requirements. The VSP technical assistance provider is required to document that Critical Areas goals are being met and, if the goals are not being met, to trigger adaptive management activity. In contrast, CAO works on a parcel-by-parcel basis. Prescriptive standards (such as buffers) are applied and presumed to be protective of the resource. There is no data requirement to document wetland protection under CAO. There is a presumption that the CAO-established buffers are both adequate to provide environmental protection and enforced.

The following section provides an overview of relevant federal, state and local laws, which collectively comprise the "regulatory backstop" for VSP.

3.3 Regulatory Framework

A wide variety of laws govern activities on both land and water. The intent of this section is to show how VSP fits within this broader regulatory context. As noted, VSP (RCW 36.70A.700) is a part of the State's Growth Management Act (RCW 36.70A). No aspect of the VSP changes the existing regulatory framework at the federal, state, or local level. The VSP provides an optional, voluntary means to receive financial and technical assistance to enhance agricultural activities while also protecting critical areas.

The following section provides a brief and simplified overview of regulations at the federal, state, and local level that exist outside of the VSP parameters. Activities that may trigger regulatory requirements may include, for example, clearing and grading, expanding a building, or building a new structure.

Federal Laws and Regulations that Could Affect Agricultural Producers

Clean Water Act

Any activities conducted in and around water are likely subject to the federal Clean Water Act. Wetlands are regulated as a water of the United States under the Clean Water Act.

The Clean Water Act was established to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the Clean Water Act regulates discharges of dredged or fill material to waters of the United States, including wetlands and other aquatic resources. The U.S. Army Corps of Engineers is charged with permitting authority under Section 404 of the Clean Water Act. Permits are required for activities in or near waters of the U.S., including wetlands. In San Juan County, the Seattle District Branch of the Corps of Engineers has regulatory authority for all activities which may affect wetlands or waters of the United States. The regulatory threshold varies, but activities that are considered to have minimal impact (typically less than 0.10

to 0.50 acres of wetland area) may qualify for one of 48 Nationwide Permits. Activities with greater than 0.10 to 0.50 acres of adverse effects on wetlands or aquatic areas may require an Individual Permit from the Corps. While existing agricultural activity is typically exempt from the Corps permit process, any new activity that occurs within or adjacent to wetlands or waters of the U.S., such as building a barn or installing a road, may still require authorization from the Corps prior to construction. In addition, any ground-disturbing activity (grading, trenching, ditching) which is within Corps regulatory authority may also trigger other regulatory requirements. For example, the Corps has the discretionary authority to require a cultural resource survey on any project which involves ground disturbance within their jurisdiction (Section 106 of the National Historic Preservation Act).

Endangered Species Act

The ESA was established in 1973 in the wake of concerns that many species of plants and animals in our nation were in danger of becoming extinct. The purpose of the ESA is to protect and recover endangered species and the ecosystems upon which they depend. Depending on the species, the ESA is administered either by NOAA Fisheries (for listed salmonid species, for example) or the USFWS (for bull trout and many terrestrial species, such as the Taylor's checkerspot butterfly in San Juan County).

San Juan County has used its Critical Areas Ordinance and Fish and Wildlife Habitat Conservation Areas Ordinance to designate and protect species of local concern. The County works with state and federal agency staff to protect species of concern. Many of these species are also listed at the federal and state level.

In San Juan County, federally listed and protected species include both Chinook and Chum salmon, which utilize the nearshore environment in the County, as well as a number of marine mammals, birds, the Taylor's checkerspot butterfly, and a number of plant species which are identified in San Juan County's Critical Areas Ordinance at SJCC 18.35.115.

The ESA requires a Recovery Plan for each listed species. San Juan County is a participant in the multi-species salmon recovery process through its Watershed Resource Inventory Area Plan, which establishes local priorities which, if implemented, will contribute to the recovery of salmonid species in the region. Site plans developed under VSP may build on regional restoration priorities for ESA-listed species, as appropriate.

Coastal Zone Management Act (CZMA)

The Coastal Zone Management Act was passed by Congress in 1972 to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." The CZMA is administered by NOAA at the federal level. The Washington Department of Ecology makes CZMA consistency determinations regarding a variety of federal actions. Generally, for projects that meet the criteria, Ecology issues CZMA consistency determinations for Washington's Coastal Counties. CZMA considerations are typically included in local Shoreline Master Programs.

Federal Emergency Management Agency (FEMA)

For the purposes of VSP, FEMA flood maps are used to designate "Frequently Flooded Areas" under the State's Growth Management Act. Frequently Flooded Areas are a designated Critical Area. Building and health codes must be followed for development within these areas (SJCC 18.35.075). These maps provide the baseline for the intersection of agricultural activities and Frequently Flooded Areas in San Juan County.

State Laws and Regulations

State agencies have authority to regulate laws and rules relating to:

- Protecting water supplies
- Protecting air quality
- Managing and reducing waste
- Cleaning up contaminated water and land
- Reducing toxic substances in the environment
- Supporting sustainable communities and natural resources

The State Department of Ecology (Ecology) administers many of these laws. Typically, they work with the federal and local governments to achieve regulatory compliance. An overview of state laws most applicable to VSP is provided below.

Water Pollution Control Act (RCW 90.48)

In Washington State, it is the State's policy to *"…maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the prevention of the pollution of the waters of the State of Washington. Consistent with this policy, the state of Washington will exercise its powers, as fully and as effectively as possible, to retain and secure high quality for all waters of the state. The state of Washington in recognition of the federal government's interest in the quality of the navigable waters of the United States, of which certain portions thereof are within the jurisdictional limits of this state, proclaims a public policy of working cooperatively with the federal government in a joint effort to extinguish the sources of water quality degradation, while at the same time preserving and vigorously exercising state powers to insure that present and future standards of water quality within the state shall be determined by the citizenry, through and by the efforts of state government, of the state of Washington*." (RCW 90.48.010).

The Department of Ecology is the lead entity responsible for water quality regulatory compliance. Ecology issues a wide variety of permits related to water quality, water quantity, and wetlands. Under the federal Clean Water Act, Ecology must issue a Section 401 Water Quality Certification which accompanies a Corps permit on activities in and around wetlands. Ecology is also responsible for ensuring air quality and hazardous waste compliance in the State.

For the purposes of VSP in San Juan County, Ecology is most likely to be involved in activities which have the potential to adversely affect surface water quality or wetlands, such as grazing livestock in

or adjacent to streams or wetlands. Ecology may also be involved with surface water withdrawals and water rights permit applications.

From a technical assistance perspective, Ecology is actively involved in the development of a water quality monitoring program under the VSP. The proposed program is consistent with state water quality standards and rules, and is intended to meet the intent of RCW 36.70A.705(4). A current draft of the VSP Water Quality Monitoring Program is included in Appendix E.

Growth Management Act (RCW 36.70A)

The Growth Management Act was passed by the Washington State Legislature in 1990 in response to uncontrolled and uncoordinated growth at the local government level. The Act requires collaborative and coordinated land use planning in compliance with 13 goals established in statute. The first step in the planning process is for local governments to develop a Comprehensive Plan, which sets out their vision for their community's growth. The 13 planning goals of the Growth Management Act are:

1. Urban Growth
2. Reduce sprawl
3. Transportation
4. Housing
5. Economic Development
6. Property Rights
7. Permits
8. Natural resource industries
9. Open space and recreation
10. Environment
11. Citizen participation and coordination
12. Public facilities and services
13. Historic preservation

Critical Areas Ordinances and VSP are both related to Goal 10, Environment.

Critical Areas (RCW 36.70A.172)

The Growth Management Act also requires the designation and protection of Critical Areas, which include:

- Wetlands
- Frequently Flooded Areas
- Fish and Wildlife Habitat Conservation Areas (in San Juan County, this includes streams and other habitats and species per SJCC)
- Geologically Hazardous Areas
- Critical Aquifer Recharge Areas

Voluntary Stewardship Program (RCW 36.70A.700)

The Voluntary Stewardship Program is a part of the Growth Management Act. Its express purpose is "to promote plans to protect and enhance critical areas within the area where agricultural activities are conducted, while maintaining and improving the long-term viability of agriculture in the State of Washington and reducing the conversion of farmland to other uses." It was passed by the Legislature in 2011. San Juan County opted in to VSP in 2015. It is an optional program, with participation initiated by a landowner. In San Juan County, the San Juan Islands Conservation District administers the VSP.

Shoreline Management Act (RCW 90.58)

The Shoreline Management Act is administered by the Department of Ecology. The purpose of the Act is to "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." Under the Act, Ecology regulates all shorelines of the state, including marine waters and freshwater bodies over 20 acres in size and with a surface water flow greater than 20 cubic feet per second. Shoreline jurisdiction extends 200 feet landward of the Ordinary High Water Mark, and includes wetlands and some or all of the 100-year floodplain. Ecology works with local jurisdictions to ensure that their Shoreline Master Program addresses shoreline protection at the local level. In San Juan County, all marine waters are "shorelines of statewide significance" and therefore protected under the Shoreline Management Act.

Hydraulic Project Approval (RCW 77.55)

Administered by the Washington Department of Fish and Wildlife under the state Hydraulic Code, this permit has been in place since 1943 for certain activities in or near water.

Priority Habitats and Species Program (PHS)

Administered by the Washington Department of Fish and Wildlife and initiated in 1989, the PHS program is a mapping program that identifies the agency's highest priority species and habitats for conservation. In San Juan County, PHS maps are incorporated as a part of the Fish and Wildlife Habitat Conservation Areas Ordinance.

Watershed Planning (RCW 90.82)

According to the Department of Ecology's website, "the Watershed Planning Act was established by the Legislature in 1997 through adoption of RCW 90.82. This new planning framework was part of an integrated approach to managing water resources in Washington. Watershed Resource Inventory Area (WRIA) planning units meeting the Act's requirements were authorized to apply for funding assistance for planning and implementing watershed plans. The 1998 legislature passed Ch. 90.82 RCW, to set a framework for developing local solutions to watershed issues on a watershed basis."[18]

[18] http://www.ecy.wa.gov/watershed/index.html

It is referenced here because it established the framework which lead to the creation of watershed plans in San Juan County. These plans establish watershed restoration goals, some of which may be relevant in a VSP context.

Salmon recovery to comply with federal ESA requirements

In 2005, Chinook salmon were listed as Threatened under the federal Endangered Species Act. Under RCW 90.82, Washington State's Watershed Planning Act, a consortium of interests came together to develop a recovery plan for salmonid species in Puget Sound in compliance with federal requirements. NOAA Fisheries accepted the Puget Sound Salmon Recovery Plan in 2007. In 2008 the Puget Sound Partnership was designated as the lead agency to assist the region in developing actions to guide recovery in compliance with its Action Agenda.

San Juan County is a participant in salmon recovery both through its WRIA Plan (a chapter of the Salmon Recovery Plan adopted by NOAA Fisheries) as well as through implementation of its local Action Agenda. Near-term Actions are developed by a local consortium of stakeholders. This process is relevant to VSP in that some VSP site plans may leverage existing conservation or restoration priorities within San Juan County.

Local Laws and Regulations

Comprehensive Plan

The Comprehensive Plan is a requirement under the State's Growth Management Act (RCW 36.70A) and establishes the County's policy goals and vision for future growth. Comprehensive Plans are required to be updated periodically. The update process for San Juan County's Comprehensive Plan will begin in 2018. More information about this process is available on San Juan County's website at http://www.sanjuanco.com/1079/Comprehensive-Plan-Update.

Critical Areas Ordinance

Each community planning under the Growth Management Act must designate and protect Critical Areas in compliance with the definitions of the Act. San Juan County's CAO is part of its adopted code (SJCC 18.35.115). Designation of critical areas is undertaken by mapping the resources. Protection of critical areas is undertaken by establishing development standards, such as protective buffers, which, if implemented, serve to protect the critical area from harm. Critical Areas review is triggered by an underlying permit application, such as a proposal to build a bridge or a road crossing within or near designated Critical Areas.

The Fish and Wildlife Habitat Conservation Areas Ordinance is a part of the CAO. Each jurisdiction has unique physical characteristics which provide habitat to a unique array of species and the habitats on which they depend. Under the Growth Management Act, each jurisdiction may use their Fish and Wildlife Habitat Conservation Areas Ordinance to identify, designate and protect species and habitats of local significance.

San Juan County designates Fish and Wildlife Habitat Conservation Areas as a part of its CAO in SJCC 18.35.110. If species identified in San Juan County's Fish and Wildlife Habitat Conservation Areas

occur on properties participating in the VSP, the Conservation District would work with the landowner and local, state, and federal agencies to develop an appropriate management plan to protect relevant species.

Shoreline Master Program (SMP)

In compliance with the State's Shoreline Management Act, each local jurisdiction must submit a Shoreline Master Program to the Department of Ecology, which specifies how the local government intends to regulate resources and development within its shoreline jurisdiction.

San Juan County recently updated its SMP and submitted it to the Department of Ecology for review. While its proposed SMP is under review, development in the shoreline jurisdiction must comply with the County's current SMP, which is codified in Title 18 of San Juan County's Unified Development Code (SJCC 18.50). Any activities occurring under the VSP must be in compliance with the County's SMP.

Zoning Code

Zoning is established in the Comprehensive Plan in compliance with Growth Management Act policies. The VSP would not result in any changes to San Juan County's zoning code.

4. Goals and Measurable Benchmarks:
Maintain and Improve Agricultural Viability

San Juan County's 16,000 residents and hundreds of thousands of annual visitors rely on local, regional, and international agricultural production systems to supply food and related products to the islands. Local commercial agriculture provides products for local farmer's markets, grocery stores, restaurants, Community Supported Agriculture (CSA) systems, and regional markets. There is also the local agricultural economic component of family and community food systems that are not part of the marketplace such as personal or hobby farms that do not sell their products and have not traditionally been captured in surveys or studies. Therefore, the plan to maintain and increase agricultural viability needs to encompass all local agriculture, not just products that are bought and sold. An agricultural viability survey was recently completed in San Juan County to help the VSP Work Group and other agricultural interests better understand and quantify the value of local agriculture within the County.

There are opportunities and challenges for farming in San Juan County. Challenges include geographic isolation and lack of access to reliable markets; high production costs; lack of available infrastructure; an aging farmer population; mineralized glacial deposited soils which make productive farming a challenge; lack of large flowing rivers and streams; and limited groundwater sources. The small size of farms can be a limitation in terms of large-scale crop production, but small farms can also be seen as a benefit with greater diversity of enterprises, potentially increasing resiliency. Other opportunities for farming in San Juan County include a natural environment that sustains viable agriculture, a long growing season, a moderate climate, and the demand for local products. The geographic remoteness of San Juan County also has its benefits. San Juan County is a GMO-free county and the remoteness allows San Juan County to farm without concern of contamination from non-GMO farming enterprises.

Agricultural viability in San Juan County requires maintaining resilient natural resource systems by implementing best management practices, building infrastructure, keeping farmland in production, providing technical assistance and educational opportunities, supporting access to trained labor, encouraging a profitable market for agricultural products, and providing a supportive regulatory framework.

Threats to Agricultural Viability

Agriculture plays an important role in the culture, landscape, and economy of San Juan County. Although agriculture contributes less than 5% of the local economy, it indirectly supports the pillars of the local economy: tourism, real estate and construction. According to the USDA 2012 Agricultural Census, the market value of farm products has increased 17% since 2007. Reflecting a national trend, crop production has surpassed livestock production for the first time in the history of the USDA census data. The 2012 census also indicates that since 2007, there has been a 6% decrease in the number of farms, a 27% decrease in acres that are actively farmed, and a 23%

decrease in the average size of farms. Farmers in San Juan County are making more money on less acreage. The decrease in total acreage of farms and size of farms in part reflects the shift from livestock production to crop and market, as well as the escalating cost of farmland and an aging farmer population. It is clear that although there have been some gains, the agricultural community faces undeniable challenges in maintaining long-term economic viability. As such, a goal of this Plan is to track the goals, objectives and strategies developed to maintain agricultural viability for San Juan County as defined by the VSP Work Group, and to seek solutions and actions that enhance long-term agricultural viability.

4.1 Goals, Objectives, and Strategies to Maintain and Improve Agricultural Viability

Vital elements and goals for agricultural viability in San Juan County include:

- **Economic Prosperity**: Support a thriving and viable local farm economy that increases profitability of local farmers.
- **Farm Retention and Expansion**: Maintain and increase number of acres and/or farms in long-term commercial agricultural production by making farmland available and increasing capacity of farmers.
- **Farm Stewardship and Sustainability**: Maintain and increase healthy agricultural natural resource systems that are adaptable to climate change.
- **Supportive Regulatory Environment**: Establish a supportive regulatory environment.
- **Agricultural Ethic**: Increase the social value of a local food system.

The strategies (as represented by the blue boxes in Figure 4) were developed by the Work Group and associated partners with the intent to meet the goals above and to promote agricultural viability within San Juan County. The agricultural viability metrics discussed in Section 2: Baseline Conditions establish a metric from which to measure the effectiveness of attaining the goals. Table 10 below illustrates the relationship between the metrics, objectives, and strategies. The participation goal is to achieve and maintain participation of agricultural producers of greater than 20% by 2020 and greater than 40% by 2025.

Compiling Data and Reporting

The San Juan Islands Conservation District will be responsible for surveying agricultural producers, compiling data, and reporting under the VSP. The purpose of the reporting is to track progress toward goal attainment for both agricultural viability and Critical Areas protection goals. With respect to agricultural viability goals, the collaboratively developed agricultural viability survey will be refined by the agricultural viability sub-committee and reissued every two years, or at a frequency determined by the Work Group. Status reports on participation and outreach and

progress towards meeting goals and benchmarks will also be completed every two years. This timeframe also allows for information to be incorporated into biennial reporting requirements to the WSCC.

Measuring Agricultural Viability

Progress towards agricultural viability goals and implementation of strategies will be monitored every two years through a survey of agricultural producers and data collection of agricultural viability indicators listed in Table 10, beginning in 2019, assuming funding for the program is provided. The SJICD will conduct the survey and collect data, with guidance and input from the Work Group and stakeholders.

Unlike performance measures for critical areas protection, measures for agricultural viability are not tied to measurable benchmarks. Therefore, progress towards attaining agricultural viability goals and strategies will not be used to determine success or failure of VSP, but rather to inform adaptive management activity.

Adaptive Management

Every two years, at the completion of the reporting cycle, the Work Group will reconvene to evaluate the status of the Program. If the Work Group determines that the agricultural viability goals are not being met, the Work Group will develop adaptive management processes with the intent to increase agricultural viability.

Figure 4 and Table 10, below, describe overall agricultural viability, with the understanding that not all aspects of agricultural viability fall under the jurisdiction of the VSP. Nonetheless, all of these aspects will be tracked as part of the VSP survey and reporting process, and findings will be brought to the attention of the both Work Group and the broader agricultural community.

Figure 4. Logic Model: Agricultural Viability in San Juan County

Goals are in yellow and strategies to attain goals are in blue.

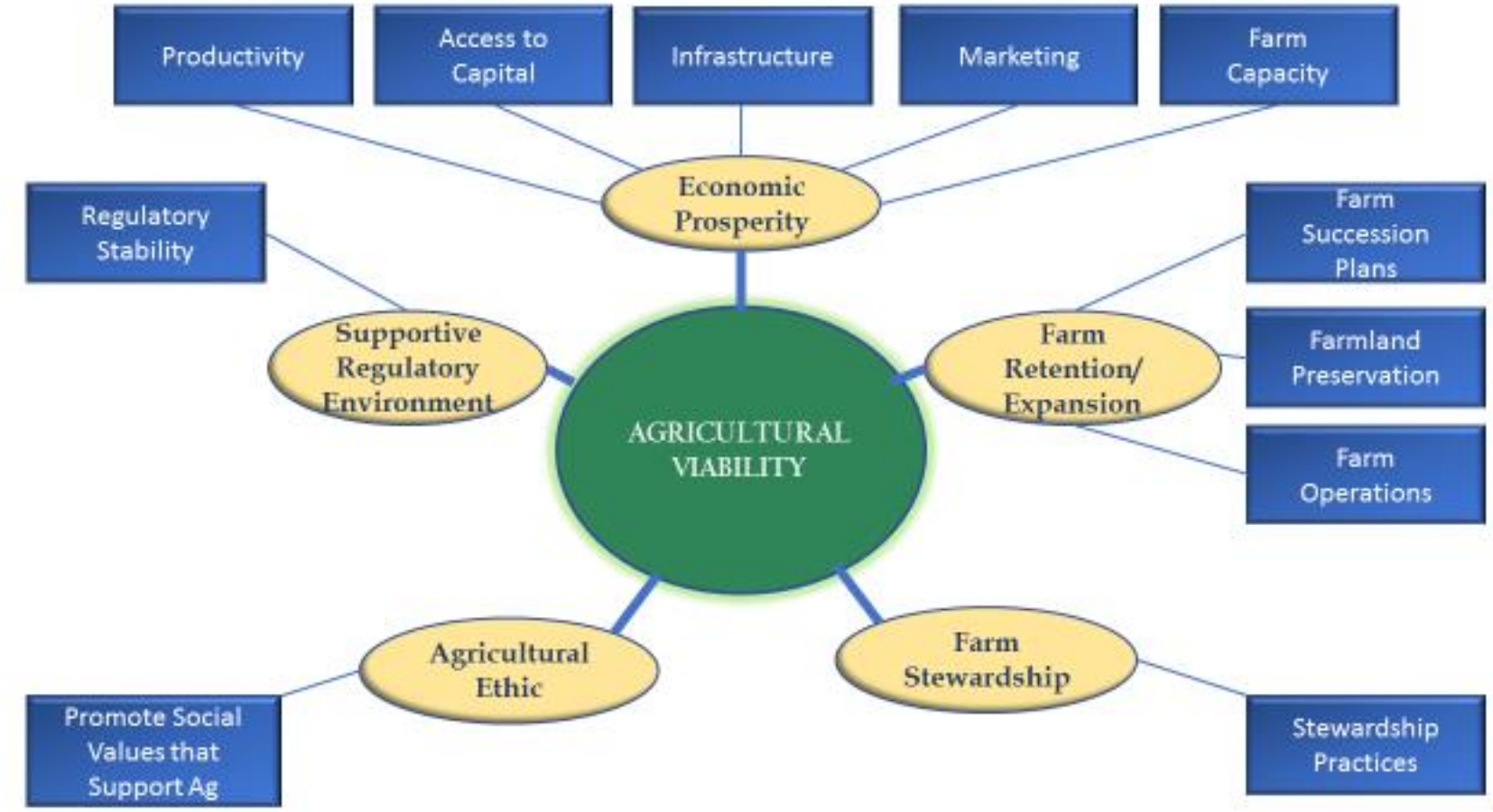


Table 10: Agricultural Viability Goals, Strategies, and Indicators

Agricultural Viability Elements/Goals	Agricultural Viability Strategies	Agricultural Viability Indicators
Economic Prosperity: Support a thriving and viable local farm economy that increases profitability of local farmers.	**1.1. Marketing:** Support and implement strategic plans that develop, strengthen, and expand local and regional market opportunities and sales, including value-added and niche crop production.	1. Gross annual sales of ag products/services produced locally 2. Net profit of ag products/services produced locally 3. Gross sales of farms participating in branding program 4. Farmers market sales 5. % total cost of goods for local ag products at grocery stores
	1.2. Productivity: Provide training, education, research, and technical assistance to promote soil, plant, and livestock health and productivity.	6. # of acres of land farmed (commercial and non-commercial) 7. # people reached through trainings, educational outreach, technical assistance, and internship/apprenticeship programs 8. # of research projects
	1.3. Farmer Capacity: Provide business and farm planning; technical assistance; strategies to access capital; and educational programs to interested farmers and value-added businesses.	9. # of farmers with current business plans (5 years) 10. # of completed farm plans 11. Ability to access skilled labor 12. Ability to access capital.
	1.4. Infrastructure: Expand access to infrastructure, such as shared access to equipment, storage facilities, commercial processing facilities, and transportation.	13. # of farms selling products inter-island and to mainland 14. # of producers that have access to food processing facilities 15. # of shared local transportation systems utilized 16. Revenue generated by local transport services. 17. # of producers identifying access to infrastructure as a challenge. 18. # of producers accessing shared food aggregation and/or storage sites
Farm Retention and Expansion: Maintain and increase number of acres and/or farms in long-term commercial agricultural production by making farmland	**2.1. Farmland Succession**: Connect new farmers to available farmland and mentorship opportunities to ensure farm succession.	19. # of farms with farmland succession plans 20. Average age of farmers 21. # of new farmers accessing farmland
	2.2 Farmland Preservation: Facilitate permanent conservation of farmland using conservation tools that allow for flexibility and adaptability for expansion	22. # of acres of conserved farmland

Agricultural Viability Elements/Goals	Agricultural Viability Strategies	Agricultural Viability Indicators
available and increasing capacity of farmers.	of agriculture, including new farming practices and infrastructure.	
	2.3 Farm Operations: Maintain and increase the number of commercial farm operations.	23. # of commercial farms
Farm Stewardship and Sustainability: Maintain and increase healthy agricultural natural resource systems that are adaptable to climate change.	**3.1 Stewardship Practices:** Provide technical and financial assistance for implementation of Best Management Practices; provide education and outreach opportunities; and conduct research on sustainable practices.	24. # of BMPs implemented
Policy Environment: Establish a supportive policy environment.	**4.1 Regulatory Stability:** Work with local and regional agricultural organizations and elected officials to promote clear and reasonable policies that promote agriculture.	25. # of new or amended agricultural related policies that support agricultural viability 26. Maintain # acres in Agricultural Resource Land
Agricultural Ethic: Increase the social value of a local food system.	**5.1 Social Values:** Promote the value of local farmers and of a just, equitable, and sustainable food system.	27. # of farm-to-school Programs 28. SNAP gross sales at farmers markets 29. Quantity of food bank donations from local agriculture 30. # of public accessing educational programing on local agriculture 31. # of meals served

5. Critical Areas Goals:
Protect and Enhance Critical Areas

5.1 Overarching Critical Areas Goals

The overarching goal for all Critical Areas is to protect and enhance their functions and values as compared to baseline conditions as of July 22, 2011, the date of the VSP statute's adoption. For wetlands and streams, San Juan County is including a goal of voluntary restoration of these resources.

In developing the goals and benchmarks, the following assumptions were made:

1) Protection of the resource means no loss in acreage or measurable degradation of the resource as compared to the date of statutory adoption of the VSP – July 22, 2011 – where such measurement is possible.
    a. For wetlands and streams the benchmark can be measured in acres of wetland and lineal feet of stream as compared to those measures in July 2011.
    b. For water quality, San Juan County does not have baseline data for VSP priority watersheds with respect to water quality, therefore baseline data will be established at the time of VSP implementation. Baseline data will be established in priority watersheds by leveraging San Juan County's water quality monitoring program, in combination with San Juan County's Department of Health data on water quality. Combined, these data sets will establish the baseline, and benchmark against which to measure water quality data moving forward. The protection goal is to maintain or improve water quality as measured against baseline, and not to allow water quality degradation.
2) Enhancement of the resource can be measured for wetlands and streams by looking at the change in vegetative cover over time for wetlands and streams.

For wetlands the protection goal will be measured by comparing wetland acreage in the County as mapped in July of 2011, to wetland acreage over time. An increase in wetland acreage is likely to be correlated with wetland protection, although an analysis of the specific net gain in acreage will be needed to determine if this is the case. A decrease in wetland acreage over time will trigger a review to determine the basis for the reduction in acreage. No change in wetland acreage will be analyzed further to determine whether no change in wetland acreage equates to protecting wetland area in San Juan County as compared to the baseline of wetland area present in July of 2011, the date of statutory adoption of the VSP.

For streams, (defined as an 'aquatic' fish and wildlife habitat conservation area by the San Juan County Code), the protection goal will be measured by looking at the lineal feet of stream present in San Juan County as mapped in July of 2011, and change in that stream area over time. No

change in stream area is assumed to equal stream protection of the resource. This assumption will be supplemented by looking at stream function scores measured using the SVAP2 protocol. Enhancement will be measured by looking at the change in the riparian condition over time, beginning with July 2011 as the benchmark. In addition to riparian cover, which can be analyzed using WDFW's HRCD model, stream functions will be quantified using the SVAP2 developed by the NRCS. Stream restoration goals will be measured by looking at an increase in stream area (as measured in lineal feet) and function, using SVAP2, and site specific data for stream restoration projects, such as SRFB-funded projects (e.g. an increase in stream sinuosity).

With respect to Fish and Wildlife Habitat Conservation Areas specific to habitats and species of local importance, where these habitats and species intersect with agricultural activity, protection is presumed to equate to no loss of habitats or species as they occurred on July 22, 2011. An increase in habitat for these species may also be mapped to show protection of the FWHCA-listed species (e.g. Island Marble Butterfly habitat enclosures on public and private lands; Western Bluebird re-introduction, etc).

For Geologically Hazardous Areas protection goals are related to avoiding and minimizing sedimentation and erosion and degradation of water quality and wildlife habitat through agricultural use. In addition there is a goal to protect agricultural use from damage due to naturally occurring erosion. Finally, there is a goal to avoid increasing the natural rates of erosion while protecting the beneficial functions of naturally occurring erosion from Geologically Hazardous Areas. The benchmark for Geologically Hazardous Areas is to look at the percentage of vegetative cover of these areas where they intersect with agricultural activity.

For Critical Aquifer Recharge Areas (CARAs), protection goals are related to both maintaining groundwater recharge areas and preventing further degradation of groundwater resources due to agricultural activity. Benchmarks are related to tracking water quality data over time to ensure protection of the resource.

The focus of Frequently Flooded Areas protection goals is to minimize damage to agricultural properties and operations, to protect and enhance Frequently Flooded Areas for habitat and groundwater recharge, and to preserve natural flood control, stormwater storage, drainage, and flood-plain connectivity. The area of the resource will be tracked over time where it intersects with agricultural activity. Analysis will include looking at the change in impervious surface area over time.

This section includes a discussion of climate change as a key stressor that could affect both Critical Areas and agricultural viability. The proposed monitoring will also help identify changes in climate vulnerability or resilience over time, clarify possible reasons why thresholds are being met, and inform adaptive management efforts.

This section concludes with a summary overview table of critical area goals, benchmarks, thresholds, responsible party collecting data, and the questions that are being asked to determine whether protection and enhancement goals are being met. It also includes a summary table that

identifies each goal, benchmark, monitoring method, responsible party for data collection, adaptive management threshold and adaptive management actions.

5.2 Protection and Enhancement

For the purposes of the San Juan County VSP, to protect a resource means "to prevent the degradation of functions and values existing as of July 22, 2011" (RCW 36.70A.703(8)). Wetland protection may include fencing livestock from wetlands, or their buffers, for example. Protection actions do not result in a net increase in wetland area.

Enhancement is defined by the VSP Statute as: "…to improve the processes, structure, and functions, existing as of July 22, 2011, of ecosystems and habitats associated with critical areas" (RCW 36.70A.703(4)). Enhancement is also a term of art used in the context of wetland mitigation. The federal rule on compensatory mitigation of aquatic resources defines enhancement as "…the manipulation of the physical, chemical, or biological characteristics of an aquatic resource [or its buffer area] to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s)." The fact that wetland enhancement does not result in a gain in wetland acreage is a key point that distinguishes wetland restoration (which does result in increased wetland acreage) from wetland enhancement – which does not.

For example, small mammal habitat, a wetland function, may be managed to provide improved function by adding small woody debris piles for shelter and cover (what the VSP statute refers to as "structure" to provide "function," e.g., the function of small mammal habitat), but small mammal habitat enhancement is not compatible with enhancing surface water storage capacity—another function that wetlands provide. These functions are mutually exclusive. It will be up to each VSP participant, working with the technical assistance provider, to determine which wetland functions will be protected or enhanced. Both wetland protection and enhancement goals should be developed based on consideration of watershed-level objectives.

Understanding the difference between wetland restoration and wetland enhancement is important because San Juan County is proposing to use acreage of wetlands—and change in appropriate native vegetation cover—to monitor how effectively VSP Individual Stewardship Plans are meeting the goal of protecting and enhancing wetlands. An increase in wetland acreage over time would show success in attaining both wetland protection and voluntary wetland restoration goals. An increase in the percentage of native vegetative cover over time could be correlated to improved structure and therefore function of wetlands enhanced under the VSP. The basic metrics to be monitored are:

- Acreage – tied to protection and restoration
- Function – tied to change in vegetative cover over time

Goals for participation were developed based on the knowledge that San Juan County has approximately 250 agricultural operators, and that greater levels of participation would likely be tied to goal attainment for both protection and enhancement of all critical areas. In December of 2017 the Work Group agreed to add specific targeted increased participation goals, included on page 50 of this Work Plan. Specifically, the agricultural viability participation goal now reads:

"Achieve and maintain 20 or greater percent participation of agricultural producers in San Juan County by 2020. Achieve and maintain 40 percent participation of agricultural producers in the VSP by 2025." These participation goals presume an initial number of agricultural producers of roughly 250, as based on 2017 data for the County. Agricultural producer participation goals will be measured every 2, 5, and 10 years.

Critical Area: Wetlands

Wetlands are defined in San Juan County's Critical Areas ordinance as follows: "Wetland means an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas created to mitigate conversion of wetlands" (SJCC 18.20.230).

Wetland Functions and Values

As noted above, the VSP statute requires that the measurable benchmarks be designed to protect the functions and values of Critical Areas (RCW 36.70A.720(e)). Wetland functions are understood by San Juan County to mean "what wetlands do" or the ecological services that they provide in the landscape. Wetland functions can be generally grouped into three broad categories: water quantity, water quality, and habitat. These categories are reflected in Table 11 below. Generally, functional lift means the change in function as a result of a management action taken to protect or enhance a specific function. For example, a wetland buffer that is devoid of trees or shrubs can be enhanced by planting with native species. The functional lift could be measured in several ways: counting the number of stems per acre planted, counting the increase in cover of the vegetation, or counting the change in bird species use following the enhancement activity, for example. All of these monitoring actions are expected to document functional lift—or change in the targeted function over time—as a direct result of the management action of tree and shrub planting in the wetland buffer. While it is assumed that planting will result in functional lift, it is more correct to state that monitoring of the success or failure of the planting will document a trajectory towards functional lift. If monitoring results show a failure to achieve the desired results, then corrective actions (adaptive management) will be implemented to resolve those failures.

For monitoring purposes, structure is measured as a surrogate of function. Planting appropriate native trees and shrubs is assumed to be a beneficial action. The action is anticipated to benefit native species' richness and diversity and may also have habitat benefits to passerine bird species, for example, by increasing available food, cover, shelter, and habitat interspersion. Therefore, the increase in ecological structure (e.g., trees, shrubs, emergent wetland plants) is often what is measured and monitored because plants, unlike birds and mammals, are fixed in the landscape. Additional monitoring (such as bird monitoring, for example, or amphibian monitoring) can demonstrate habitat functional lift, but typically such monitoring is not undertaken due to cost and time constraints. However, detailed monitoring, such as bird, invertebrate, and amphibian monitoring are included in San Juan County's Work Plan as optional elements at the request of the Work Group.

Monitoring is required to demonstrate goal attainment, but it can be expensive. It will be important to find an appropriate balance of monitoring which leads to data collection at the appropriate level to either show goal attainment or not, but is reasonable and capable of being accomplished under the VSP. The VSP statute requires both "periodic evaluations" every 2 years and reporting by the Work Group to the Washington State Conservation Commission director and to the County on whether it has met the Work Plan's protection and enhancement goals and benchmarks every five years (RCW 36.70A.725(2)(b)(i)).

Table 11: Wetland Functions (Based on Washington Department of Ecology, 1999)

WATER QUALITY FUNCTIONS	HABITAT FUNCTIONS
Sediment removal	General habitat (for all habitats and species)
Nutrient removal	Invertebrate habitat
Toxics removal	Amphibian habitat
	Anadromous fish habitat
WATER QUANTITY FUNCTIONS	Resident fish habitat
Peak flow reduction/surface water storage	Bird habitat
Downstream erosion control	Mammal habitat
Groundwater recharge	Native plant richness
Baseflow support	Primary production and organic export

The VSP statute requires that measurable benchmarks be created that are designed to result in: "the protection of critical areas functions and values" (RCW 36.70A.720(e)(i)). While the statute does not define Critical Area values, values are generally things that society deems important. With respect to wetland values, for example, many people value the aesthetic of both open-farmed fields and wetlands. Wetlands are highly valued by many birders because they provide a unique habitat used by wetland-dependent bird species.

The benchmark against which wetland protection is to be measured is the acreage of wetlands as they were mapped in 2011, the year of statutory adoption of the VSP. While it is understood that maps are representational, and do not always accurately depict field conditions, maps are used by San Juan County as the basis of regulation, with an acknowledgement that conditions in the field control. Wetland acreage will be compared to benchmark acreage of wetlands in 2011, per San Juan County's GIS critical areas mapping. A comparison to benchmark acreage of wetlands will

occur every 2, 5, and 10 years, using both WDFW's HRCD imagery, as well as San Juan County's GIS layer for wetlands.

Changes in wetland acreage will also be tracked annually by SJICD staff. SJICD staff will be conducting site visits to ISPs. During an initial site visit, SJICD staff will consult San Juan County Critical Areas maps, including wetlands. The initial site visit will either confirm San Juan County's mapping, or lead SJICD staff to consult with a wetland biologist, if they believe that site conditions do not match San Juan County's wetland mapping.

If site conditions do not match the County's mapping, the wetland biologist will document existing conditions, and submit this documentation to San Juan County's Community Development and Planning Department for their review and approval, if a change to the wetland map layer is proposed.

San Juan County Community Development staff will review the documentation, and, if approved, will request a change to San Juan County's wetland map layer from San Juan County's GIS Department, based on the documentation provided. These map updates will be tracked annually by SJICD staff.

With respect to attaining the wetland restoration goal, the preference is to focus on process-based restoration, then structure, then function, in a hierarchical approach. Process-based restoration assumes that the driving ecological process (i.e., the hydrology that supports the wetland) is restored. Where process-based restoration is not practicable, feasible, or possible, restoring structure and function should also be undertaken and monitored. For example, riparian planting may result in shade to a stream and therefore may ameliorate habitat conditions. As noted above, wetland restoration is assumed to involve an increase in wetland acreage over baseline.

An increase in wetland acreage would be documented in a similar manner as that described above. A wetland biologist would be consulted to provide the initial wetland restoration plan for each ISP. Based on that restoration plan, an annual site visit by the wetland biologist would document the change in wetland acreage resulting from wetland restoration activities to San Juan County Community Development for their review and approval. Once approved by County staff, these map changes to wetland acreage would be submitted to San Juan County GIS. Changes in wetland acreage will be documented annually by SJICD staff and included in biennial and five year monitoring reports.

Every 2, 5, and 10 years total wetland acreage in San Juan County will be mapped using both WDFW's HRCD imagery as well as San Juan County's GIS map layer for wetland acreage. A change of 5% is considered to be the threshold that will trigger adaptive management actions. This 5% threshold includes the mapping margin of error and represents a statistically significant change in area over baseline conditions. This threshold should not be misconstrued to mean that change below 5% will not be analyzed, its cause determined, and corrective action taken as needed. For example, implementation of individual BMPs and their success or failure will be tracked by the SJICD and corrective action will be taken if the BMPs are failing to meet goals.

The 5% threshold is literature-based and is specific to the use of WDFW's HRCD model. Pierce states that an observed loss of riparian vegetation of greater than 5% is considered significant (double the error rate for false positives in the model) (Pierce, 2015). The use of the HRCD model is intended primarily to document the change in vegetative cover (tied to enhancement activity under VSP), while the use of San Juan County GIS wetland mapping is intended to document the change in wetland acreage over time.

What follows is a list of objectives and monitoring metrics, tied to wetland water quality, water quantity, and wetland habitat protection and enhancement. This list includes examples of metrics that could be monitored to establish a baseline and against which protection and enhancement could be tracked over time. It is a long list of metrics and should be seen as a list of potential metrics to be monitored. Each VSP Individual Stewardship Plan participant whose agricultural activities intersect with wetlands will have the option of selecting metrics that are appropriate to their site and are practical, reasonable, and capable of being monitored by the technical assistance provider (or wetland consultant) within their annual monitoring budget for VSP. At a minimum, wetland area and wetland vegetative cover will be monitored over time and reported on every 2, 5, and 10 years by watershed, island, and county-wide. Wetland area will rely on San Juan County GIS data layers, which include both National Wetland Inventory data, as well as a County-specific data layer developed by Dr. Paul Adamus in 2011, and based on the presence of mapped hydric soils, vegetation cover, and landscape position. This mapping was developed by San Juan County in an effort to be more detailed and accurate than NWI maps. San Juan County makes annual changes to its wetland data layer based on wetland delineation reports submitted to the County. These changes will also be factored in to the changes in wetland acreage annually. For vegetative cover, SJICD will use the WDFW HRCD model. In combination with the wetland acreage data layers from San Juan County GIS, this will allow reporting on the quantity and quality of wetlands in San Juan County's watersheds over time, and whether implementation of the VSP is able to meet both the protection of area and function and enhancement goals in the aggregate.

Wetland Goals, Objectives, Monitoring Metrics, Benchmarks, and Adaptive Management Thresholds

 Participation activities

 Stewardship activities

 Effects on Critical Areas

Goals:

- Protect and enhance wetland functions related to water quality, water quantity, and habitat.
- Encourage voluntary restoration of wetlands where they intersect with agricultural activities.

Objectives	Monitoring Metrics	Benchmarks	Thresholds
1. Water Quality Water quality is maintained or improved in watersheds within which wetlands intersect with agricultural activity.	 • # of participants implementing BMPs to improve water quality	Protect and enhance wetland water quality consistent with WAC 173-201a and WAC 173-200. Where appropriate, baseline water quality data will be collected at the site and watershed-scale to determine existing conditions and to evaluate protection and change over time. Water quality baseline will be established at the time of Individual Site Plan implementation. Changes in water quality will be documented in biennial and five year reporting requirements.	Failure to meet State Water Quality standards due to agricultural activity in a watershed as measured against baseline water quality data.
	 • # and type of erosion control BMPs installed • # of manure management facilities installed • Acreage protected by fencing • Acreage protected by seasonal grazing and Heavy Use Areas • # and type of infrastructure installed (e.g. cattle crossings over streams)		
	 NA for wetlands. Surface water quality sampling addressed in Streams section.		
2. Water Quantity	 • # of participants implementing BMPs aimed at increasing surface water storage • # of BMPs targeted to improve irrigation efficiencies	Acreage of wetlands in the County compared to acreage documented in July 22, 2011 mapping. Wetland acreage where	A decrease of 5% in wetland acreage protected under

Water quantity is maintained or increased in wetlands that intersect with agricultural activity.		• # of catchment systems installed • # of livestock watering systems installed • # of irrigation efficiencies	it intersects with the agricultural activity being managed under VSP will be reported every two years, as well as every five years from adoption of the County Work Plan and documented by watershed. An increase in wetland acreage protected over baseline will be considered to meet the protection goal.	VSP will trigger adaptive management actions to determine cause. Wetland acreage measured by GIS mapping using San Juan County's GIS mapping.
		• Lineal feet of ditch or drain tile abandoned that intersect with wetlands		
3. Habitat Maintain or increase appropriate native plant communities in wetlands and associated riparian areas.		• Acreage planted with suitable native plant species • # of BMPs implemented to improve habitat (nest boxes, bee hives, etc.)	Percentage of vegetative cover of wetlands where they intersect with agricultural activity. Establish baseline conditions to track wetland habitat-related goals by measuring percent vegetative cover at the time of Individual Stewardship Plan Implementation. The baseline of wetland vegetative cover should be measured using WDFW HR imagery against the benchmark. The goal is to show no decrease in wetland vegetative cover as compared to 2011. An increase in native wetland vegetative plant cover over baseline will demonstrate enhancement over time.	A decrease of 5% in wetland % cover protected under VSP will trigger adaptive management actions to determine cause. Percent cover measured by GIS mapping using WDFW's HRCD model.
		• % cover of native vegetation that intersects with agriculture • Bird and amphibian surveys • Vegetation surveys		
4. Wetland Restoration Increase in the extent of wetlands that intersect with agricultural activity		• # of ag operators engaging in voluntary restoration activities on wetlands	Acreage of wetlands in the County compared to acreage documented in July 22, 2011 mapping. Wetland acreage where it intersects with the agricultural activity being managed under VSP will be reported every two years, as well as every five years from adoption of the County Work Plan	A decrease of 5% in wetland acreage protected under VSP will trigger adaptive management
		• # of acres of wetlands that are part of voluntary restoration activities		

that are voluntarily restored.		• % cover of native vegetation • Increase in wetland area achieved through voluntary wetland restoration	and documented by watershed. An increase in wetland acreage protected over baseline will be considered to meet the restoration goal.	actions to determine cause. Acreage measured by San Juan County GIS mapping. % cover to be measured using WDFW HRCD model, supplemented by San Juan County GIS wetland map layers and site specific data from ISPs as appropriate.

Critical Area: Fish and Wildlife Habitat Conservation Areas (FWHCAs)/Streams

Fish and Wildlife Habitat Conservation Areas are identified in SJCC 18.35.115 and include both terrestrial and aquatic habitats and species. The greatest area of intersection between agricultural activity and Fish and Wildlife Habitat Conservation Areas is with streams, with approximately 53 miles of mapped intersection with agricultural activity in San Juan County. Streams are therefore called out and emphasized in the goals and objectives below. Priority watersheds are identified in Appendix H, and are based on consideration of both priority freshwater salmonid habitat as well as critical aquifer recharge areas in San Juan County, where they intersect with agricultural activity. Priority watersheds were also established based on known water quality concerns within the County.

When an Individual Stewardship Plan is submitted for participation under VSP, the County's Fish and Wildlife Habitat Conservation Areas maps will be consulted to determine which habitats and species, protected by the ordinance, are mapped as intersecting the agricultural activity. Where the County maps indicate a species occurrence, they are considered to be a guide "to the possible location of these critical areas, and conditions in the field control" (SJCC 18.35.120). See Appendix F for the full text of the San Juan County Fish and Wildlife Habitat Conservation Areas Ordinance.

The Washington Department of Fish and Wildlife and appropriate state and federal agency staff will be consulted for habitat management plan recommendations where occurrences of protected species under Fish and Wildlife Habitat Conservation Areas are confirmed in the field and VSP participants choose to implement the habitat management recommendations for mapped species. See http://wdfw.wa.gov/conservation/phs/mgmt_recommendations/ for more detailed information on Habitat Management Plan recommendations. San Juan Island Conservation District staff will consult with WDFW and other habitat management agency staff (such as USFWS, NOAA Fisheries, as appropriate) every two years to ensure that published habitat management guidelines are the most current and up to date literature available.

Plant species protected under San Juan County's Fish and Wildlife Habitat Conservation Areas Ordinance are documented in San Juan County's GIS system. If a protected plant species were

mapped as occurring on an Individual Stewardship Plan property, the technical assistance provider would seek to verify that species occurrence with a site visit, accompanied by a qualified expert as needed. Management of the species would occur in cooperation with Washington Department of Natural Heritage Program rare plant botanists and follow management recommendations for rare plant species as documented in Washington DNR's Rare Plant Field Guide, available online at: http://www.dnr.wa.gov/NHPfieldguide

The full list of habitats and species protected by San Juan County's Fish and Wildlife Habitat Conservation Areas Ordinance is included in Appendix F. It is worth noting that there is not anticipated to be any mapped intersection between agricultural activity and many of the marine species listed in the ordinance, such as rockfish or gray whales. The intent of the VSP is to manage surface waters where they intersect with agricultural activity to the benefit of all Fish and Wildlife Habitat Conservation Areas species and habitats, in cooperation with willing participants under Individual Stewardship Plans, hence the focus on and list of goals, objectives, and metrics related to stream protection and enhancement. The protection and enhancement of all other Fish and Wildlife Habitat Conservation Areas habitats and species listed in SJCC is also presumed and will occur on a case-by-case basis as Individual Stewardship Plans are developed. The exception is marine shorelines, which, given their ecological significance, will continue to be regulated under the County's Shoreline Master Program in concert with the CAO requirements for marine shorelines to ensure that they receive the highest level of regulatory protection. As with wetlands, the metrics listed below for streams represent a suite of optional metrics which may be implemented on a case-by-case basis under Individual Stewardship Plans. At a minimum, the areas and functions of streams protected and enhanced under VSP Individual Stewardship Plans will be tracked, by watershed, where they intersect with agricultural activity every five years. Stream functions will be measured at the time of participation using the Stream Visual Assessment Protocol (2) developed by the Natural Resources Conservation Service. Changes in stream functions over time will be compared to baseline every two years, using SVAP2[19].

SVAP2, as stated in the introduction to the protocol is: "a qualitative assessment tool to evaluate features that affect overall stream conditions at the property level. The tool assesses visually apparent physical, chemical, and biological features within a specified reach of a stream corridor." For the purposes of San Juan County's VSP, SJICD staff are trained in the application and use of SVAP2. It provides a means of collecting baseline data at the parcel scale that can be reviewed within a watershed context. It provides quantitative scores, based on the presence of physical features, for the following elements on a scale of 0 to 10:

- Channel condition
- Hydrologic alteration
- Bank condition
- Riparian area quality and quantity

[19] NRCS, 2009.

- Canopy cover
- Water appearance
- Nutrient enrichment
- Manure or human waste presence
- Pools
- Barriers to aquatic species movement
- Fish habitat complexity
- Aquatic invertebrate habitat
- Aquatic Invertebrate community (invertebrate sampling)
- Riffle embeddedness
- Salinity

Results of SVAP2 are recorded with an aggregate score for the stream reach assessed, but it is also possible to view reach scores by individual element, and to compare both aggregate scores, as well as individual element reach scores, over time. For the purposes of VSP the stream reach will be defined by each ISP participant's parcel. SJICD does not anticipate collecting data for invertebrate sampling or salinity, though these are elements of the method. The intent of using SVAP2 is to use a transparent, science-based, easily repeatable method that allows for comparison over time, and is appropriate for the scale of VSP implementation in San Juan County.

If there are no ISP applicants whose property includes the intersection of streams and agricultural activity, attainment of the stream protection goal will be measured by analyzing San Juan County's GIS stream data layer, which has been ground-truthed by Wild Fish Conservancy. In addition, change in riparian cover over time will be analyzed using WDFW HRCD imagery. If SVAP2 reach scores are available, they will supplement this information at a finer scale of resolution. Increase in riparian cover will be assumed to represent stream enhancement. A decrease in riparian cover will trigger adaptive management to understand the cause of the decrease. Corrective actions, such as riparian planting, may occur to increase riparian cover, as appropriate. Monitoring of riparian cover will occur every 2, 5 and 10 years. See Table E-1 for a detailed list of metrics to be monitored, and the frequency of monitoring.

The intent is to be able to collect data on the area and function of stream and riparian conditions over time to allow reporting on whether the VSP is meeting the aggregate goal of stream protection and enhancement. Data on San Juan County fish and wildlife habitat conservation areas habitats and species of local importance will also be analyzed to ensure that resource protection goals are being met.

FWHCA/Streams Goals, Objectives, Metrics, Benchmarks, and Adaptive Management Thresholds

 Participation activities

 Stewardship activities

 Effects on Critical Areas

Goals:

Where critical habitat intersects with agriculture:

- Protect and enhance stream and aquatic fish and wildlife habitat conservation areas functions and values consistent with SJCC 18.35.130.
- Protect and enhance habitats and species of local importance.
- Encourage the voluntary restoration of fish and wildlife habitat conservation areas.

Objectives	Monitoring Metrics		Benchmarks	Threshold
1. Stream Functions Increase management practices that protect and enhance stream functions and values where streams intersect with agricultural activities in San Juan County. *(Sub-objective: Maintain and increase the % cover of appropriate native plant communities in and adjacent to streams.*		• # of participants implementing BMPs that aim to enhance stream functions and values • # of participants engaged in planting native plants		A decrease in Stream Visual Assessment Protocol 2 habitat element scores should trigger adaptive management to identify and correct the reason for the decrease.
		• # and type of erosion control BMPs installed • # of manure management facilities installed • Acreage protected by fencing & seasonal grazing • # of cattle crossings over streams installed • Acreage planted with native plant species		
		• Stream Visual Assessment Protocol 2 habitat element scores for baseline and every two & five years		

2. Stream Area Increase the area of streams and riparian habitat, where they intersect with agricultural activity, that are voluntarily restored.		• # of ag operators engaging in stream restoration activities • # of acres of ag land intersecting with streams or riparian zones that are restored	Measure the lineal feet of streams where they intersect with agricultural activities in San Juan County. Establish a baseline for streams against which to measure the effects of protection and enhancement actions by using Stream Visual Assessment Protocol 2 in Individual Stewardship Plans. SVAP2 scores will be re-analyzed every 2 and 5 years. The change in stream area would be identified in individual ISPs, and rolled up into watershed reporting.	A decrease of more than 5% of the stream area will trigger adaptive management review to determine the cause of the decrease, and implement protective measures to recover the benchmark of the intersection of lineal feet of stream and agricultural activity intersection at the time of VSP adoption, July 22, 2011.
		• Acreage/area restored		
		• Results from water quality samples • % cover of native and invasive riparian vegetation • Increase in stream sinuousity every two and five years.		
3. Habitats and Species of Local Importance Protect and enhance habitats and species of local importance		• # of participants implementing BMPs to improve the habitats and species of local importance • # of outreach events about protecting FWHCAs.	Monitor the goal of protecting the habitats and species as listed in SJCC 18.35.115 where they intersect with agricultural activities. The acreage of habitats protected under VSP will be documented by watershed every 5 years by looking at those species that are protected under ISPs. Acreage of protected species habitat will be measured every 5 years.	A decrease of more than 5% cover of any habitat type or species protected by FWHCA where it intersects with agricultural activity will trigger adaptive management.
		• # of BMPs implemented to improve habitat		
		• Metrics developed on a case-by-case basis for BMPs that protect or enhance species habitat.		

Critical Area: Geologically Hazardous Areas

Geologically Hazardous Areas are classified in accordance with SJCC 18.35.060. Areas that fall within this classification include landslide-prone areas and erosion hazard areas.

Landslide hazards are generally steep or unstable slopes with any of the following characteristics:

- Slopes in excess of 15 percent;
- Pervious soil layers overlying semi-pervious to impervious soil layers; and
- Evidence of springs or groundwater seepage to the surface.

Erosion hazard areas are characterized by soils identified in the USDA Soil Survey of San Juan County, Washington (USDA, 2009), as having a high risk of erosion.

The purpose of VSP is not necessarily to prevent landslides or erosion, but to avoid or minimize negative environmental or agricultural impacts which may result from erosion. Erosion is a naturally occurring process that can have many benefits to the natural environment. For example, erosion of feeder bluffs delivers sediment for beaches and forage fish spawning habitat.

SJICD staff will analyze the percent of native vegetative cover of Geologically Hazardous Areas where they intersect with agricultural activity over time using WDFW's HRCD model. Native vegetative cover can contribute to stable slopes and minimize erosion and adverse effects to agricultural areas downstream. A change in the percent cover of appropriate native vegetation on Geologically Hazardous Areas will be analyzed to determine its cause and whether the change is adversely or positively affecting Geologically Hazardous Area protection goals listed below.

Geologically Hazardous Areas Goals, Objectives, Metrics, Benchmarks, and Thresholds

 Participation activities

 Stewardship activities

 Effects on Critical Areas

Goals:

- Avoid and minimize impacts of sedimentation, erosion, and landslide hazards on water quality, and fish and wildlife habitat by upland agricultural use.
- Avoid and minimize damage to agricultural activities due to erosion, landslides, or other naturally occurring geologic events.
- Avoid activities that increase the natural rate of erosion, while protecting naturally occurring and beneficial ecological erosion processes, such as feeder bluffs.

Objectives	Monitoring Metrics	Benchmarks	Thresholds
1. Reduce Erosion Reduce erosion and sediment loads in watersheds with water quality impairments or other priority watersheds.	 • # of participants that implement BMPs to protect Geologically Hazardous Areas.  • Type and # of practices implemented • Acreage of agricultural area affected  • Document area and installation of suitable native plant material, as appropriate • # of landslides, where they intersect with agricultural activity	At each 5-year benchmark reporting period, baseline conditions of Geologically Hazardous Areas are protected where they intersect with agricultural activity in San Juan County. The number and type of Geologically Hazardous Areas protected under VSP Individual Stewardship plans will be identified by watershed every 5 years. Characterize the percent cover of Geologically Hazardous Areas where they intersect with agricultural activity. Establish	Measurable decrease (greater than 5% total) in percent cover by appropriate native vegetation as measured using WDFW HRCD.

			baseline vegetative cover at the time of implementation and measure against this baseline over time (2018). Has the percentage of vegetative cover changed? Has it increased or decreased? (For total acreage of GHAs that intersect with ag activity by watershed see Appendix D, in summary: San Juan Island: 422 acres, Orcas Island: 256 acres, Lopez Island: 115 acres)	
2. Landslide Risk Reduce landslide risk by minimizing disturbance and stabilizing steep slopes where landslides would adversely affect agricultural activity.		• # of agricultural operators implementing measures to manage landslide risk and stabilize steep slopes		
		• Type and # of practices implemented.		
		• Document area and installation of suitable native plant material, as appropriate.		
3. Soil Compaction Avoid soil compaction of Geologically Hazardous Areas where it may adversely affect agricultural activity.		• # of agricultural operators implementing measures to avoid soil compaction of geologic hazard areas.		
		• Type and # of practices implemented.		
		• Document area and installation of suitable native plant material, as appropriate.		

4. Water Drainage Unstable slopes are not irrigated where doing so could adversely affect agricultural activity.		• # of ag operators that refrain from irrigating unstable slopes		
		• # of agricultural operators who tightline surface water drainage off of steep slopes to decrease erosion.		
		• Document area with water management intended to decrease erosion hazard.		

Critical Area: Aquifer Recharge Areas

Aquifer Recharge Areas are defined at SJCC 18.20.010 and the purpose and classification is addressed in SJCC 18.35.080. As previously mentioned, the San Juan Islands are composed primarily of bedrock geology. The primary source of freshwater in the islands is precipitation, and aquifer recharge rates around the County vary considerably based on geology, aspect, slope, and other factors, as was documented by the County Health and Community Services Department in cooperation with USGS (USGS, 2002). Freshwater is both a limited resource, and a necessary resource to support sustainable agriculture.

A Critical Aquifer Recharge Area (CARA) susceptibility map was developed for the San Juan County Water Resources Committee in the early 2000s, using guidance from the Washington Department of Ecology and the 2002 study by USGS estimating recharge (Cook, 2000; USGS, 2002). The map ranked areas of the County as having low, medium, or high susceptibility to groundwater resource degradation. Unlike mainland counties, the overall ranking for San Juan County is medium to high. The San Juan County Water Resources Management Committee considered additional factors, including predominance of fractured bedrock which can channel potential contamination directly to groundwater, seawater intrusion risk (a particular threat on Lopez Island), and limited rainfall, and, based on these factors, recommended that the entire County should be identified as a CARA. Highest priority watersheds for protecting recharge, which also include the greatest extent of intersection with agricultural activity include False Bay and Garrison Bay on San Juan Island, Swift Bay and Davis Bay on Lopez Island, and Westsound and Doe Bay on Orcas Island. These watersheds are identified on the “Streams” map layer in Appendix E, and are also listed in the table below.

Baseline water quality data will be established at the outset of implementation of the VSP – beginning in 2018. Water quality reporting will be included in 2, 5, and 10 year monitoring reports. Water quality sampling will build on San Juan County Public Works and San Juan Island

Conservation District stormwater monitoring program, described in Appendix E. Sampling locations are also identified in Appendix E. Water quantity and ground water quality data will rely on existing data from the State Department of Health as well as San Juan County's ground water quality data from Group B well systems where such systems intersect with agricultural activity.

A Quality Assurance Project Plan and Standard Operation Procedures meeting Department of Ecology and EPA guidelines will be developed for all water quality monitoring under this Plan. San Juan County Health and Community Services Department and State Department of Health groundwater data will be reviewed by SJICD for 5 and 10-year monitoring reporting.

Critical Aquifer Recharge Areas Goals, Objectives, Metrics, Benchmarks, and Adaptive Management Thresholds

 Participation activities

 Stewardship activities

 Effects on Critical Areas

Goals:

- Protect and maintain groundwater recharge and prevent the degradation of groundwater resources due to agricultural activities.
- Protect groundwater resources that support agricultural activities and balance competing needs for water while preserving natural hydrologic functions and their related ecological processes (e.g., water quality, and water quantity).
- Prioritize watersheds with known contaminant problems for management that protects and improves water quality.

Objectives	Monitoring Metrics	Benchmarks	Thresholds
1. Recharge Maintain or improve groundwater recharge to support groundwater storage	• # of participants implementing BMPs that aim to maintain or improve groundwater recharge • Acreage of agricultural activities that occur on CARA in San Juan County • # of practices to enhance soil moisture retention • # of practices to maximize irrigation efficiency # of practices to retain seasonal runoff and increase infiltration	The number and type of activities implemented under VSP which increase water storage capacity within San	

functions including stream baseflows and wetland hydroperiods in their natural hydrologic cycles.		• # of storage systems for rooftop catchment or other seasonal runoff • # of participants using soil conservation BMPs • # of water level measuring systems for wells, ponds, and streams • # of rain gauges and weather stations installed	Juan County. Activities will be monitored by watershed every five years.	
		• # of water use measurements • # of water meters installed, implemented, and monitored to quantify water use related to agricultural activity • # of water level measurements • # of acres with soil and irrigation BMPs		
2. Contamination Decrease the risk of groundwater contamination and degradation from agricultural activities, consistent with state water quality standards.		• # of pollution prevention practices • # of nutrient BMPs • # of acres with pasture management BMPs • area being protected and enhanced by stormwater LID actions	The number and type of activities implemented under VSP which improve groundwater quality within San Juan County. Activities will be monitored by watershed every five years. Analyze and report on ground water quality data in priority watersheds that have the greatest extent of intersection with agricultural activity: False Bay and Garrison Bay on San Juan Island, Westsound and Doe	Measurable decrease in ground water quality below state standards where the decrease can be attributable to agricultural activity.
		• Acreage protected by seasonal grazing • Acreage maintained to filter and infiltrate runoff • # of manure management facilities installed # of confinement areas with BMPs		
		• Results from County water quality monitoring by watershed		

			Bay on Orcas Island, Swift Bay and Davis Bay on Lopez Island, every 2 years. In addition, DOH data as well as Group B well data will be consulted to determine baseline conditions.	

Critical Area: Frequently Flooded Areas

San Juan County code defines Frequently Flooded Areas as “lands subject to a one percent or greater chance of flooding in any given year” (SJCC 18.20.060). San Juan County has adopted FEMA’s FIRM maps to identify “Special Flood Hazard Areas” within the County. The intent is to protect the public health and safety as it intersects with agricultural activity within these areas.

The extent of Frequently Flooded Areas where they intersect with agricultural activities is included in Appendix D, as quantified by watershed. Maps of Frequently Flooded Areas as they intersect with agricultural activities are included in Appendix H. The intent of protecting this resource is to minimize flood damage to agricultural operations and to protect the natural functions of flood storage. The change in impervious surface area by watershed will be analyzed, beginning with 2011, 2016, and every subsequent 5 years, and included in the 2, 5 and 10 year monitoring reports.

Frequently Flooded Areas Goals, Objectives, Metrics, Benchmarks, and Adaptive Management Thresholds

 Participation activities

 Stewardship activities

 Effects on Critical Areas

Goals:

- Minimize flood damage to agricultural properties and operations.
- Protect and enhance Frequently Flooded Areas for habitat and groundwater recharge.
- Preserve natural flood control, stormwater storage, and drainage, and floodplain connectivity, including flood channels and/or high-flow channels.

Objectives	Monitoring Metrics	Benchmark	Threshold
1. Impervious Area Maintain or reduce impervious surface area where it intersects with agricultural activity.	 • # of participants implementing BMPs that aim to reduce impervious surface area	Acreage of frequently flooded areas that intersect with agricultural activities, measured every five years. Acreage will be documented County-wide, by island and by watershed.	More than 5% loss of frequently flooded areas where they intersect with agricultural activities.
	 • # and type of BMPs implemented that aim to reduce impervious surface area		
	 • Amount of impervious surface area on agricultural lands where they intersect with Frequently Flooded Areas, by watershed.		
2. Floodplain Alteration No new alterations in the floodplain that adversely affect surface water storage.	 • # of VSP participants with agricultural activities that overlap with Frequently Flooded Areas		
	 • # and type of erosion control BMPs installed • # of catchment or other water storage systems installed • # of BMPs aimed at increasing surface water storage		
	 • Acreage of floodplain alteration		
3. Floodplain Functions	 • # of VSP participants with agricultural activities that overlap with Frequently Flooded Areas		
	 • Acreage protected by fencing • Acreage protected by seasonal grazing • # and type of erosion control BMPs installed		

Maintain or enhance floodplain area functions and connectivity of streams, floodplains, and wetlands.		• # of livestock watering systems installed		
		• Acreage of reconnected floodplain area, by watershed		

5.3 Climate Change Resilience

The San Juan County VSP addresses climate change for several reasons. Protecting the functions and values of Critical Areas and maintaining agricultural viability will require being aware of projected climate change impacts, and taking actions that build the resilience of Critical Areas and agriculture in the face of those changes. Climate change is a key stressor that could otherwise undercut some of the advances made through the VSP in the coming decades.

For example, climate change is expected to alter the seasonal distribution of precipitation in western Washington. The San Juan Islands—and the critical areas and farms in the islands—rely on precipitation for all of their freshwater resources. The University of Washington Climate Impacts Group reports that total annual precipitation may remain about the same in the region, but summer precipitation is projected to decrease (Mauger et al., 2015). Warmer and longer summer dry seasons would exacerbate pressures on wetland and stream habitats through reduced water availability. Reduced streamflows and rising air temperatures also lead to warmer stream temperatures, which can adversely affect resident and anadromous fish and the availability of food for other species. Agriculture, meanwhile, may be increasingly stressed by drought in the summer and rely more heavily on irrigation; this can increase costs for agricultural operators and bring with it the potential to further impact Critical Areas through this increased demand for water.

At the same time, more precipitation is expected to fall in winter and in more intense rainfall events (Mauger et al., 2015). When this leads to increased runoff, it can affect water quality by increasing turbidity and potentially bringing in more sediment, bacteria, or fecal matter to some streams and wetlands from surrounding lands.

Depending on their locations, some Critical Areas or agricultural areas may also be affected by other climate change impacts, such as rising sea levels and saltwater intrusion into groundwater. Proactively addressing these anticipated impacts will help avert the loss of agricultural production and Critical Area functions, which is preferred to the much more difficult task of restoring those elements once losses have already materialized.

Furthermore, it is important to recognize that many of the voluntary measures already laid out in this plan will directly help build the climate resilience of Critical Areas and maintain and improve the long-term viability of agriculture in San Juan County. For the same reason, some of the proposed metrics will, over time, also be useful to illuminate positive or negative trends in climate vulnerability and point to emerging priorities for protection and enhancement for both Critical Areas and agricultural viability.

CLIMATE CHANGE RESILIENCE GOALS, OBJECTIVES, AND MONITORING METRICS

This section lists the monitoring metrics identified for the critical areas above that are also relevant for tracking climate resilience and resilience-building efforts.

 Participation activities

 Stewardship activities

 Effects on Critical Areas

Goals:

- Protect and enhance wetland functions related to water quality, water quality, and habitat in the context of a changing climate.
- Protect and enhance stream functions where they intersect with agricultural activity in San Juan County in the context of a changing climate.
- Avoid and minimize impacts of sedimentation, erosion, and landslide hazards on water quality, habitat, and agricultural, due to changing precipitation patterns.
- Protect groundwater resources that support agricultural activities in the context of a changing climate that could otherwise impact water availability.
- Minimize flood damage to agricultural properties and operations, and preserve natural flood control and stormwater storage and drainage patterns in the context of a changing climate.

Objectives	Monitoring Metrics	Benchmark	Threshold
1. Wetland Functions Wetland functions related to water quality, water quality, and habitat are maintained despite impacts from warmer temperatures, changes in precipitation, and other changes in climate.	• # of participants implementing BMPs that maintain or improve groundwater recharge or increase water quantity	The baseline benchmarks established in this plan for Critical Areas and agricultural viability will also serve as benchmarks to measure changes in climate resilience. Critical Areas that can be effectively protected and enhanced in the coming years, and agricultural operations that remain viable, despite a changing climate, will be considered climate-resilient.	Not applicable.
	• # of catchment or other water storage systems • # and type of erosion control BMPs installed • # of irrigation efficiencies • # of rain gauges installed		
	• The # of water meters installed. • The quantity of water used for agricultural as measured with flow meters implemented under ISPs. • Results from water quality samples by watershed.		
2. Stream Functions Stream functions—where they intersect with agricultural activity in San Juan County, are maintained despite impacts from warmer temperatures, changes in precipitation, and other changes in climate.	• # of participants implementing BMPs that aim to enhance stream functions and values • # of participants engaged in planting native plants • # of flow meter collection stations monitored		
	• # and type of erosion control BMPs installed • # of activities that reduce sedimentation/erosion		
	• % cover of riparian vegetation • Change in canopy cover over streams • Stream flow data seasonally • Monitor in-stream temperature seasonally • Habitat feature characterization (using SVAP2		

Objectives	Monitoring Metrics	Benchmark	Threshold
	•		
3. Erosion To maintain or reduce erosion and sediment loads where they intersect with agricultural activity and critical areas, despite impacts from changes in precipitation and climate.	 • # of ag operators implementing measures to stabilize steep slopes  • The acreage of agricultural area affected  • Water quality samples		
4. Recharge To maintain or improve groundwater recharge to support groundwater storage functions including stream baseflows and wetland hydroperiods, despite impacts from climate change.	 • # of participants implementing BMPs that aim to maintain or improve groundwater recharge  • # of catchment or other water storage systems installed • # of participants using soil conservation BMPS  • The quantity of water used for agricultural purposes as measured using water meters installed under ISPs.		
5. Flood Damage	 • # of participants implementing BMPs that aim to reduce impervious surface area • # of VSP participants with agricultural activities that overlap with Frequently Flooded Areas		

Objectives	Monitoring Metrics	Benchmark	Threshold
Agricultural operations experience minimal flood damage, and natural flood control and stormwater storage options are used to manage changing risks in the context of climate change.	• # and type of BMPs implemented that aim to reduce impervious surface area • # of catchment or other water storage systems installed • # of BMPs aimed at increasing surface water storage		
	• Amount of impervious surface area on agricultural lands where they intersect with frequently flooded areas, by watershed.		
6. Resiliency Agricultural operations are climate-resilient.	• # of operators who access training related to climate change impacts and adaptation and mitigation measures. • # of trainings or outreach events that include climate change topics. • # of completed farm plans that recognize climate change risks and include measures that have an explicit link to building climate resilience.		

Table 12 provides a summary of Section 5 Critical Area Goals and Benchmarks, and is organized by Critical Area: Wetlands, Fish and Wildlife Habitat Conservation Areas/Streams, Geologically Hazardous Areas, Critical Aquifer Recharge Areas and Frequently Flooded Areas.

Table 13 provides a summary of specific critical area goals and benchmarks and identifies who is collecting the data, as well as the adaptive management threshold and adaptive management actions.

Table 12: San Juan County Critical Area Goals and Benchmarks

Goal	Critical Area	Benchmarks that are informed	Threshold informed	Resource name	Ongoing program or static document	Possible results of resource use	Whom to contact	Scale	Geography	Relevant questions this data can answer
Protect & Enhance Functions	Wetlands	Water quality	Maintain state WQ standards in surface waters	Water quality monitoring	On-going program surface water quality monitoring	Tracking conditions over time in bracketed areas to id & eliminate upstream sources.	SJICD/ SJ County Public Works	Fine to mid[20]	San Juan County	Is water quality declining, improving, or staying the same on a watershed basis?
Protect & Enhance Functions	Wetlands	Protect wetland acreage	Decrease of 5% in wl acreage triggers AM	San Juan County GIS mapping. ISP Data.	On-going, base layer for 2011 & change analysis every 5 years	Net change in wetland area	SJICD/San Juan County GIS	Fine/ parcel	San Juan County	Is wetland area where it intersects with ag activity increasing, decreasing, or staying the same?
Protect & Enhance Functions	Wetlands	Appropriate native plant cover	Loss of 5% native veg cover of wetlands triggers AM	WDFW HRCD & San Juan County GIS wetland mapping. Ground-truthing on 10% of the wetland parcels.	On-going base layer for 2011 & change analysis every 5 years	Change in native veg cover between 2011, 2016, 2021. Also track actions taken to enhance wl fxs under ISPs (e.g. native planting).	SJC GIS & WDFW HRCD	Fine	San Juan County	Where has wetland vegetative cover changed over time? Where has impervious surface area changed? increased? Decreased? Does farming under VSP ISPs protect & enhance wetland fxs?

[20] 'Fine/Parcel' scale data is collected through the ISP process and county mapping updates. 'Fine' scale data will be collected through HRCD, County GIS mapping, and ground-truthing. 'Fine to mid' scale data is at a watershed scale.

Table 12: San Juan County Critical Area Goals and Benchmarks

Goal	Critical Area	Benchmarks that are informed	Threshold informed	Resource name	Ongoing program or static document	Possible results of resource use	Whom to contact	Scale	Geography	Relevant questions this data can answer
Encourage Voluntary Restoration	Wetlands	Wetland acreage	% change in acreage & cover over time	WDFW HRCD & SJC GIS	On-going base layer for 2011 & change analysis every 5 years	Change in wetland acreage & cover	SJICD	Fine	San Juan County	Is there an increase in wetland acreage over time? Is there a change in the % cover of wetland acreage over time?
Protect & enhance streams	FWHCA/ aquatic	Protect streams	Measure Lineal feet/miles	San Juan County GIS	On-going base layer for 2011 & Change analysis every 5 years	Change in stream miles over time	SJICD	Fine	San Juan County	Is there a change in stream area over time?
Protect & Enhance stream functions & values	FWHCA/ aquatic	Protect & enhance streams	SVAP2	SJICD	On-going at time of enrollment and every 2 years. ISP Data.	Change in SVAP2 scores over time	SJICD	Fine/ parcel	San Juan County	How are stream functions changing over time?

Table 12: San Juan County Critical Area Goals and Benchmarks

Goal	Critical Area	Benchmarks that are informed	Threshold informed	Resource name	Ongoing program or static document	Possible results of resource use	Whom to contact	Scale	Geography	Relevant questions this data can answer
Increase the area of streams/riparian zones that are voluntarily restored	FWHCA/ aquatic	Increase stream area & riparian habitat through voluntary restoration	Measure lineal feet/miles Measure change in riparian cover over time	WDFW HRCD combined with SJC GIS stream layers & SVAP2 data	On-going base layer for 2011 & change analysis every 5 years	Change in riparian cover over time	WDFW HRCD as supplemented by SVAP2 (SJICD) and Stream mapping (SJ County)	Fine to mid	San Juan County	Is the % of appropriate native riparian cover changing over time? Is there a change in stream area over time as a result of voluntary stream protection actions?
Protect & Enhance Habitats & Species of local importance	FWHCA	Extent of mapped habitat for priority species is maintained or increased	Measure extent of mapped habitat over time	SJICD to work with relevant agencies (WDFW, USFWS)	Baseline at time of enrollment, & change analysis every 5 years	Change in mapped habitat area over time	SJICD & SJC GIS in collaboration with state & federal agencies	Fine/ parcel	San Juan County	Is habitat for priority species changing over time in area?
Avoid & Minimize impacts of sediment, erosion, & landslide hazards on WQ & F&W habitat from ag	Geo Hazard Areas	ID area of Geo Haz intersecting with ag every 5 years	Measure mapped habitat	SJICD & SJC GIS	On-going base-layer for 2011 & change analysis every 5 years	Change in Geo Haz area & type intersecting with ag over time	SJICD & SJC GIS	Fine/ parcel	San Juan County	Is the area of Geo Haz & ag intersection changing over time?

Table 12: San Juan County Critical Area Goals and Benchmarks

Goal	Critical Area	Benchmarks that are informed	Threshold informed	Resource name	Ongoing program or static document	Possible results of resource use	Whom to contact	Scale	Geography	Relevant questions this data can answer
Avoid & Minimize impacts of sediment, erosion, & landslide hazards on WQ & F&W habitat from ag	Geo Hazard Areas	Measure the % cover of GHAs by native vegetation & track change over time	GHAs maintain appropriate native veg cover and contribute to reduced erosion	SJICD & SJC Public Works	Baseline collected at time of enrollment in VSP/ISP.	Tracking % cover over time where GHAs intersect withi ag activity.	SJICD & SJC Public Works	Fine- mid Parcel to watershed	San Juan County	Are GHAs that intersect with ag activity protected from excess erosion by appropriate native vegetative cover?
Protect & Maintain Groundwater Recharge areas	CARAs	Water Quality monitoring	WQ data in watershed	SJICD & SJC Public Works, Public Health & Ecology	Baseline collected at time of enrollment in VSP/ISP	Tracking conditions over time to id pollutants and protect CARAs.	SJICD, SJC Public Works & Public Health	Fine – mid Parcel to watershed	San Juan County	Is water quality improving, declining, or staying the same?
Protect groundwater resources that support Ag	CARAs	Water quantity monitoring	Track participation, stewardship, and effects	SJICD	Baseline collected at time of enrollment and every 5 years	ID actions that contribute to goal and quantify resource utilization tied to ag over time.	SJICD	Fine/ parcel	San Juan County	ID actions that protect groundwater resource and quantify resource use tied to ag over time. Have these actions been effective in contributing to groundwater resource protection?

Table 12: San Juan County Critical Area Goals and Benchmarks

Goal	Critical Area	Benchmarks that are informed	Threshold informed	Resource name	Ongoing program or static document	Possible results of resource use	Whom to contact	Scale	Geography	Relevant questions this data can answer
Minimize flood damage to ag	Frequently Flooded Areas (FFAs)	Measure acreage that intersects with Ag every 5 years.	Change in area of intersection >5% loss of frequently flooded areas will trigger AM.	SJICD & San Juan County GIS, supplemented by WDFW HRCD	On-going base layer for 2011 & change analysis every 5 years	Track change in impervious surface over time.	SJICD	Fine- mid	San Juan County	Is impervious surface area increasing over time?
Protect & Enhance FF areas	Frequently Flooded Areas	Measure acreage in floodplain area where it intersects with Ag Activity every 5 years	>5% loss of frequently flooded areas will trigger AM.	SJICD & San Juan County GIS supplemented by WDFW HRCD	On-going base layer for 2011 & change analysis every 5 years	Track change in FF area acreage & % veg cover over time.	SJICD, SJ County GIS as supplemented by WDFW HRCD	Fine-mid	San Juan County	Is the area of frequently flooded areas changing over time? Are FFAs being enhanced by planting?
Climate Resilience	All CA goals	Measure change in acreage of wetlands, streams, protected habitats & species, change in % veg cover, change in impervious surface area.	None	SJICD & San Juan County GIS as supplemented by WDFW HRCD	On-going base layer for 2011 & change analysis every 5 years	Track changes in acreage and % cover; id actions implemented related to quantifying groundwater use & protection, report on water quality data at the watershed scale & changes over time.	SJICD, SJ County GIS as supplemented by WDFW HRCD	Fine-mid	San Juan County	Are actions implemented under VSP contributing to climate resilience? How?

Table 13: San Juan County VSP Monitoring Table

Benchmark No.	CA Benchmark (Protect/ Enhance)	Performance Metrics and Indicators	Monitoring Method	Party Collecting Data	Adaptive Management Threshold	Adaptive Management Action
Participation Goal: Maintain and Improve Ag Viability Over Time						
P-1	Achieve and maintain participation of agricultural producers of greater than 20 percent by 2020 and greater than 40 percent by 2025.	1. Percent of agricultural producers participating in VSP. 2. Percent of agricultural acres of farms participating that intersect with critical areas.	1. Number of agricultural producers with ISPs. 2. Number and acres enrolled: ISPs 3. Total # of producers/acres that intersect CAs: Intersection maps	SJICD	Decrease in participation triggers Adaptive Management & Action	1. Evaluate outreach conducted to date, ag viability measures, reasons for decrease. 2. Interview people who drop out 3. Evaluate if ag viability measures are still appropriate 4. Recruit more participants – may need to increase outreach. 5. Target priority watersheds for increased participation.
Critical Area Effectiveness Goal: Protect Existing Wetlands						
WL-1	Identify actions taken to protect existing wetlands (e.g. fencing)	1. Number of acres of wetland protected by ISP actions. 2. Acres of wetlands in ISPs rolled up to County GIS wetland acreage layer	1. ISPs 2. San Juan County GIS Wetland data layers 3. WDFW HRCD	SJICD	Decrease in protected wetland acreage over Benchmark above the mapping margin of error (>5%).	1. Evaluate reason for decline. Develop strategies to improve protection based on evaluation. 2. Target wetland areas for increased protection based on priority watershed condition and function. 3. Target outreach for participation from priority watersheds.
Critical Area Effectiveness Goal: Enhance Existing Wetland Functions						
WL-2	Identify actions taken to enhance wetland functions	1. Identify area of enhanced wetlands 2. Identify type of enhancement (See Table	1. ISPs 2. San Juan County GIS Wetland data layers 3. WDFW HRCD	SJICD	*Enhancement only. No adaptive management threshold.*	*Enhancement only. No adaptive management threshold.*

Table 13: San Juan County VSP Monitoring Table

Benchmark No.	CA Benchmark (Protect/ Enhance)	Performance Metrics and Indicators	Monitoring Method	Party Collecting Data	Adaptive Management Threshold	Adaptive Management Action
		E-1 for list of enhancement activities) 3. Use % veg cover as a surrogate – supplement with ISP data				
Critical Areas Effectiveness Goal: Voluntarily Restore Wetlands						
WL-3	ID actions taken to restore wetlands (e.g. disable drainage tiles)	1. ISPs including revised wetland area maps following successful restoration actions. 2. Updated wetland data layer from SJC GIS based on above. 3. Voluntary or other restoration actions (SRFB or other)	1. ISPs 2. San Juan County GIS wetland data layer 3. 4 Year Habitat Work Schedule	SJICD	*Voluntary restoration action: No adaptive management threshold.*	*Voluntary restoration action: No adaptive management threshold.*
Critical Areas Effectiveness Goal: Protect Streams						
FWHCA-1	ID actions taken to protect streams (e.g. riparian fencing)	Quantify lineal feet of stream protected by ISP actions at the watershed scale.	1. ISPs 2. SJC County data layer for stream miles, 3. SVAP2 data for stream reaches (See Table E-1 for a list of SVAP2 elements)	SJICD	Decrease in lineal feet of stream miles protected under VSP.	1. Evaluate miles of stream protected. 2. Evaluate cause of decrease in stream miles protected. 3. Increase outreach as needed targeting priority watersheds to increase participation in stream protection efforts.

Table 13: San Juan County VSP Monitoring Table

Benchmark No.	CA Benchmark (Protect/ Enhance)	Performance Metrics and Indicators	Monitoring Method	Party Collecting Data	Adaptive Management Threshold	Adaptive Management Action
Critical Areas Effectiveness Goal: Enhance Streams						
FWHCA-2	ID actions taken to enhance streams (e.g. riparian planting, # of fish passage barriers removed, in-stream structural enhancement activities etc.)	1. Change in riparian cover over time. 2. Change in SVAP2 element scores over time on protected stream reaches – reported by watershed.	1. ISPs 2. SJC GIS stream data layer as supplemented by WDFW HRCD data. 3. SVAP2 stream reach scores every 2 years.	SJICD	*Enhancement only. No adaptive management threshold. Enhanced stream area should be ground-truthed and compared to HRCD data.*	*Enhancement only. No adaptive management threshold.*
Critical Area Effectiveness Goal: Voluntarily Restore Streams where they Intersect with Agricultural Activity						
FWHCA-3	ID actions taken to voluntarily restore streams	1. Area of stream restored over time.	1. ISPs 2. SJC GIS stream data layer 3. SVAP2 scores for restored stream reaches. 4. Data from other stream restoration or enhancement projects, e.g. SRFB projects.	SJICD in coordination with San Juan County and other entities	*Voluntary restoration action: No adaptive management threshold.*	*Voluntary restoration action: No adaptive management threshold.*
Critical Area Effectiveness Goal: Protect and Enhance Habitats and Species of Local Importance						
FWHCA- 4	ID actions taken to protect and enhance habitats and species of local importance	1. Area of protected habitat for species of local importance.	1. ISPs.	SJICD in coordination with other agencies: San Juan Pres Trust,	Decrease in area of protected habitat or species of local importance.	1. Evaluate reason for decrease. 2. Target increased protection for habitats and species. 3. Increase outreach and education to increase protected area.

Table 13: San Juan County VSP Monitoring Table

Benchmark No.	CA Benchmark (Protect/ Enhance)	Performance Metrics and Indicators	Monitoring Method	Party Collecting Data	Adaptive Management Threshold	Adaptive Management Action
		2. *Area of enhanced habitat for species of local importance.*		Land Bank, WDFW, USFWS		4. Report on area of enhanced habitat.
Critical Area Effectiveness Goal: Encourage Voluntary Restoration of FWHC Areas.						
FWHCA-5	ID voluntary restoration actions.	1. ID the area affected by voluntary habitat restoration actions.	1. ISPs 2. Land Bank Oak Habitat Restoration 3. 4-Year Habitat Work Schedule 4. Island Marble Butterfly 5. Western Bluebird Re-introduction nest boxes and habitat area. 6. WDFW Sharp-tailed snake data.	SJICD & cooperating agencies	*Voluntary restoration action: No adaptive management threshold.*	*Voluntary restoration action: No adaptive management threshold.*
Critical Area Effectiveness Goal: Avoid and minimize the impacts of sedimentation, erosion, & landslide hazards on water quality and fish and wildlife habitat by upland agricultural use.						
GHA-1	ID actions implemented to reduce sediment, erosion, and landslide impacts on GHAs.	1. ID the area affected. 2. Collect water quality samples in priority watersheds. 3. Compare turbidity data over time.	1. ISPs 2. SJICD and Public Works Stormwater monitoring	SJICD, SJC Public Works, Washington Department of Ecology	Measureable decrease in water quality below state standards where this can be attributed to ag activity.	1. ID the area of impact and determine the cause of the wq degradation. 2. Analyze the BMPs in place & determine if they are effective. 3. Work with the affected landowner(s) to correct the problem.
Critical Area Effectiveness Goal: Avoid and minimize damage to agricultural activities due to erosion, landslides, or other naturally occurring geologic events.						
GHA - 2	ID actions implemented to	1. ID the affected area.	1. ISPs	SJICD	Same as above.	1. ID the area of concern.

Table 13: San Juan County VSP Monitoring Table

Benchmark No.	CA Benchmark (Protect/ Enhance)	Performance Metrics and Indicators	Monitoring Method	Party Collecting Data	Adaptive Management Threshold	Adaptive Management Action
	manage landslide risk and stabilize steep slopes	2. Document installation of suitable native plants, or other measures taken, as appropriate, to minimize damage	2. Stormwater protection actions as appropriate (SJ Public Works)			2. Analyze the BMPs in place & determine if they are effective. 3. Work with landowner(s) to correct the problem.
Critical Area Effectiveness Goal: Avoid activities that increase the natural rate of erosion, while protecting naturally occurring and beneficial ecological processes, such as feeder bluffs.						
GHA - 3	ID actions implemented to manage landslide risk and stabilize steep slopes	1. ID the affected area. 2. Document installation of suitable native plants, or other measures taken, as appropriate, to minimize damage	1. ISPs 2. Stormwater protection actions as appropriate (SJ Public Works)	SJICD	Same as above	1. ID the area of concern. 2. Analyze the BMPs in place & determine if they are effective. 3. Work with landowner(s) to correct the problem.
Critical Area Effectiveness Goal: Protect and maintain groundwater recharge and prevent the degradation of groundwater resources due to agricultural activities						
CARA - 1	ID the # and types of BMPs implemented to increase water storage capacity.	1. ID the practices implemented and quantify increased water storage capacity to the extent possible.	1. ISPs	SJICD	Degradation of groundwater quality will be analyzed as a part of CARA – 3 goal – see below.	1. ID the area of concern. 2. Analyze the BMPs in place & determine if they are effective. 3. Work with the landowner(s) to correct the problem.
Critical Area Effectiveness Goal: Protect groundwater resources that support agricultural activities and balance competing needs for water while preserving natural hydrologic functions and their related ecological processes (e.g., water quality, and water quantity).						
CARA - 2	ID the # and types of practices implemented to quantify agricultural use of groundwater	1. Quantify amount of water needed to support agricultural use, to the extent possible to protect this right, while	1. ISPs	SJICD	*Voluntary enhancement action. No adaptive management threshold.*	1. Currently there is no data on agricultural water use. Understanding water use needs is an important component of ensuring adequate water supply to support agricultural use, as

Table 13: San Juan County VSP Monitoring Table

Benchmark No.	CA Benchmark (Protect/ Enhance)	Performance Metrics and Indicators	Monitoring Method	Party Collecting Data	Adaptive Management Threshold	Adaptive Management Action
	resources (e.g. well meters).	providing sufficient water for natural hydrologic cycles.				well as to support natural hydrologic cycles.
CARA Goal: Prioritize watersheds with known contaminant problems for management that protects and improves water quality.						
CARA - 3	Analyze and report on groundwater quality in priority watersheds that have the greatest intersection with ag activity: False Bay and Garrison Bay on San Juan Island, Westsound and Doe Bay on Orcas, Swift Bay and Davis Bay on Lopez Island.	1. Groundwater quality data from San Juan County Public Health Department, State Department of Health data, Group B well data.	1. ISPs 2. County water quality data. 3. State water quality data	SJICD in collaboration with San Juan County and state DOH and Ecology	Measurable decrease in groundwater quality below state standards where the decrease can be attributed to agricultural activity	1. ID the area of concern. 2. Analyze the BMPs in place & determine if they are effective. 3. Work with the landowner(s) to correct the problem.
Critical Area Effectiveness Goal: Minimize flood damage to agricultural properties and operations.						
FFA - 1	Measure the acreage of Frequently Flooded Areas where it intersects with agricultural activity every 5 years. (Using SJC GIS mapping (inc. FEMA FIRM maps).	1. The acreage of frequently flooded areas protected by ISP actions.	1. ISPs 2. San Juan County GIS mapping of FFAs	SJICD in collaboration with San Juan County	Greater than 5% loss of acreage of FFA where they intersect with agricultural activity will trigger adaptive management.	1. Analyze and ID the area(s) of loss. 2. Identify the reason for the loss. 3. Work with landowners to correct the problem.

Table 13: San Juan County VSP Monitoring Table

Benchmark No.	CA Benchmark (Protect/ Enhance)	Performance Metrics and Indicators	Monitoring Method	Party Collecting Data	Adaptive Management Threshold	Adaptive Management Action
Critical Area Effectiveness Goal: Protect and enhance Frequently Flooded Areas for habitat and groundwater recharge						
FFA – 2	Measure the change in impervious surface area and vegetative cover in FFAs that intersect with agricultural activity over time.	1. Measure the change in impervious surface areas over time.	1. WDFW HRCD for change in impervious surface area	SJICD in collaboration with WDFW	Greater than 5% loss of acreage of FFA where they intersect with agricultural activity will trigger AM.	1. Analyze and ID the area(s) of loss. 2. Identify the reason for the loss. 3. Work with landowners to correct the problem.
Critical Area Effectiveness Goal: Preserve natural flood control, stormwater storage, and drainage, and floodplain connectivity, including flood channels and/or high-flow channels.						
FFA – 3	Acreage of Frequently Flooded Areas where they intersect with ag activity.	1. ID acreage/area of reconnected floodplain, by watershed. 2. ID BMPs implemented to increase surface water storage 3. ID BMPs implemented to protect floodplain 4. Quantify acreage/area protected by BMPs	1. ISPs 2. Stormwater LID/protection actions (San Juan County Public Works) 3. Other regional projects that improve surface storage or reconnect floodplain (Land Bank, SRFB, etc.)	SJICD in collaboration with other entities.	Greater than 5% loss of acreage of FFA where they intersect with agricultural activity will trigger adaptive management.	1. Analyze and ID the area(s) of loss. 2. Identify the reason for the loss. 3. Work with landowners to correct the problem.

6. Outreach and Technical Assistance

6.1 Voluntary Stewardship Program Outreach

SJICD initiated VSP outreach in January 2016 with the first VSP Watershed Work Group meeting and has provided extensive outreach since, as detailed in section 1.1.

Outreach Plan

SJICD will continue to provide VSP outreach to all agricultural producers in San Juan County on an on-going basis. This will be incorporated in farm planning services, the cost-share program, sessions at the annual Agricultural Summit, and other presentations and outreach events. In addition, SJICD will provide e-mail communication to all previous recipients of technical and financial assistance, and outreach materials to all known agricultural producers. Specifically, outreach activities will include:

Technical and Financial Assistance

- Individual Stewardship Planning technical assistance to all interested agricultural producers.
- Financial assistance to agricultural producers with an ISP, as funding is available.

Communications

- Development and distribution of outreach materials for agricultural producers.
- E-mail communications with information about VSP to all agricultural producers who have previously requested technical and financial assistance from SJICD.
- E-mail communication with information about VSP to the San Juan County Farmers and Food Producers email list.
- Letters with outreach materials to all known agricultural producers in San Juan County with information about VSP, including all known available services within the County that promote agricultural viability.
- Participation in meetings with the Agricultural Guild and Agricultural Resources Committee.

Workshops and Presentations

- Annual VSP information session at the San Juan County Agricultural Summit.
- Annual presentations to San Juan County Council.
- Outreach materials provided at all known agricultural workshops/events in the County.

Surveys

- Bi-annual survey to all known agricultural producers.

6.2 Outreach Programs / Educational Opportunities

There are multiple organizations within the islands that provide information and education to farmers and the community. These organizations coordinate and fund classes, workshops, and conferences, as well as provide one-on-one site visits and online information. Topics for educational programs include irrigation design, soil and plant health, plant selection, crop rotation, and use of low-drill and no-drill techniques. Farm tours are also used to demonstrate strategies that are working on local farms. Increasing coordination and collaboration among various groups and efforts is needed to increase efficiency and effectiveness of outreach.

Agricultural Resources Committee – Agricultural Summit

The Agricultural Resources Committee was established by the San Juan County Council in 2005 with the mission to achieve protection and restoration of agricultural resources in San Juan County and strengthen and expand the agricultural economy. The Agricultural Resources Committee also advises the San Juan County Council on relevant agricultural initiatives and policies.

The Agricultural Resources Committee and its partners organize an annual agricultural summit. It is a two-day event with workshops and seminars on a variety of topics related to supporting and increasing sustainable agriculture in San Juan County.

Washington State University Extension – Workshops, Seminars, and Business Planning

Washington State University (WSU) Extension engages people, organizations, and communities to advance knowledge, economic well-being, and quality of life by fostering inquiry, learning, and the application of research. Core WSU programs in San Juan County include 4-H Youth Development, Master Gardener Volunteers, and Agriculture Outreach and Education. The 4-H program provides youth education in areas of livestock and crop production and environmental stewardship. WSU Master Gardener Volunteers support non-commercial agricultural production by teaching local community members how to manage their gardens and landscapes in a science-based, sustainable manner; address environmental and social priorities such as water conservation and water quality protection; and reduce the impact of invasive species. Master Gardeners also increase public awareness of healthy living through gardening.

The WSU Extension Agriculture Outreach and Education Program provides education and resources on a wide range of issues important to agriculture in San Juan County, with emphasis on practical, research-based information from WSU and other educational institutions and authorities.

San Juan Islands Conservation District

The San Juan Islands Conservation District (SJICD) provides education through workshops and events, develops conservation plans, and provides technical assistance. Focus areas include soil

health; sustainable agriculture; forestry stewardship; water quality and water conservation; climate resiliency; and fostering a stewardship ethic.

6.3 Technical Assistance

The San Juan Islands Conservation District (SJICD) is the technical assistance provider to implement the Voluntary Stewardship Program for San Juan County. The major components of technical assistance are developing farm plans, providing cost-share funding to implement best management practices, and monitoring and reporting. All farm plans will include the Individual Stewardship Plan, as detailed in the checklist provided in Appendix C. SJICD also works with state agencies to address any known resource concerns related to agricultural activities.

The purpose of technical assistance in the context of the VSP is to provide strategic information for the protection and enhancement of critical areas while maintaining and improving viability of agriculture. SJICD is a non-regulatory government agency that was established in 1947 to promote soil health and water conservation. It is one of thousands of districts established across the country to prevent soil erosion and conserve water. SJICD provides outreach and technical assistance and farm planning to farmers within the County. Farm planning consists of a site visit by a certified planner, a natural resource inventory, a discussion of property owner goals, and recommendations in the form of a farm plan to achieve those goals.

Farm plans utilize science-based management practices identified by the Natural Resources Conservation Service (NRCS). Resource concerns are determined through the site visit and technical planning processes. Within each farm plan is a suite of recommended NRCS Best Management Practices (BMPs) identified by the agricultural operator and the certified planner that creates a roadmap for sustainable profitability by integrating personal and economic goals with management practices that conserve natural resources. The farm plan outlines a series of actions developed to enhance agricultural production while protecting and enhancing water quality and the natural resources within and around the farm property. Many parameters are considered in a farm plan, including farm size, soil types, slope of the land, proximity to water bodies (e.g., streams or wetlands), type and numbers of livestock or crops, resources such as machinery or buildings, and available finances. The application of any particular set of practices is site-specific and adaptable to a wide variety of conditions, land forms, and operational situations.

All technical and educational services provided by SJICD are free and without obligation. SJICD farm planners complete robust training and certification through the US Department of Agriculture's Natural Resources Conservation Service. Once the initial draft of a farm plan is developed, the farm planner reviews suggestions with the farmer and makes any necessary changes. Once the plan is finalized, an implementation schedule is developed to accomplish the actions outlined in the farm plan.

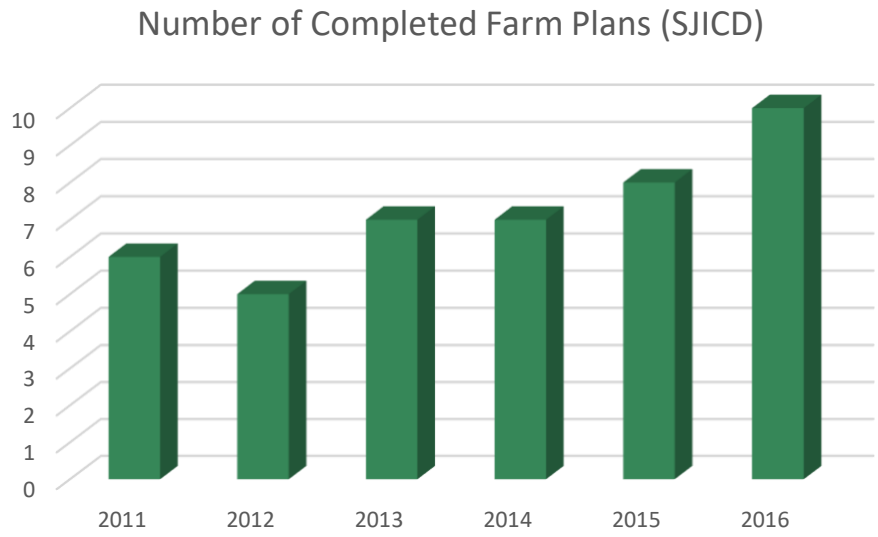
The elements of a farm plan include:

- Objectives: Details of the goals and objectives the agricultural operator hopes to achieve.

- Historical and Existing Conditions: Description of the farm including size, location, current and previous use, inventory of animals and description of any infrastructure.
- Status of Natural Resources: An assessment of soil, water, vegetation, and wildlife, including a thorough review of any significant natural features and cultural resources.
- Evaluation and Alternatives: Recommended actions to help meet the agricultural operator's goals and protect and enhance natural resources.

SJICD currently has two certified planners who conduct site assessments and write farm plans. SJICD has completed 58 farm plans since 2011, and demand for farm planning has increased consistently over the past four years. The chart below illustrates the number of farm plans completed by the SJICD since 2011. Farm plans are also completed by private contractors, NRCS staff, and individual farmers. Under VSP, the SJICD will complete Individual Stewardship Plans that will serve as farm plans. SJICD has also provided farm planning workshops at the annual Agricultural Summit in 2015 and 2016.

Figure 5: Farm Plans Completed by SJICD, 2011-2016



Best Management Practices

San Juan County farmers farm private and public lands and produce agricultural products. The food and fiber that they produce is vital to our community. Sometimes farming occurs in an area where there are also concerns about soil health, wildlife habitat, or water quality. Farmers and all community members value these resources and seek practices that balance the needs of both.

Agricultural Best Management Practices (BMPs) have been developed to maintain or enhance the productivity of farming while reducing environmental impacts. Numerous farms employ sound conservation practices while farming productively. Many other farmers would like to implement effective conservation practices on the ground but may lack the economic resources and/or the

technical expertise to implement what is often a change in practices or a change in a structure on the farm requiring significant time, expense, and risk.

BMPs are designed to be practical, cost-effective actions that can improve the health and sustainability of the farm while improving environmental quality and reducing environmental impacts. Examples of BMPs include changes in pest management, crop mix or rotations, tillage practices, and changes in or additions of structures. Specific examples include using nutrient management plans, using precision agriculture, implementing integrated pest management (IPM), improving the timing of input applications, using direct seeding methods, incorporating cover crops, installing riparian buffers, installing livestock fencing and livestock watering systems, building composting and winter heavy use areas, or building facilities to support managed intensive grazing.

SJICD's cost-share program offsets the cost of BMP implementation and can increase profits and/or production while enhancing environmental quality. SJICD also provides free soil testing for participating farmers. The results of the soil test, combined with a nutrient management plan, provide the farmer with the information and expertise to adjust the timing of the application and amount of nutrients to provide just what the crop needs when it needs the nutrients the most. This can decrease fertilizer usage and costs, improve crop yields and quality, and improve soil quality.

Implementing a suite of BMPs can also help balance costs and returns on investment to the farm. For example, implementing exclusionary riparian fencing may achieve improved water quality goals but can involve high initial installation expenses, increased annual maintenance expense, and ongoing opportunity costs of the loss of forage in the fenced riparian corridor. However, if exclusionary riparian fencing is applied, the operator could incorporate other BMPs that also enhance productivity and soil health of the farm, such as Managed Intensive Grazing infrastructure (e.g., livestock pipeline or livestock watering facilities), offsetting initial and ongoing costs with increased livestock and pasture productivity that result in additional income. For example, improving water quality can contribute to livestock weight gains and increased pasture utilization, resulting in financial returns.

Economic and environmental benefits will vary from farm-to-farm and year-to-year, and careful planning, implementation, and adaptive management are required if the projects are to result in on-farm benefits and public good.

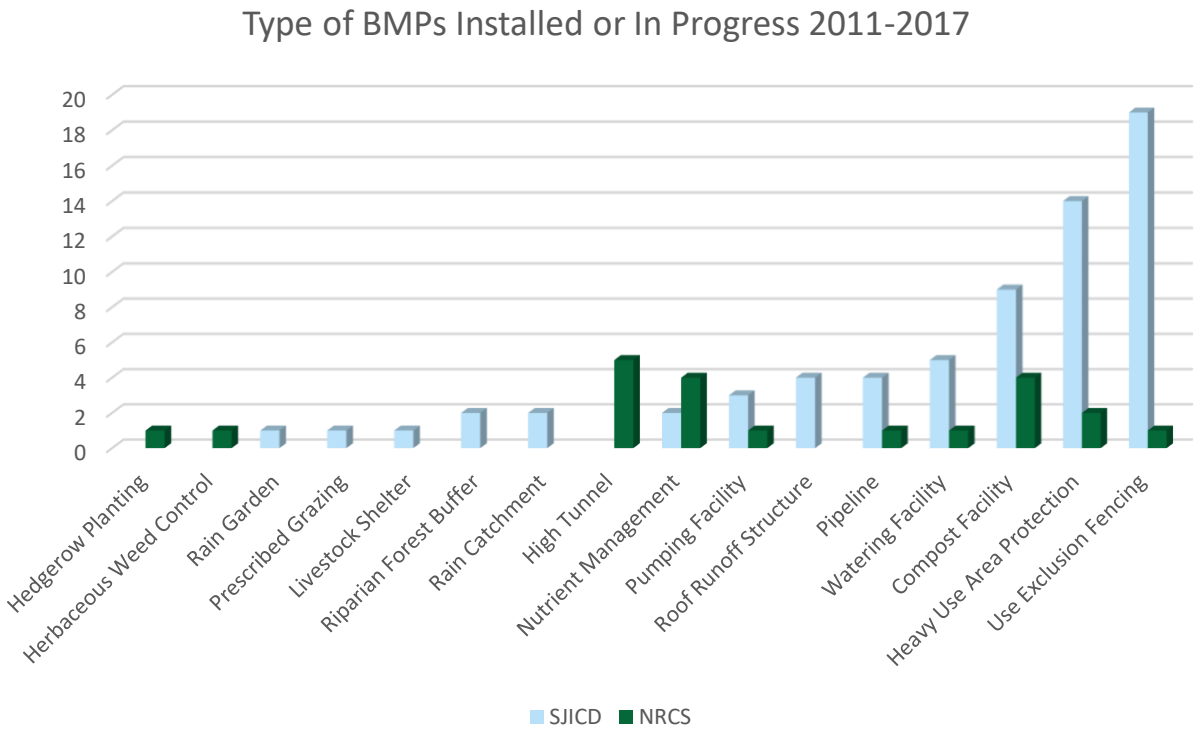
SJICD offers a variety of resources to assist landowners to offset costs to implement Best Management Practices (BMPs). Most of the cost-shared BMPs are on the NRCS-approved practices list. Reimbursement rates are generally 75% of the practice cost. SJICD has actively sought funding to assist farmers with BMP implementation. Figure 6 illustrates BMPs implemented or in-progress utilizing SJICD and NRCS funding. The number of BMPs implemented utilizing cost-share funds depends on fund availability for a given year.

Financial Assistance Programs for BMP implementation

There are several programs that provide financial assistance to agricultural operators to help them implement and maintain conservation practices on their lands. Financial assistance through cost-share agreements is provided by SJICD, NRCS, and the USDA Farm Service Agency.

Since 2011, 16 types of BMPs have been installed or are in-progress in San Juan County that utilize cost-share funds.

Figure 6. Type of BMPs Installed with Cost-share Funding, 2011-2017



USDA NRCS Programs

USDA Natural Resources Conservation Service (NRCS) offers voluntary conservation programs, as authorized by the federal Agricultural Act of 2014 (the 2014 Farm Bill). These programs provide benefits to both the environment and to agricultural operators.

Environmental Quality Incentives Program (EQIP)

This program helps agricultural operators by providing them with financial and technical assistance to address natural resource concerns and secure environmental benefits. Benefits include improved water and air quality, conserved surface water, reduced soil erosion, improvement of wildlife habitat, and many others. EQIP financial assistance typically covers about 50% of the costs for implementation of conservation practices and may, under some circumstances, be used for activities like conservation planning. EQIP assistance is provided to eligible agricultural operators on

a competitive basis through multi-year contracts. EQIP can be very effective at providing agricultural operators with financial and technical assistance for implementing conservation practices. Conservation planning by NRCS is generally related to a specific EQIP contract with producers.

Conservation Stewardship Program (CSP)

The Conservation Stewardship Program helps agricultural operators maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resource concerns. Participants earn CSP payments for conservation performance—the higher the performance, the higher the payment.

CSP participants enter into five-year contracts and receive two kinds of payments:

- Annual payments for implementing new conservation practices and maintaining existing practices.
- Supplemental payments for adopting resource-conserving crop rotations.

Program applicants complete a self-screening checklist. Applications are evaluated relative to others addressing similar priority resource concerns and are competitively ranked within the state for program participation.

USDA Farm Service Agency (FSA) Programs

FSA offers direct loans to farms and funding for a multitude of crops and farm types. Besides emergency assistance for natural disasters, protection, and recovery, FSA offers financial assistance programs and loans for all spectrums of agriculture, including dairy, grains, vegetable and seed crops, honey, livestock, and farm-raised fish. FSA also offers conservation programs and other support programs for agricultural enterprise systems.

Conservation Reserve Program

The Conservation Reserve Program (CRP) pays a yearly rental payment in exchange for farmers removing environmentally sensitive land from agricultural production and planting species that will improve environmental quality.

Conservation Reserve Enhancement Program

The Conservation Reserve Enhancement Program (CREP), an offshoot of CRP, targets high-priority conservation issues identified by government and non-governmental organizations. Farm land that falls under these conservation issues is removed from production in exchange for annual rental payments.

Emergency Conservation Program

The Emergency Conservation Program (ECP) provides funding and technical assistance for farmers and ranchers to restore farmland damaged by natural disasters and for emergency water conservation measures in severe droughts.

Farmable Wetlands Program

The Farmable Wetlands Program (FWP) is designed to restore wetlands and wetland buffer zones that are farmed. FWP gives farmers and ranchers annual rental payments in return for restoring wetlands and establishing plant cover.

Grassland Reserve Program

The Grassland Reserve Program (GRP) works to prevent grazing and pasture land from being converted into cropland or used for urban development. In return for voluntarily limiting the future development of their land, farmers receive a rental payment.

7. Monitoring, Reporting, and Adaptive Management

Under the VSP, the Work Group is responsible for determining appropriate monitoring, complying with VSP reporting requirements, and instituting adaptive management of the Work Plan (RCW 36.70A.720(1) (i), (j), and (l)). Reporting of VSP plan status and accomplishments is to occur within 60 days of the end of each biennium (RCW 36.70A.720(1)(j)). RCW 36.70A.720 also requires five- and ten-year reports from the date a VSP Work Group has received funding on whether the Work Group has met protection and enhancement goals and benchmarks set out in its Work Plan.

For San Juan County, the biennial reports will be due at the end of August, 2019 and subsequent odd years. The five and ten year reports will be due by the end of December 2020 and 2025, based on the initial receipt of VSP funding in December 2015.

For San Juan County, the San Juan Islands Conservation District is responsible for the collection, monitoring, and reporting of Individual Stewardship Plans, as well as measuring progress towards achieving protection and enhancement goals and objectives for both agricultural viability and Critical Areas. SJICD can request additional technical assistance from subject area experts, such as wetland or fish biologists, as appropriate.

To facilitate the biennial reports, SJICD will compile annual reports based on site visits, data collection, and monitoring, which can then be included in subsequent monitoring reports. All reports will be reviewed and approved by the Work Group before the reports are submitted to the WSCC Executive Director. SJICD will collect data on how Individual Stewardship Plans and BMP implementation are achieving, or failing to achieve, watershed goals and objectives for each Critical Area. Baseline conditions will be established at the outset of Individual Stewardship Plan implementation and measured against baseline conditions over time and benchmarks as defined in Section 5 of this document—Critical Areas Goals. Benchmarks for Critical Areas are defined as those areas existing as of July 22, 2011, the time of adoption of the VSP statute.

Monitoring is anticipated to occur at the following scales:

- San Juan County
- Island
- Watershed
- Site

While data will be collected at the site scale, reporting will occur by watershed, island, and county. Reporting will provide the Work Group with the ability to determine whether baseline Critical Area functions and values are being protected and enhanced in compliance with the VSP goals. It will also allow the Work Group to determine the need for adaptive management. Any reports which

document a failure to achieve the goals stated in Section 5 will trigger adaptive management. Specific adaptive management thresholds are identified for each critical area in Section 5 as well as in the summary table at the end of Section 5. In the event of a 5% reduction in the area of either wetland acreage or streams protected under VSP, as measured at two and five-year intervals, an analysis will be undertaken by SJICD to identify the cause of the reduction in area, and corrective measures will be implemented immediately to ensure that protection and enhancement of these areas is re-established. SJICD will develop an adaptive management plan and submit it to the Work Group for their review and approval.

Monitoring of protection goals will be measured by comparing acreage of wetlands and streams over time. A decrease in the acreage of wetlands acreage or stream area of more than 5% from baseline will trigger adaptive management, as noted above.

SVAP2 will be implemented on streams enrolled in ISPs each biennial, 5- and 10- year reporting period to monitor stream enhancement over time. In addition to the SVAP2 scores, the change in percent cover of riparian vegetation will be measured every 5 years using WDFW's HRCD model (2020 and 2025). The change in wetland acreage will be analyzed every 5 years, using San Juan County's GIS mapping, as updated through map changes which reflect management practices that result in wetland restoration under individual ISPs, once such changes have been documented by a qualified wetland biologist, approved by County staff, and mapped by San Juan County GIS Department. Such map changes will be recorded annually, and documented by SJICD staff at the watershed scale.

For water quality, a measurable decrease in water quality below state water quality standards where the results can be attributed to agricultural activities will trigger adaptive management. The frequency of water quality samples is documented in Appendix E.

Monitoring for enhancement goals will be measured by comparing the change in vegetative cover over time for wetlands and streams, beginning with an analysis of change in vegetative cover between 2011 and 2016, and between 2016 and 2020 to be documented in the first 5 year monitoring report. Failure to meet enhancement goals may not trigger adaptive management, as these goals are aspirational and voluntary. However, results of progress on goal attainment will be documented in 2018, 2020 and 2025 monitoring reports. Adaptive management thresholds and actions for each critical area goal are also identified at the end of Section 5 in summary tables 12 and 13.

Appendix E includes an overview of specific monitoring metrics, protocols, and the frequency of monitoring which may be implemented to comply with VSP reporting requirements. In addition to the protocols noted above and cited in Appendix E, the use of additional monitoring protocols will be determined on a case-by-case basis and will follow VSP Monitoring Guidance developed by the State Technical Panel (Monitoring Tips for Local Voluntary Stewardship Workgroups, 2017).

Bibliography

Adamus, Paul R. 2011. Best Available Science on Wetlands in San Juan County. Submitted as Wetlands, Chapter 2 of Best Available Science Report. Available online at: http://people.oregonstate.edu/~adamusp/Puget%20Sound%20BAS%20&%20Critical%20Areas/SanJuanIslands_BAS/Adamus2011_BAS_Wetlands_SanJuanCountyWA_Wetlands.pdf

A Framework for Stewardship. Final Report of the William D. Ruckelshaus Center on the Work of the Agricultural and Critical Areas Committee. October 2010. Report available online at:http://ruckelshauscenter.wsu.edu/wp-content/uploads/2013/06/Ag-CA-Final-Report-for-web.pdf

American Farmland Trust. January 2012. Losing Ground: Farmland Protection in the Puget Sound Region.

American Farmland Trust. 2013. Taking a Risk on the Farm Proves Economically Rewarding, Environmentally Beneficial" Available online at: http://blog.farmland.org/taking-a-risk-on-the-farm-proves- economically-rewarding-environmentally-beneficial/

AGree. 2015. Collaborating for Healthy Watersheds: How the Municipal and Agricultural Sectors are Partnering to Improve Water Quality. A Collaborative White Paper, National Association of Clean Water Agencies, U.S. Water Alliance. Available online at: http://uswateralliance.org/sites/uswateralliance.org/files/publications/2015-01-30muni_ag_wp_0.pdf

Chelan County Voluntary Stewardship Program DRAFT white paper. June 2014. Prepared by Berk Consulting for Chelan County.

Chelan County Voluntary Stewardship Program Work Plan. 2016. Draft available online at: http://www.co.chelan.wa.us/natural-resources/pages/voluntary-stewardship-program?parent=Planning

Cook, Kirk. 2000. Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances. Washington State Department of Ecology Publication No. 97-030.

Elzinga, Caryl L., Daniel W. Salzer and John Willoughby. Measuring and Monitoring Plant Populations. BLM Technical Reference 1730-1. BLM/RS/ST-98/005+1730.

Growing Our Future: An Agricultural Strategic Action Plan for San Juan County, WA. 2011. San Juan County Agricultural Strategic Action Plan Steering Committee. Produced with grant funding by the Washington State Office of Farmland Preservation. Grant No. 11-SANJUANOFP-03. The plan is accessible on-line at:

http://islandgrown.net/sjcarc/files/2012/06/SJC_SAP_Full.pdf

Growth Management Act RCW 36.70A. Available online at: http://apps.leg.wa.gov/rcw/default.aspx?cite=36.70A

Kerwin, J. 2002. Salmon and Steelhead limiting factors report for San Juan Islands (Water Resource Inventory Area 2). Washington Conservation Commission, Olympia. 123 pp.

King County. 2004. The Effects of Agricultural Operations on Critical Areas. Best Available Science Volume II. Available online at: http://kingcounty.gov.

Krebill-Prather, Rose, and Kent Miller. 2017. Agricultural Viability in San Juan County. Data Report 17-10.

Mauger, G.S., J.H. Casola, H.A. Morgan, R.L. Strauch, B. Jones, B. Curry, T.M. Busch Isaksen, L. Whitely Binder, M.B. Krosby, and A.K. Snover. 2015. State of Knowledge: Climate Change in Puget Sound. Climate Impacts Group, University of Washington, Seattle. Available online at: https://cig.uw.edu/wp-content/uploads/sites/2/2014/11/ps-sok_sec02_climate_2015.pdf

Monitoring Tips for Local Voluntary Stewardship Workgroups. Available online at: http://scc.wa.gov/wp-content/uploads/2017/03/VSP-Monitoring-for-WGs.Feb-2017.pdf

Natural Resources Conservation Service. Conservation Practices Physical Effects matrix.

Pierce, K. 2015. Accuracy optimization for high resolution object-based change detection: An Example Mapping regional urbanization with 1-m aerial imagery. Remote Sensing 7:12654-12679.

Priority Habitats and Species – WDFW Habitat Management Plan Recommendations. Available online at: http://wdfw.wa.gov/conservation/phs/mgmt_recommendations/

Puget Sound Salmon Recovery Plan. January 17, 2007. Available online at: http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/puget_sound/puget_sound_chinook_recovery_plan.html

Shared Strategy for Puget Sound. Volume II. Puget Sound Salmon Recovery for WRIA 2. Available online at: http://www.sharedsalmonstrategy.org/plan/vol2.htm

San Juan County Chinook Monitoring and Adaptive Management Framework for the WRIA 2 Salmon Recovery Plan, Narrative Report. March 2016.

San Juan County Code. Available online at: http://www.codepublishing.com/WA/SanJuanCounty/ updated through April 16, 2016. Accessed July, 2016.

San Juan County Comprehensive Plan. 2009. Available online at: http://www.sanjuanco.com/510/Comprehensive-Plan

San Juan County Shoreline Master Program. April 2016. Available online at: http://www.sanjuanco.com/documentcenter/view/6170

San Juan County Shoreline Restoration Plan. 2016. Prepared by Herrera Environmental Consultants. Available on-line at: http://www.sanjuanco.com/documentcenter/view/6174

San Juan County Stormwater Basin Plan, V2. 2014.

San Juan County Water Resources Management Plan. 2004. Available online at: http://www.sanjuanco.com/DocumentCenter/Home/View/869

San Juan County 4-Year Work Plan Project Schedule. March 2016. Provided courtesy of Byron Rot, WRIA 2 Lead Entity Coordinator, San Juan County Public Works Department in July 2016.

San Juan Initiative Protection Assessment Nearshore Case Study Area Characterization. 2008. Coastal Geologic Services.

San Juan Islands Conservation District. Drought Conservation Plan. San Juan Islands. June 2016.

San Juan Islands Conservation District. Strategic Plan. Available online at: http://sanjuanislandscd.org

Stillwater Sciences, 2014. Technical Memorandum. Year 1 Data Report for San Juan County Pilot Stormwater Monitoring Program. Singer, M. to E. Hale. March 17, 2014. Report accessible on-line at: http://www.sanjuanco.com/DocumentCenter/Home/View/761

Thurston County Voluntary Stewardship Program, Work Plan Draft. June 2015. Available online at: http://www.co.thurston.wa.us/planning/vsp/voluntary-stewardship-home.html

United States Department of Agriculture (USDA). 2012. Census.

United States Department of Agriculture and Natural Resources Conservation Service. 2009. Soil survey of San Juan County, Washington. Available online at: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/washington/WA055/0/SanJuanWA.pdf

United States Department of Agriculture and Natural Resources Conservation Service. 2009. Stream Visual Assessment Protocol 2, Part 614. (Publication 190-VI-NBH, Amend 3, December 2009).

United States Geological Service (USGS). 2002. Estimates of Groundwater Recharge from Precipitation to Glacial-Deposit and Bedrock Aquifers on Lopez, San Juan, Orcas, and Shaw Islands, San Juan County, Washington. Prepared in cooperation with the San Juan County

Health and Community Services Department. USGS Water Resources Investigations Report 02-4114.

Washington State Conservation Commission – VSP Program. Available online at: http://scc.wa.gov/vsp/

Washington Department of Ecology. March 2005. Wetlands in Washington State: Volume 1: A Synthesis of the Science. Published by the Department of Ecology's Shorelands and Environmental Assistance Program, P.O. Box 47600, Olympia, WA 98504-7600. Ecology Publication #05-06-006. Available online at: https://fortress.wa.gov/ecy/publications/publications/0506006.pdf.

Washington Department of Ecology. April 2005. Wetlands in Washington State: Volume 2 – Protecting and Managing Wetlands. Published by the Department of Ecology's Shorelands and Environmental Assistance Program, P.O. Box 47600, Olympia, WA 98504-7600. Ecology Publication #05-06-008. Available online at: https://fortress.wa.gov/ecy/publications/publications/0506008.pdf.

Washington Department of Ecology. 1999. Washington Wetland Function Assessment Method. Ecology publication 99116. Available online at https://fortress.wa.gov/ecy/publications.

Washington Department of Fish and Wildlife (WDFW). 2009. Landscape Planning for Washington's Wildlife: Managing for Biodiversity in Developing Areas Appendix C: Stressor Tables.

Washington Department of Fish and Wildlife (WDFW). 2009. Land Use Planning for Salmon, Steelhead and Trout. October 2009. Available online at: http://wdfw.wa.gov/publications/00033/wdfw00033.pdf.

Washington DNR's Rare Plant Field Guide. Available online at: http://www.dnr.wa.gov/NHPfieldguide

Washington State Shoreline Management Act of 1971. Chapter 90.58 RCW. Available online at: http://app.leg.wa.gov/rcw/default.aspx?cite=90.58

Whitman, T., MacLennan, A., Schlenger, P., Hawkins, S., and B. Rot. 2017 (in draft). The Pulling It All Together-2 Project, Prioritization of Nearshore Salmon Habitat Restoration and Protection Projects. Prepared by the Friends of the San Juans, Coastal Geologic Services, and Confluence Environmental for the SJC Lead Entity.

WSU Extension Impact Report: Riparian Grazing and Water Quality Protection. 2015. Available on-line at: http://extension.wsu.edu/impact-reports/riparian-grazing-and-water-quality-protection/

Appendix A
Definition of Agricultural Activities

RCW 90.58.065
Application of guidelines and master programs to agricultural activities.

(1) The guidelines adopted by the department and master programs developed or amended by local governments according to RCW **90.58.080** shall not require modification of or limit agricultural activities occurring on agricultural lands. In jurisdictions where agricultural activities occur, master programs developed or amended after June 13, 2002, shall include provisions addressing new agricultural activities on land not meeting the definition of agricultural land, conversion of agricultural lands to other uses, and development not meeting the definition of agricultural activities. Nothing in this section limits or changes the terms of the *current exception to the definition of substantial development in RCW **90.58.030**(3)(e)(iv). This section applies only to this chapter, and shall not affect any other authority of local governments.

(2) For the purposes of this section:

(a) "Agricultural activities" means agricultural uses and practices including, but not limited to: Producing, breeding, or increasing agricultural products; rotating and changing agricultural crops; allowing land used for agricultural activities to lie fallow in which it is plowed and tilled but left unseeded; allowing land used for agricultural activities to lie dormant as a result of adverse agricultural market conditions; allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement; conducting agricultural operations; maintaining, repairing, and replacing agricultural equipment; maintaining, repairing, and replacing agricultural facilities, provided that the replacement facility is no closer to the shoreline than the original facility; and maintaining agricultural lands under production or cultivation;

(b) "Agricultural products" includes but is not limited to horticultural, viticultural, floricultural, vegetable, fruit, berry, grain, hops, hay, straw, turf, sod, seed, and apiary products; feed or forage for livestock; Christmas trees; hybrid cottonwood and similar hardwood trees grown as crops and harvested within twenty years of planting; and livestock including both the animals themselves and animal products including but not limited to meat, upland finfish, poultry and poultry products, and dairy products;

(c) "Agricultural equipment" and "agricultural facilities" includes, but is not limited to: (i) The following used in agricultural operations: Equipment; machinery; constructed shelters, buildings, and ponds; fences; upland finfish rearing facilities; water diversion, withdrawal, conveyance, and use equipment and facilities including but not limited to pumps, pipes, tapes, canals, ditches, and drains; (ii) corridors and facilities for transporting personnel, livestock, and equipment to, from, and within agricultural lands; (iii) farm residences and associated equipment, lands, and facilities; and (iv) roadside stands and on-farm markets for marketing fruit or vegetables; and

(d) "Agricultural land" means those specific land areas on which agriculture activities are conducted.

(3) The department and local governments shall assure that local shoreline master programs use definitions consistent with the definitions in this section.

Appendix B
Voluntary Stewardship Program Statute

36.70A.700
Purpose—Intent—2011 c 360.

(1) The purpose of chapter 360, Laws of 2011 is to establish the voluntary stewardship program as recommended in the report submitted by the William D. Ruckelshaus Center to the legislature as required by chapter 353, Laws of 2007 and chapter 203, Laws of 2010.

(2) It is the intent of chapter 360, Laws of 2011 to:

(a) Promote plans to protect and enhance critical areas within the area where agricultural activities are conducted, while maintaining and improving the long-term viability of agriculture in the state of Washington and reducing the conversion of farmland to other uses;

(b) Focus and maximize voluntary incentive programs to encourage good riparian and ecosystem stewardship as an alternative to historic approaches used to protect critical areas;

(c) Rely upon RCW **36.70A.060** for the protection of critical areas for those counties that do not choose to participate in this program;

(d) Leverage existing resources by relying upon existing work and plans in counties and local watersheds, as well as existing state and federal programs to the maximum extent practicable to achieve program goals;

(e) Encourage and foster a spirit of cooperation and partnership among county, tribal, environmental, and agricultural interests to better assure the program success;

(f) Improve compliance with other laws designed to protect water quality and fish habitat; and

(g) Rely upon voluntary stewardship practices as the primary method of protecting critical areas and not require the cessation of agricultural activities.

[2011 c 360 § 1.]

36.70A.702
Construction.

Nothing in RCW **36.70A.700** through **36.70A.760** may be construed to:

(1) Interfere with or supplant the ability of any agricultural operator to work cooperatively with a conservation district or participate in state or federal conservation programs;

(2) Require an agricultural operator to discontinue agricultural activities legally existing before July 22, 2011;

(3) Prohibit the voluntary sale or leasing of land for conservation purposes, either in fee or as an easement;

(4) Grant counties or state agencies additional authority to regulate critical areas on lands used for agricultural activities; and

(5) Limit the authority of a state agency, local government, or landowner to carry out its obligations under any other federal, state, or local law.

[2011 c 360 § 15.]

36.70A.703
Definitions.

The definitions in this section apply to RCW **36.70A.700** through **36.70A.760** and RCW **36.70A.130** and **36.70A.280** unless the context clearly requires otherwise.

(1) "Agricultural activities" means all agricultural uses and practices as defined in RCW **90.58.065**.

(2) "Commission" means the state conservation commission as defined in RCW **89.08.030**.

(3) "Director" means the executive director of the state conservation commission.

(4) "Enhance" or "enhancement" means to improve the processes, structure, and functions existing, as of July 22, 2011, of ecosystems and habitats associated with critical areas.

(5) "Participating watershed" means a watershed identified by a county under RCW **36.70A.710**(1) to participate in the program.

(6) "Priority watershed" means a geographic area nominated by the county and designated by the commission.

(7) "Program" means the voluntary stewardship program established in RCW **36.70A.705**.

(8) "Protect" or "protecting" means to prevent the degradation of functions and values existing as of July 22, 2011.

(9) "Receipt of funding" means the date a county takes legislative action accepting any funds as required in RCW **36.70A.715**(1) to implement the program.

(10) "Statewide advisory committee" means the statewide advisory committee created in RCW **36.70A.745**.

(11) "Technical panel" means the directors or director designees of the following agencies: The department of fish and wildlife; the department of agriculture; the department of ecology; and the commission.

(12) "Watershed" means a water resource inventory area, salmon recovery planning area, or a subbasin as determined by a county.

(13) "Watershed group" means an entity designated by a county under the provisions of RCW **36.70A.715**.

(14) "Work plan" means a watershed work plan developed under the provisions of RCW **36.70A.720**.

[2011 c 360 § 2.]

36.70A.705
Voluntary stewardship program established—Administered by commission—Agency participation.

(1) The voluntary stewardship program is established to be administered by the commission. The program shall be designed to protect and enhance critical areas on lands used for agricultural activities through voluntary actions by agricultural operators.

(2) In administering the program, the commission must:

(a) Establish policies and procedures for implementing the program;

(b) Administer funding for counties to implement the program including, but not limited to, funding to develop strategies and incentive programs and to establish local guidelines for watershed stewardship programs;

(c) Administer the program's technical assistance funds and coordinate among state agencies and other entities for the implementation of the program;

(d) Establish a technical panel;

(e) In conjunction with the technical panel, review and evaluate: (i) Work plans submitted for approval under RCW **36.70A.720**(2)(a); and (ii) reports submitted under RCW **36.70A.720**(2)(b);

(f) Review and evaluate the program's success and effectiveness and make appropriate changes to policies and procedures for implementing the program, in consultation with the statewide advisory committee and other affected agencies;

(g) Designate priority watersheds based upon the recommendation of the statewide advisory committee. The commission and the statewide advisory committee may only consider watersheds nominated by counties under RCW **36.70A.710**. When designating priority watersheds, the commission and the statewide advisory committee shall consider the statewide significance of the criteria listed in RCW **36.70A.710**(3);

(h) Provide administrative support for the program's statewide advisory committee in its work. The administrative support must be in collaboration with the department of ecology and other agencies involved in the program;

(i) Maintain a web site about the program that includes times, locations, and agenda information for meetings of the statewide advisory committee;

(j) Report to the legislature on the general status of program implementation by December 1, 2013, and December 1, 2015;

(k) In conjunction with the statewide advisory committee, conduct a review of the program beginning in 2017 and every five years thereafter, and report its findings to the legislature by December 1st; and

(l) Report to the appropriate committees of the legislature in the format provided in RCW **43.01.036**.

(3) The department shall assist counties participating in the program to develop plans and development regulations under RCW **36.70A.735**(1).

(4) The commission, department, department of agriculture, department of fish and wildlife, department of ecology, and other state agencies as directed by the governor shall:

(a) Cooperate and collaborate to implement the program; and

(b) Develop materials to assist local watershed groups in development of work plans.

(5) State agencies conducting new monitoring to implement the program in a watershed must focus on the goals and benchmarks of the work plan.

[2011 c 360 § 3.]

36.70A.710
Critical areas protection—Alternative to RCW 36.70A.060—County's responsibilities—Procedures.

(1)(a) As an alternative to protecting critical areas in areas used for agricultural activities through development regulations adopted under RCW **36.70A.060**, the legislative authority of a county may elect to protect such critical areas through the program.

(b) In order to participate in the program, within six months after July 22, 2011, the legislative authority of a county must adopt an ordinance or resolution that:

(i) Elects to have the county participate in the program;

(ii) Identifies the watersheds that will participate in the program; and

(iii) Based on the criteria in subsection (4) of this section, nominates watersheds for consideration by the commission as state priority watersheds.

(2) Before adopting the ordinance or resolution under subsection (1) of this section, the county must (a) confer with tribes, and environmental and agricultural interests; and (b) provide notice following the public participation and notice provisions of RCW **36.70A.035** to property owners and other affected and interested individuals, tribes, government agencies, businesses, school districts, and organizations.

(3) In identifying watersheds to participate in the program, a county must consider:

(a) The role of farming within the watershed, including the number and acreage of farms, the economic value of crops and livestock, and the risk of the conversion of farmland;

(b) The overall likelihood of completing a successful program in the watershed; and

(c) Existing watershed programs, including those of other jurisdictions in which the watershed has territory.

(4) In identifying priority watersheds, a county must consider the following:

(a) The role of farming within the watershed, including the number and acreage of farms, the economic value of crops and livestock, and the risk of the conversion of farmland;

(b) The importance of salmonid resources in the watershed;

(c) An evaluation of the biological diversity of wildlife species and their habitats in the geographic region including their significance and vulnerability;

(d) The presence of leadership within the watershed that is representative and inclusive of the interests in the watershed;

(e) Integration of regional watershed strategies, including the availability of a data and scientific review structure related to all types of critical areas;

(f) The presence of a local watershed group that is willing and capable of overseeing a successful program, and that has the operational structures to administer the program effectively, including professional technical assistance staff, and monitoring and adaptive management structures; and

(g) The overall likelihood of completing a successful program in the watershed.

(5) Except as otherwise provided in subsection (9) of this section, beginning with the effective date of the ordinance or resolution adopted under subsection (1) of this section, the program applies to all unincorporated property upon which agricultural activities occur within a participating watershed.

(6)(a) Except as otherwise provided in (b) of this subsection, within two years after July 22, 2011, a county must review and, if necessary, revise development regulations adopted under this chapter to protect critical areas as they specifically apply to agricultural activities:

(i) If the county has not elected to participate in the program, for all unincorporated areas; or

(ii) If the county has elected to participate in the program, for any watershed not participating in the program.

(b) A county that between July 1, 2003, and June 30, 2007, in accordance with RCW **36.70A.130** completed the review of its development regulations as required by RCW **36.70A.130** to protect critical areas as they specifically apply to agricultural activities is not required to review and revise its development regulations until required by RCW **36.70A.130**.

(c) After the review and amendment required under (a) of this subsection, RCW **36.70A.130** applies to the subsequent review and amendment of development regulations adopted under this chapter to protect critical areas as they specifically apply to agricultural activities.

(7)(a) A county that has made the election under subsection (1) of this section may withdraw a participating watershed from the program by adopting an ordinance or resolution withdrawing the watershed from the program. A county may withdraw a watershed from the program at the end of three years, five years, or eight years after receipt of funding, or any time after ten years from receipt of funding.

(b) Within eighteen months after withdrawing a participating watershed from the program, the county must review and, if necessary, revise its development regulations that protect critical areas in that watershed as they specifically apply to agricultural activities. The development regulations must protect the critical area functions and values as they existed on July 22, 2011.
RCW **36.70A.130** applies to the subsequent review and amendment of development regulations adopted under this chapter to protect critical areas as they specifically apply to agricultural activities.

(8) A county that has made the election under subsection (1) of this section is eligible for a share of the funding made available to implement the program, subject to funding availability from the state.

(9) A county that has made the election under subsection (1) of this section is not required to implement the program in a participating watershed until adequate funding for the program in that watershed is provided to the county.

[2011 c 360 § 4.]

36.70A.715
Funding by commission—County's duties—Watershed group established.

(1) When the commission makes funds available to a county that has made the election provided in RCW **36.70A.710**(1), the county must within sixty days:

(a) Acknowledge the receipt of funds; and

(b) Designate a watershed group and an entity to administer funds for each watershed for which funding has been provided.

(2) A county must confer with tribes and interested stakeholders before designating or establishing a watershed group.

(3) The watershed group must include broad representation of key watershed stakeholders and, at a minimum, representatives of agricultural and environmental groups and tribes that agree to participate. The county should encourage existing lead entities, watershed planning units, or other integrating organizations to serve as the watershed group.

(4) The county may designate itself, a tribe, or another entity to coordinate the local watershed group.

36.70A.720
Watershed group's duties—Work plan—Conditional priority funding.

(1) A watershed group designated by a county under RCW **36.70A.715** must develop a work plan to protect critical areas while maintaining the viability of agriculture in the watershed. The work plan must include goals and benchmarks for the protection and enhancement of critical areas. In developing and implementing the work plan, the watershed group must:

(a) Review and incorporate applicable water quality, watershed management, farmland protection, and species recovery data and plans;

(b) Seek input from tribes, agencies, and stakeholders;

(c) Develop goals for participation by agricultural operators conducting commercial and noncommercial agricultural activities in the watershed necessary to meet the protection and enhancement benchmarks of the work plan;

(d) Ensure outreach and technical assistance is provided to agricultural operators in the watershed;

(e) Create measurable benchmarks that, within ten years after the receipt of funding, are designed to result in (i) the protection of critical area functions and values and (ii) the enhancement of critical area functions and values through voluntary, incentive-based measures;

(f) Designate the entity or entities that will provide technical assistance;

(g) Work with the entity providing technical assistance to ensure that Individual Stewardship Plans contribute to the goals and benchmarks of the work plan;

(h) Incorporate into the work plan any existing development regulations relied upon to achieve the goals and benchmarks for protection;

(i) Establish baseline monitoring for: (i) Participation activities and implementation of the voluntary stewardship plans and projects; (ii) stewardship activities; and (iii) the effects on critical areas and agriculture relevant to the protection and enhancement benchmarks developed for the watershed;

(j) Conduct periodic evaluations, institute adaptive management, and provide a written report of the status of plans and accomplishments to the county and to the commission within sixty days after the end of each biennium;

(k) Assist state agencies in their monitoring programs; and

(l) Satisfy any other reporting requirements of the program.

(2)(a) The watershed group shall develop and submit the work plan to the director for approval as provided in RCW **36.70A.725**.

(b)(i) Not later than five years after the receipt of funding for a participating watershed, the watershed group must report to the director and the county on whether it has met the work plan's protection and enhancement goals and benchmarks.

(ii) If the watershed group determines the protection goals and benchmarks have been met, and the director concurs under RCW **36.70A.730**, the watershed group shall continue to implement the work plan.

(iii) If the watershed group determines the protection goals and benchmarks have not been met, it must propose and submit to the director an adaptive management plan to achieve the goals and benchmarks that were not met. If the director does not approve the adaptive management plan under RCW **36.70A.730**, the watershed is subject to RCW **36.70A.735**.

(iv) If the watershed group determines the enhancement goals and benchmarks have not been met, the watershed group must determine what additional voluntary actions are needed to meet the benchmarks, identify the funding necessary to implement these actions, and implement these actions when funding is provided.

(c)(i) Not later than ten years after receipt of funding for a participating watershed, and every five years thereafter, the watershed group must report to the director and the county on whether it has met the protection and enhancement goals and benchmarks of the work plan.

(ii) If the watershed group determines the protection goals and benchmarks have been met, and the director concurs under RCW **36.70A.730**, the watershed group shall continue to implement the work plan.

(iii) If the watershed group determines the protection goals and benchmarks have not been met, the watershed is subject to RCW **36.70A.735**.

(iv) If the watershed group determines the enhancement goals and benchmarks have not been met, the watershed group must determine what additional voluntary actions are needed to meet the benchmarks, identify the funding necessary to implement these actions, and implement these actions when funding is provided.

(3) Following approval of a work plan, a county or watershed group may request a state or federal agency to focus existing enforcement authority in that participating watershed, if the action will facilitate progress toward achieving work plan protection goals and benchmarks.

(4) The commission may provide priority funding to any watershed designated under the provisions of RCW **36.70A.705**(2)(g). The director, in consultation with the statewide advisory committee, shall

work with the watershed group to develop an accelerated implementation schedule for watersheds that receive priority funding.

(5) Commercial and noncommercial agricultural operators participating in the program are eligible to receive funding and assistance under watershed programs.

[2011 c 360 § 6.]

36.70A.725
Technical review of work plan—Time frame for action by director.

(1) Upon receipt of a work plan submitted to the director under RCW **36.70A.720**(2)(a), the director must submit the work plan to the technical panel for review.

(2) The technical panel shall review the work plan and report to the director within forty-five days after the director receives the work plan. The technical panel shall assess whether at the end of ten years after receipt of funding, the work plan, in conjunction with other existing plans and regulations, will protect critical areas while maintaining and enhancing the viability of agriculture in the watershed.

(3)(a) If the technical panel determines the proposed work plan will protect critical areas while maintaining and enhancing the viability of agriculture in the watershed:

(i) It must recommend approval of the work plan; and

(ii) The director must approve the work plan.

(b) If the technical panel determines the proposed work plan will not protect critical areas while maintaining and enhancing the viability of agriculture in the watershed:

(i) It must identify the reasons for its determination; and

(ii) The director must advise the watershed group of the reasons for disapproval.

(4) The watershed group may modify and resubmit its work plan for review and approval consistent with this section.

(5) If the director does not approve a work plan submitted under this section within two years and nine months after receipt of funding, the director shall submit the work plan to the statewide advisory committee for resolution. If the statewide advisory committee recommends approval, the director must approve the work plan.

(6) If the director does not approve a work plan for a watershed within three years after receipt of funding, the provisions of RCW **36.70A.735**(2) apply to the watershed.

[2011 c 360 § 7.]

36.70A.730
Report by watershed group—Director consults with statewide advisory committee.

(1) Upon receipt of a report by a watershed group under RCW **36.70A.720**(2)(b) that the work plan goals and benchmarks have been met, the director must consult with the statewide advisory committee. If the director concurs with the watershed group report, the watershed group shall continue to implement the work plan. If the director does not concur with the watershed group report, the director shall consult with the statewide advisory committee following the procedures in subsection (2) of this section.

(2) If either the director, following receipt of a report under subsection (1) of this section, or the watershed group, in the report submitted to the director under RCW **36.70A.720**(2)(b), concludes that the work plan goals and benchmarks for protection have not been met, the director must consult with the statewide advisory committee for a recommendation on how to proceed. If the director, acting upon recommendation from the statewide advisory committee, determines that the watershed is likely to meet the goals and benchmarks with an additional six months of planning and implementation time, the director must grant an extension. If the director, acting upon a recommendation from the statewide advisory committee, determines that the watershed is unlikely to meet the goals and benchmarks within six months, the watershed is subject to RCW **36.70A.735**.

(3) A watershed that fails to meet its goals and benchmarks for protection within the six-month time extension under subsection (2) of this section is subject to RCW **36.70A.735**.

[2011 c 360 § 8.]

36.70A.735
When work plan is not approved, fails, or is unfunded—County's duties—Rules.

(1) Within eighteen months after one of the events in subsection (2) of this section, a county must:

(a) Develop, adopt, and implement a watershed work plan approved by the department that protects critical areas in areas used for agricultural activities while maintaining the viability of agriculture in the watershed. The department shall consult with the departments of agriculture, ecology, and fish and wildlife and the commission, and other relevant state agencies before approving or disapproving the proposed work plan. The appeal of the department's decision under this subsection is subject to appeal under RCW **36.70A.280**;

(b) Adopt development regulations previously adopted under this chapter by another local government for the purpose of protecting critical areas in areas used for agricultural activities. Regulations adopted under this subsection (1)(b) must be from a region with similar agricultural activities, geography, and geology and must: (i) Be from Clallam, Clark, King, or Whatcom counties; or (ii) have been upheld by a growth management hearings board or court after July 1, 2011, where the board or court determined that the provisions adequately protected critical areas functions and values in areas used for agricultural activities;

(c) Adopt development regulations certified by the department as protective of critical areas in areas used for agricultural activities as required by this chapter. The county may submit existing or amended regulations for certification. The department must make its decision on whether to certify the development regulations within ninety days after the county submits its request. If the department denies the certification, the county shall take an action under (a), (b), or (d) of this subsection. The department must consult with the departments of agriculture, ecology, and fish and wildlife and the commission before making a certification under this section. The appeal of the department's decision under this subsection (1)(c) is subject to appeal under RCW **36.70A.280**; or

(d) Review and, if necessary, revise development regulations adopted under this chapter to protect critical areas as they relate to agricultural activities.

(2) A participating watershed is subject to this section if:

(a) The work plan is not approved by the director as provided in RCW **36.70A.725**;

(b) The work plan's goals and benchmarks for protection have not been met as provided in RCW **36.70A.720**;

(c) The commission has determined under RCW **36.70A.740** that the county, department, commission, or departments of agriculture, ecology, or fish and wildlife have not received adequate funding to implement a program in the watershed; or

(d) The commission has determined under RCW **36.70A.740** that the watershed has not received adequate funding to implement the program.

(3) The department shall adopt rules to implement subsection (1)(a) and (c) of this section.

[2011 c 360 § 9.]

36.70A.740
Commission's duties—Timelines.

(1) By July 31, 2015, the commission must:

(a) In consultation with each county that has elected under RCW **36.70A.710** to participate in the program, determine which participating watersheds received adequate funding to establish and implement the program in a participating watershed by July 1, 2015; and

(b) In consultation with other state agencies, for each participating watershed determine whether state agencies required to take action under the provisions of
RCW **36.70A.700** through **36.70A.760** have received adequate funding to support the program by July 1, 2015.

(2) By July 31, 2017, and every two years thereafter, in consultation with each county that has elected under RCW **36.70A.710** to participate in the program and other state agencies, the commission shall determine for each participating watershed whether adequate funding to implement the program was provided during the preceding biennium as provided in subsection (1) of this section.

(3) If the commission determines under subsection (1) or (2) of this section that a participating watershed has not received adequate funding, the watershed is subject to the provisions of RCW **36.70A.735**.

(4) In consultation with the statewide advisory committee and other state agencies, not later than August 31, 2015, and each August 31st every two years thereafter, the commission shall report to the legislature and each county that has elected under RCW **36.70A.710** to participate in the program on the participating watersheds that have received adequate funding to establish and implement the program.

[2011 c 360 § 10.]

36.70A.745
Statewide advisory committee—Membership.

(1)(a) From the nominations made under (b) of this subsection, the commission shall appoint a statewide advisory committee, consisting of: Two persons representing county government, two persons representing agricultural organizations, and two persons representing environmental organizations. The commission, in conjunction with the governor's office, shall also invite participation by two representatives of tribal governments.

(b) Organizations representing county, agricultural, and environmental organizations shall submit nominations of their representatives to the commission within ninety days of July 22, 2011. Members of the statewide advisory committee shall serve two-year terms except that for the first year, one representative from each of the sectors shall be appointed to the statewide advisory committee for a term of one year. Members may be reappointed by the commission for additional two-year terms and replacement members shall be appointed in accordance with the process for selection of the initial members of the statewide advisory committee.

(c) Upon notification of the commission by an appointed member, the appointed member may designate a person to serve as an alternate.

(d) The executive director of the commission shall serve as a nonvoting chair of the statewide advisory committee.

(e) Members of the statewide advisory committee shall serve without compensation and, unless serving as a state officer or employee, are not eligible for reimbursement for subsistence, lodging, and travel expenses under RCW **43.03.050** and **43.03.060**.

(2) The role of the statewide advisory committee is to advise the commission and other agencies involved in development and operation of the program.

[2011 c 360 § 11.]

36.70A.750
Agricultural operators—Individual stewardship plan.

(1) Agricultural operators implementing an individual stewardship plan consistent with a work plan are presumed to be working toward the protection and enhancement of critical areas.

(2) If the watershed group determines that additional or different practices are needed to achieve the work plan's goals and benchmarks, the agricultural operator may not be required to implement those practices but may choose to implement the revised practices on a voluntary basis and is eligible for funding to revise the practices.

[2011 c 360 § 12.]

36.70A.755
Implementing the work plan.

In developing stewardship practices to implement the work plan, to the maximum extent practical the watershed group should:

(1) Avoid management practices that may have unintended adverse consequences for other habitats, species, and critical areas functions and values; and

(2) Administer the program in a manner that allows participants to be eligible for public or private environmental protection and enhancement incentives while protecting and enhancing critical area functions and values.

[2011 c 360 § 13.]

36.70A.760
Agricultural operators—Withdrawal from program.

An agricultural operator participating in the program may withdraw from the program and is not required to continue voluntary measures after the expiration of an applicable contract. The watershed group must account for any loss of protection resulting from withdrawals when establishing goals and benchmarks for protection and a work plan under RCW 36.70A.720.

[2011 c 360 § 14.]

36.70A.800
Role of growth strategies commission.

The growth strategies commission created by executive order shall:

(1) Analyze different methods for assuring that county and city comprehensive plans adopted under chapter 36.70A RCW are consistent with the planning goals under RCW 36.70A.020 and with other requirements of chapter 36.70A RCW;

(2) Recommend to the legislature and the governor by October 1, 1990, a specific structure or process that, among other things:

(a) Ensures county and city comprehensive plans adopted under chapter 36.70A RCW are coordinated and comply with planning goals and other requirements under chapter 36.70A RCW;

(b) Requires state agencies to comply with this chapter and to consider and be consistent with county and city comprehensive plans in actions by state agencies, including the location, financing, and expansion of transportation systems and other public facilities;

(c) Defines the state role in growth management;

(d) Addresses lands and resources of statewide significance, including to:

(i) Protect these lands and resources of statewide significance by developing standards for their preservation and protection and suggesting the appropriate structure to monitor and enforce the preservation of these lands and resources; and

(ii) Consider the environmental, economic, and social values of the lands and resources with statewide significance;

(e) Identifies potential state funds that may be withheld and incentives that promote county and city compliance with chapter 36.70A RCW;

(f) Increases affordable housing statewide and promotes linkages between land use and transportation;

(g) Addresses vesting of rights; and

(h) Addresses short subdivisions; and

(3) Develop recommendations to provide for the resolution of disputes over urban growth areas between counties and cities, including incorporations and annexations.

[1990 1st ex.s. c 17 § 86.]

36.70A.900
Severability—1990 1st ex.s. c 17.

If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected.

[1990 1st ex.s. c 17 § 88.]

36.70A.901
Part, section headings not law—1990 1st ex.s. c 17.

Part and section headings as used in this act do not constitute any part of the law.

[1990 1st ex.s. c 17 § 89.]

36.70A.902
Section headings not law—1991 sp.s. c 32.

Section headings as used in this act do not constitute any part of the law.

[1991 sp.s. c 32 § 40.]

36.70A.903
Transfer of powers, duties, and functions.

(1) The powers, duties, and functions of the growth management hearings board are hereby transferred to the environmental and land use hearings office.

(2)(a) All reports, documents, surveys, books, records, files, papers, or written material in the possession of the growth management hearings board shall be delivered to the custody of the

environmental and land use hearings office. All cabinets, furniture, office equipment, motor vehicles, and other tangible property employed by the growth management hearings board shall be made available to the environmental and land use hearings office. All funds, credits, or other assets held by the growth management hearings board shall be assigned to the environmental and land use hearings office.

(b) Any appropriations made to the growth management hearings board shall, on July 1, 2011, be transferred and credited to the environmental and land use hearings office.

(c) If any question arises as to the transfer of any personnel, funds, books, documents, records, papers, files, equipment, or other tangible property used or held in the exercise of the powers and the performance of the duties and functions transferred, the director of financial management shall make a determination as to the proper allocation and certify the same to the state agencies concerned.

(3) All employees of the growth management hearings board are transferred to the jurisdiction of the environmental and land use hearings office. All employees classified under chapter 41.06 RCW, the state civil service law, are assigned to the environmental and land use hearings office to perform their usual duties upon the same terms as formerly, without any loss of rights, subject to any action that may be appropriate thereafter in accordance with the laws and rules governing state civil service.

(4) All existing rules and all pending cases before the growth management hearings board shall be continued and acted upon by the growth management hearings board located within the environmental and land use hearings office. All pending business, existing contracts, and obligations shall remain in full force and shall be performed by the environmental and land use hearings office.

(5) The transfer of the powers, duties, functions, and personnel of the growth management hearings board shall not affect the validity of any act performed before July 1, 2011.

(6) If apportionments of budgeted funds are required because of the transfers directed by this section, the director of financial management shall certify the apportionments to the agencies affected, the state auditor, and the state treasurer. Each of these shall make the appropriate transfer and adjustments in funds and appropriation accounts and equipment records in accordance with the certification.

[2010 c 210 § 43.]

NOTES:

Intent—Effective dates—Application—Pending cases and rules—2010 c 210: See notes following RCW 43.21B.001.

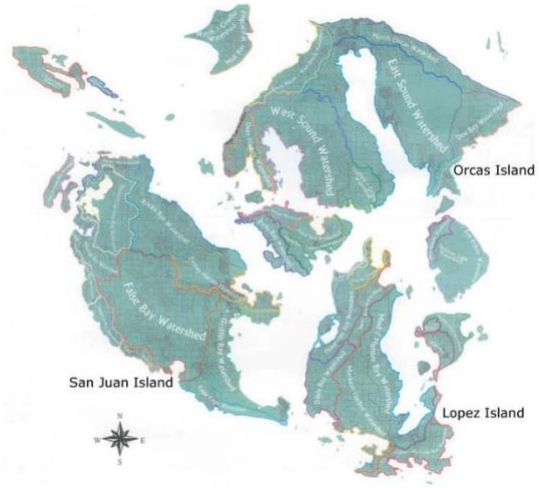
36.70A.904
Conflict with federal requirements—2011 c 360.

If any part of this act is found to be in conflict with federal requirements that are a prescribed condition to the allocation of federal funds to the state, the conflicting part of this act is inoperative solely to the extent of the conflict and with respect to the agencies directly affected, and this finding does not affect the operation of the remainder of this act in its application to the agencies concerned. Rules adopted under this act must meet federal requirements that are a necessary condition to the receipt of federal funds by the state.

VOLUNTARY STEWARDSHIP CHECKLIST

Promoting Agriculture Viability and Protecting Critical Areas

The Voluntary Stewardship Program (VSP) is an optional, incentive-based approach to protecting critical areas while promoting agriculture. As part of the farm planning process, this checklist can assist farmers in developing goals that specifically contribute to the protection of environmentally critical areas and agricultural viability aims.



Step 1: General Location Information

1. What island is your farm/agricultural property on? _____
2. What Watershed is your farm/agricultural property located in? _____
3. Identify potential critical areas intersecting with agriculture

Types of potential critical areas on, or near, property (check all that apply):

- Fish and wildlife habitat conservation areas
- Wetlands
- Frequently flooded areas
- Geologically hazardous areas
- Critical aquifer recharge areas

Notes:

Your ideas to protect these areas:

Notes:

Step 2: Ideas for Voluntary Practices to Enhance Agriculture Viability and Protect Critical Areas

Agriculture Intersecting with Wetlands

Definition of Wetlands: Areas that are inundated or saturated by surface water or groundwater supporting a prevalence of vegetation adapted for life in saturated soil conditions. **Includes:** • Swamps, marshes, bogs, and similar areas **Does not include:** Artificial wetlands per such as irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities.	**VSP Critical Area Protection Goals:** To protect and enhance wetland functions related to: • Water Quality • Water Quantity • Habitat To encourage the voluntary restoration of all or portions of wetlands where they intersect with agricultural activity.

Wetlands

Conservation Practice Examples	NRCS #	In farm plan	I do this	I'm Interested in this	Does not apply	I'm not interested
My ideas to meet this goal:		○	○	○	○	○
Wetland Creation	658	○	○	○	○	○
Wetland Enhancement	659	○	○	○	○	○
Wetland Restoration	657	○	○	○	○	○

Wetland Wildlife Habitat Management	**644**	○	○	○	○	○
Brush and herbaceous weed management to manage or remove plants that are invasive or noxious	**314, 315**	○	○	○	○	○
Fencing to construct a barrier to animals or people, providing a means to control movement.	**382**	○	○	○	○	○
Access control to exclude animals, people, vehicles, and/or equipment from an area.	**472**	○	○	○	○	○
Nutrient management to determine the timing, source, rate and placement of plant nutrients and soil amendments.	**590**	○	○	○	○	○

Agriculture Intersecting with Fish and Wildlife Habitat Conservation Areas

Definition of Fish and Wildlife Habitat Conservation Areas: include both terrestrial and aquatic habitats and species, per San Juan County Code definitions at SJCC 18.35.110.

Includes:

- Habitats where federal and state listed endangered, threatened and sensitive species have a primary association
- Streams, lakes, naturally occurring ponds, shellfish areas, kelp and eelgrass beds, spawning and holding areas for forage fish, mudflats, intertidal habitats, pocket beaches and bluff-backed beaches and feeder bluffs.

Does not include: (when no salmonids are present): Artificial features such as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches maintained by a port district or an irrigation district or company.

VSP Fish and Wildlife Habitat Goals:

- Protect and enhance habitats and species of local importance.
- Promote voluntary restoration and enhancement of fish and wildlife populations and their associated habitats.

VSP Agriculture Viability Aims:

- Promote economically viable water, soil, pest, and nutrient management that maximizes crop and forage quality.

Fish and Wildlife Habitat Conservation Areas

Conservation Practice Examples	**NRCS #**	**In farm plan**	**I do this**	**I'm Interested in this**	**Does not apply**	**I'm not interested**
My ideas to meet this goal:		○	○	○	○	○
Access control to exclude animals, people, vehicles,	**472**	○	○	○	○	○

and/or equipment from an area						
Brush and herbaceous weed management to manage or remove plants that are invasive or noxious	**314, 315**	○	○	○	○	○
Conservation cover to provide permanent vegetative cover	**327**	○	○	○	○	○
Fence: browsing animal management or wildlife movement management	**382**	○	○	○	○	○
Forest stand improvement practices that improve wildlife habitat	**666**	○	○	○	○	○
Hedgerows that provide food, cover, and corridors for wildlife or improve water quality	**422**	○	○	○	○	○
Structures for wildlife: Raptor and bat nesting box for predator patrol	**649**	○	○	○	○	○
Riparian herbaceous cover or Riparian forest buffer	**390, 391**	○	○	○	○	○
Tree/shrub establishment: for forest products, habitat, energy conservation, erosion control	**612**	○	○	○	○	○
Upland wildlife habitat management	**645**	○	○	○	○	○
Watering facility for wildlife	**614**	○	○	○	○	○
Wildlife and pollinator habitat planting	**327, 422**	○	○	○	○	○
Hedgerows that provide food, cover, and corridors for wildlife or improve water quality	**422**	○	○	○	○	○
Conservation cover	**327**	○	○	○	○	○
Riparian herbaceous cover	**390**	○	○	○	○	○
Riparian forest buffer	**391**	○	○	○	○	○
Tree/shrub establishment: for forest products, habitat, energy conservation, erosion control	**612**	○	○	○	○	○
Streambank and shoreline protection	**580**	○	○	○	○	○
Stream habitat improvement and management	**395**	○	○	○	○	○
Stream crossing	**585**	○	○	○	○	○
Prescribed grazing to manage the harvest of vegetation with grazing and/ or browsing animals.	**528**	○	○	○	○	○
Fencing to construct a barrier to animals or people, providing a means to control movement.	**382**	○	○	○	○	○
Nutrient management to determine the amount, rate and method of application, source, and timing of plant nutrients and soil amendments.	**590**	○	○	○	○	○

Agriculture Intersecting with Critical Aquifer Recharge Areas

Definition of Critical Aquifer Recharge Areas: Selected watersheds and critical aquifers where resources are potentially threatened by salt water intrusion or primary contaminants or limited due to poor recharge.	
VSP Critical Area Protection Objectives: • Protect and maintain groundwater recharge and prevent the degradation of groundwater resources. • Prioritized those watersheds with known contaminant problems for management that protects and improves those water quality problems.	**VSP Agriculture Viability Aims:** • Protect groundwater resources that support agricultural activities and balance competing needs for water while preserving natural hydrologic functions and their related ecological processes (e.g. water quality, water quantity/storage).

Critical Aquifer Recharge Areas

Conservation Practice Examples	NRCS #	In farm plan	I do this	I'm Interested in this	Does not apply	I'm not interested
My ideas to meet this goal:		○	○	○	○	○
Water well: provide access to a groundwater supply suitable for livestock watering, fire control, wildlife, and other agricultural uses	642	○	○	○	○	○
Groundwater testing to determine the quality of a groundwater supply	355	○	○	○	○	○
Nutrient management to determine the timing, source, rate and placement of plant nutrients and soil amendments.	590	○	○	○	○	○
Heavy use area: to protect and improve water quality by providing a stable, non-eroding surface for areas frequently used by animals, people, or vehicles.	561	○	○	○	○	○
Composting facility structure to contain and facilitate decomposition of manure and/or other organic material into a final product sufficiently stable for storage, on farm use and application to land as a soil amendment.	317	○	○	○	○	○
Fencing to construct a barrier to animals or people, providing a means to control movement.	382	○	○	○	○	○
Roof runoff structures that divert roof runoff from precipitation away from structures or contaminated areas to improve water quality.	558	○	○	○	○	○

Water harvesting catchment: collect and store runoff from precipitation to provide water for livestock, fish, wildlife, and/or other uses.	**636**	○	○	○	○	○
Irrigation system, micro-irrigation	**441**	○	○	○	○	○
Irrigation water management	**449**	○	○	○	○	○
Watering system to provide an alternative clean water source for livestock (may include pumping station, pipeline and watering facility).	**533,516, 614**	○	○	○	○	○

Agriculture Intersecting with Geologically Hazardous Areas

Definition of Geologically Hazardous Areas: Areas susceptible to erosion, sliding, earthquake, or other geological events, where development is not suitable due to public health or safety concerns.

VSP Geologic Hazard Goals:	**VSP Agriculture Viability Aims:**
• Avoid and minimize sedimentation, erosion, and landslide hazards on water quality, and fish and wildlife habitat. • Avoid activities that increase the natural rate of erosion, while protecting naturally occurring and beneficial ecological erosion processes, such as feeder bluffs.	• Protect agricultural activities from erosion, landslides, or other naturally occurring geologic events. • Avoid soil compaction of geologic hazard areas where it may adversely affect agricultural activity.

Geologically Hazardous Areas

Conservation Practice Examples	**NRCS #**	**In farm plan**	**I do this**	**I'm Interested in this**	**Does not apply**	**I'm not interested**
My ideas to meet this goal:		○	○	○	○	○
Access control to exclude animals, people, vehicles, and/or equipment from an area	**472**	○	○	○	○	○
Conservation cover: to provide permanent vegetative cover to reduce soil erosion and sedimentation, improve soil quality, etc.	**327**	○	○	○	○	○
Cover crop: Plant crops between rows of trees, vines, or other row crops for cover and conservation. Cover crops include grasses, legumes, and forbs for seasonal cover and other conservation purposes.	**340**	○	○	○	○	○

Critical area planting: establish permanent vegetation to stabilized slopes, road banks, stream banks, or shorelines and to reduce erosion and transport of sediment.	**342**	○	○	○	○	○
Contour farming, buffer strips, and perennial planting	**330,332, 331**	○	○	○	○	○
Tree/shrub establishment for long-term erosion control and water quality improvement	**612**	○	○	○	○	○
Prescribed grazing to reduce erosion	**528**	○	○	○	○	○
Tree/shrub establishment for long-term erosion control and water quality improvement	**612**	○	○	○	○	○
Heavy use area protection to stabilize ground surface	**561**	○	○	○	○	○

Agriculture Intersecting with Frequently Flooded Areas

Definition of Frequently Flooded Areas: Lands subject to at least a one percent or greater chance of flooding in any given year.

VSP Critical Area Protection Objectives:	**VSP Agriculture Viability Aims:**
• Protect and enhance frequently flooded areas for habitat and groundwater recharge. • Preserve natural flood control, stormwater storage and drainage, and maintain floodplain connectivity, including flood channels and/or high flow channels.	• To minimize flood damage to agricultural properties and operations.

Frequently Flooded Areas

Conservation Practice Examples	**NRCS #**	**In farm plan**	**I do this**	**I'm Interested in this**	**Does not apply**	**I'm not interested**
My ideas to meet this goal:		○	○	○	○	○
See measures to protect wetlands and riparian areas	See Above Checklist Sections	○	○	○	○	○

Step 3: Monitoring and Adaptive Management

A technical assistance provider, coordinated by the San Juan Islands Conservation District, will contact you annually about the conservation practices installed. To assist with monitoring, you may be asked to provide additional information. You may request a field visit to obtain advice on improving the effectiveness of the conservation practices.

Ideas for Agriculture Viability Incentives and Outcomes

The VSP is designed to promote the viability of agriculture over the long term and to avoid unnecessary local critical area regulations due to the prevalence of conservation practices undertaken by willing producers. Producers may find cost-matching programs with technical providers, who will be providing cost-share opportunities for VSP (see contact information below).

What incentives could help you achieve your goals for your farm?

For Information and Assistance

Lead Technical Assistance Provider: San Juan Islands Conservation District, **www.sanjuanislandscd.org**

Ellen Jones
Cost Share Program Manager/
Natural Resources Planner
(360) 378 –6621 x304, ellen@sjicd.org

Appendix D
Critical Areas Acreage Intersections with Agricultural Activity

All data within this appendix is derived from San Juan County GIS. Maps are only a guide and in all cases, conditions in the field control. The maps are used to estimate the total area of agricultural activity occurring within San Juan County, as well as to estimate the area of Critical Areas as mapped. Total agricultural area and area intersecting with Critical Areas Area is reported by type of Critical Area, by island, and by watershed in each table.

Table D-1. Acres of Farms in Total, by Watershed

Island	Watershed	Acres
Lopez	All	4,918.05
	Aleck Bay	9.57
	Davis Bay	2186.7
	Fisherman Bay	239.08
	Hughes Bay	208.63
	Hunter Bay	279.39
	Iceberg Point	38.65
	Lopez Sound	712.08
	Mackaye Harbor	126.03
	Mud Bay	115.38
	Outer Bay	0.04
	Shoal Bay	91.31
	Swift Bay	541.38
	Upright Channel	243.17
	Watmough Bay	120.86
	Unidentified	5.77
Orcas Island	All	2,255.18
	Deer Harbor	116.37
	Doe Bay	228.51
	Eastsound	432.06
	G&G Coves	68.09
	North Shore Orcas	20.03
	President Channel	174.26
	Raccoon Point	35.44
	West Sound	1,178.77
	Unidentified	1.65
San Juan	All	6,140.64
	False Bay	3,644.54
	Friday Harbor	417.68

	Garrison Bay	344.4
	Griffin Bay	468.65
	Haro Strait	356.23
	Juan de Fuca Strait	396.9
	Mitchell Bay	30.45
	Roche Harbor	22.21
	San Juan Channel	360.81
	Westcott Bay	95.98
	Unidentified	2.79
Shaw	All	180.36
Stuart	All	141.6
Waldron	All	257.33
Total		13,893.16

Wetlands

Table D-2. Acres of Farms in Possible Wetlands, by Watershed - Summary

Island	Watershed	Acres
Lopez	All	685
	Aleck Bay	3
	Davis Bay	314
	Fisherman Bay	33
	Hughes Bay	15
	Hunter Bay	10
	Lopez Sound	136
	Mackaye Harbor	7
	Mud Bay	1
	Shoal Bay	38
	Swift Bay	101
	Upright Channel	17
	Watmough Bay	8
	Unidentified	4
Orcas	All	304
	Deer Harbor	11
	Doe Bay	12
	Eastsound	87
	G&G Coves	9
	North Shore Orcas	1
	President Channel	33
	Raccoon Point	4
	West Sound	147
	Unidentified	0

San Juan	All	888
	False Bay	551
	Friday Harbor	62
	Garrison Bay	53
	Griffin Bay	16
	Haro Strait	110
	Juan de Fuca Strait	19
	Mitchell Bay	1
	Roche Harbor	0
	San Juan Channel	66
	Westcott Bay	10
	Unidentified	1
Shaw	All	18
Stuart	All	11
Waldron	All	4
Total		1,910

Table D-3. Acres of Farms in Possible Wetlands, by Agricultural Category, on Lopez Island

Watershed	Agricultural Category	Acres
Aleck Bay	All	3
	Unspecified	3
Davis Bay	All	314
	Flowers	2
	Hay Pasture / Not CUFA	1
	Hay/ pasture	66
	Livestock	95
	Livestock / Not CUFA	9
	Multiple Enterprises	91
	Unspecified	40
	Vegetables and Fruit	10
Fisherman Bay	All	33
	Hay Pasture / Not CUFA	16
	Livestock	4
	Livestock / Not CUFA	1
	Multiple Enterprises	10
	Unspecified	2
Hughes Bay	All	15
	Hay Pasture / Not CUFA	9
	Hay/ pasture	3
	Livestock	0
	Multiple Enterprises	1
	Unspecified	1
	Vegetables and Fruit	1
Hunter Bay	All	10
	Hay/ pasture	0
	Livestock	9
	Unspecified	1
Lopez Sound	All	136
	Livestock	81
	Livestock / Not CUFA	20
	Multiple Enterprises	13
	Unspecified	21
	Vegetables and Fruit	1
Mackaye Harbor	All	7
	Livestock	0
	Multiple Enterprises	5
	Unspecified	1
Mud Bay	All	1
	Livestock	1
	Unspecified	1
	Vegetables and Fruit	0
Shoal Bay	All	38
	Hay/ pasture	5
	Livestock / Not CUFA	7
	Unspecified	27
	Vegetables and Fruit	0
Swift Bay	All	101
	Hay Pasture / Not CUFA	14
	Hay/ pasture	22
	Livestock	24
	Livestock / Not CUFA	0
	Multiple Enterprises	32
	Unspecified	8
	Vegetables and Fruit	1
Upright Channel	All	17
	Hay Pasture / Not CUFA	5
	Livestock	4
	Livestock / Not CUFA	2
	Multiple Enterprises	1
	Unspecified	3
	Vegetables and Fruit	2
Watmough Bay	All	8
	Multiple Enterprises	1
	Unspecified	7
Unidentified	All	4
	Livestock	0
	Unspecified	3
Total		685

Table D-4. Acres of Farms in Possible Wetlands, by Agricultural Category, on Orcas Island

Watershed	Agricultural Category	Acres
Deer Harbor	All	11
	Unspecified	8
	Vegetables and Fruit	3
Doe Bay	All	12
	Livestock	1
	Multiple Enterprises	3
	Unspecified	8
Eastsound	All	87
	Hay Pasture / Not CUFA	4
	Multiple Enterprises	70
	Unspecified	13
G&G Coves	All	9
	Unspecified	9
North Shore Orcas	All	1
	Vegetables and Fruit	1
President Channel	All	33
	Livestock	24
	Unspecified	4
	Vegetables and Fruit	4
Raccoon Point	All	4
	Unspecified	4
West Sound	All	147
	Hay Pasture / Not CUFA	3
	Livestock	7
	Multiple Enterprises	55
	Unspecified	81
	Vegetables and Fruit	2
Unidentified	All	0
	Unspecified	0
Total		304

Table D-5. Acres of Farms in Possible Wetlands, by Agricultural Category, on San Juan Island

Watershed	Agricultural Category	Acres
False Bay	All	551
	Flowers	1
	Hay Pasture / Not CUFA	7
	Hay/ pasture	108
	Livestock	199
	Livestock / Not CUFA	49
	Multiple Enterprises	5
	Unspecified	175
	Vegetables and Fruit	8
Friday Harbor	All	62
	Hay Pasture / Not CUFA	5
	Hay/ pasture	0
	Livestock	50
	Livestock / Not CUFA	1
	Unspecified	0
	Vegetables and Fruit	6
Garrison Bay	All	53
	Livestock	32
	Unspecified	21
Griffin Bay	All	16
	Flowers	2
	Livestock	5
	Livestock / Not CUFA	2
	Unspecified	7
Haro Strait	All	110
	Hay/ pasture	18
	Livestock	83
	Multiple Enterprises	4
	Vegetables and Fruit	4
	Hay/ pasture	18
Juan de Fuca Strait	All	19
	Hay/ pasture	9
	Livestock / Not CUFA	10
	Unspecified	0
Mitchell Bay	All	1
	Livestock	1
Roche Harbor	All	0
	Vegetables and Fruit	0
San Juan Channel (San Juan)	All	66
	Flowers	1
	Hay Pasture / Not CUFA	48
	Livestock	17
	Multiple Enterprises	0
	Vegetables and Fruit	0
Westcott Bay	All	10
	Livestock	7
	Multiple Enterprises	0
	Unspecified	2
	Vegetables and Fruit	1
Unidentified	All	1
	Hay/ pasture	1
Total		888

Table D-6. Acres of Farms in Possible Wetlands, by Agricultural Category, on Shaw Island

Watershed	Agricultural Category	Acres
Unidentified	All	18
	Unspecified	18
Total		18

Table D-7. Acres of Farms in Possible Wetlands, by Agricultural Category, on Stuart Island

Watershed	Agricultural Category	Acres
Unidentified	All	11
	Unspecified	11
Total		11

Table D-8. Acres of Farms in Possible Wetlands, by Agricultural Category, on Waldron Island

Watershed	Agricultural Category	Acres
Unidentified	All	4
	Hay Pasture / Not CUFA	0
	Multiple Enterprises	1
	Unspecified	3
Total		4

Streams

Table D-9. Acres of Farms with Streams, by Watershed – Summary

Island	Watershed	Acres
Lopez	All	93,385
	Davis Bay	45,628
	Fisherman Bay	1,854
	Hughes Bay	2,556
	Hunter Bay	8,658
	Lopez Sound	14,543
	Mackaye Harbor	39
	Shoal Bay	2,783
	Swift Bay	14,007
	Upright Channel	3,317
Orcas	All	50,828
	Deer Harbor	765
	Doe Bay	3,334
	Eastsound	5,757
	G&G Coves	4,007
	North Shore Orcas	274
	President Channel	6,897
	Raccoon Point	1,738
	West Sound	27,892
	Unidentified	164
San Juan	All	121,521
	False Bay	72,146
	Friday Harbor	7,433
	Garrison Bay	11,019
	Griffin Bay	6,946
	Haro Strait	10,025
	Juan de Fuca Strait	5,944
	Mitchell Bay	80
	San Juan Channel	6,322
	Westcott Bay	269
	Unidentified	1,336
Shaw	All	11,376
Waldron	All	3,331
Total		280,440

Table D-10. Acres of Farms with Streams, by Agricultural Category, on Lopez Island

Watershed	Agricultural Category	Acres
Davis Bay	All	45,628
	Flowers	912
	Hay Pasture / Not CUFA	805
	Hay/ pasture	8,439
	Livestock	14,197
	Livestock / Not CUFA	2,949
	Multiple Enterprises	8,502
	Unspecified	8,391
	Vegetables and Fruit	1,434
Fisherman Bay	All	1,854
	Livestock	836
	Multiple Enterprises	1,018
Hughes Bay	All	2,556
	Hay Pasture / Not CUFA	1,356
	Hay/ pasture	879
	Multiple Enterprises	321
Hunter Bay	All	8,658
	Hay/ pasture	323
	Livestock	7,545
	Unspecified	790
Lopez Sound	All	14,543
	Livestock	6,430
	Livestock / Not CUFA	5,272
	Multiple Enterprises	269
	Unspecified	1,358
	Vegetables and Fruit	1,214
Mackaye Harbor	All	39
	Unspecified	39
Shoal Bay	All	2,783
	Hay/ pasture	192
	Livestock / Not CUFA	103
	Unspecified	2,488
Swift Bay	All	14,007
	Hay Pasture / Not CUFA	2,117
	Hay/ pasture	1,791
	Livestock	4,991
	Multiple Enterprises	2,249
	Unspecified	2,859
Upright Channel	All	3,317
	Livestock / Not CUFA	827
	Vegetables and Fruit	2,489
Total		93,385

Table D-11. Acres of Farms with Streams, by Agricultural Category, on Orcas Island

Watershed	Agricultural Category	Acres
Deer Harbor	All	765
	Unspecified	765
Eastsound	All	0
	Unspecified	0
President Channel	All	1
	Livestock	1
West Sound	All	10
	Unspecified	10
Unidentified	All	1
	Unspecified	1
Total		50,828

Table D-12. Acres of Farms with Streams, by Agricultural Category, on San Juan Island

Watershed	Agricultural Category	Acres
False Bay	All	14
	Hay/ pasture	1
	Livestock	10
	Livestock / Not CUFA	3
Friday Harbor	All	1
	Hay/ pasture	1
Garrison Bay	All	17
	Livestock	16
	Unspecified	1
Haro Strait	All	4
	Hay/ pasture	4
Westcott Bay	All	5
	Multiple Enterprises	2
	Unspecified	2
	Vegetables and Fruit	2
Unidentified	All	1
	Hay/ pasture	1
	Multiple Enterprises	0
Total		42

Table D-13. Acres of Farms with Streams, by Agricultural Category, on Shaw Island

Watershed	Agricultural Category	Acres
Unidentified	All	1
	Unspecified	1
Total		1

Table D-14. Acres of Farms with Streams, by Agricultural Category, on Stuart Island

Watershed	Agricultural Category	Acres
Unidentified	All	3
	Unspecified	3
Total		3

Table D-15. Acres of Farms with Streams, by Agricultural Category, on Waldron Island

Watershed	Agricultural Category	Acres
Unidentified	All	2
	Unspecified	2
Total		2

Geologically Hazardous Areas

Table D-16. Acres of Farms in Geologically Hazardous Areas, by Watershed – Summary

Island	Watershed	Total
Lopez	All	115
	Aleck Bay	0
	Davis Bay	44
	Fisherman Bay	3
	Hughes Bay	1
	Hunter Bay	20
	Iceberg Point	20
	Mackaye Harbor	8
	Swift Bay	15
	Watmough Bay	3
	(blank)	0
Orcas	All	256
	Deer Harbor	0
	Doe Bay	108
	Eastsound	45
	G&G Coves	4
	President Channel	17
	West Sound	82
	(blank)	0
San Juan	All	422
	False Bay	183
	Friday Harbor	50
	Garrison Bay	26
	Griffin Bay	6
	Haro Strait	31
	Juan de Fuca Strait	36
	Mitchell Bay	8
	San Juan Channel (San Juan)	68
	Westcott Bay	13
	(blank)	1
Shaw	All	10
Stuart	All	31
Waldron	All	7
Total		841

Table D-17. Acres of Farms in Geologically Hazardous Areas, by Agricultural Category, by Agricultural Category, on Lopez Island

Watershed	Agricultural Category	Total
Aleck Bay	All	0
	Livestock / Not CUFA	0
Davis Bay	All	44
	Hay/ pasture	8
	Livestock	27
	Unspecified	5
	Vegetables and Fruit	5
Fisherman Bay	All	3
	Multiple Enterprises	3
Hughes Bay	All	1
	Multiple Enterprises	1
Hunter Bay	All	20
	Livestock	20
Iceberg Point	All	20
	Livestock / Not CUFA	6
	Unspecified	14
Mackaye Harbor	All	8
	Multiple Enterprises	8
Swift Bay	All	15
	Livestock / Not CUFA	15
	Unspecified	0
Watmough Bay	All	3
	Multiple Enterprises	3
Unidentified	All	0
	Livestock / Not CUFA	0
	Multiple Enterprises	0
	Unspecified	0
Total		115

Table D-18. Acres of Farms in Geologically Hazardous Areas, by Agricultural Category, by Agricultural Category, on Orcas Island

Watershed	Agricultural Category	Total
Deer Harbor	All	0
	Unspecified	0
Doe Bay	All	108
	Livestock	60
	Multiple Enterprises	14
	Unspecified	33
Eastsound	All	45
	Hay Pasture / Not CUFA	1
	Livestock	2
	Unspecified	42
G&G Coves	All	4
	Unspecified	4
President Channel	All	17
	Livestock	2
	Unspecified	12
	Vegetables and Fruit	3
West Sound	All	82
	Hay Pasture / Not CUFA	3
	Livestock	2
	Multiple Enterprises	26
	Unspecified	50
Unidentified	All	0
	Livestock	0
	Unspecified	0
Total		256

Table D-19. Acres of Farms in Geologically Hazardous Areas, by Agricultural Category, by Agricultural Category, on San Juan Island

Watershed	Agricultural Category	Total
False Bay	All	183
	Flowers	0
	Hay Pasture / Not CUFA	0
	Hay/ pasture	14
	Livestock	104
	Livestock / Not CUFA	8
	Multiple Enterprises	1
	Unspecified	55
	Vegetables and Fruit	0
Friday Harbor	All	50
	Hay Pasture / Not CUFA	13
	Livestock	37
Garrison Bay	All	26
	Livestock	12
	Unspecified	13
Griffin Bay	All	6
	Livestock	0
	Livestock / Not CUFA	1
	Unspecified	4
Haro Strait	All	31
	Hay/ pasture	2
	Livestock	25
	Multiple Enterprises	4
Juan de Fuca Strait	All	36
	Hay/ pasture	5
	Livestock / Not CUFA	30
Mitchell Bay	All	8
	Hay/ pasture	0
	Multiple Enterprises	4
	Unspecified	4
San Juan Channel (San Juan)	All	68
	Flowers	22
	Hay Pasture / Not CUFA	39
	Livestock	6
	Multiple Enterprises	0
	Unspecified	1
Westcott Bay	All	13
	Livestock	13
	Unspecified	0
Unidentified	All	1
	Livestock / Not CUFA	1
Total		422

Table D-20. Acres of Farms in Geologically Hazardous Areas, by Agricultural Category, by Agricultural Category, on Shaw Island

Watershed	Agricultural Category	Total
Unidentified	All	10
	Unspecified	10
Total		**10**

Table D-21. Acres of Farms in Geologically Hazardous Areas, by Agricultural Category, by Agricultural Category, on Stuart Island

Watershed	Agricultural Category	Total
Unidentified	All	31
	Unspecified	31
Total		31

Table D-22. Acres of Farms in Geologically Hazardous Areas, by Agricultural Category, by Agricultural Category, on Waldron Island

Watershed	Agricultural Category	Total
Unidentified	All	7
	Unspecified	7
Total		**7**

Frequently Flooded Areas

Table D-23. Acres of Farms that are in Frequently Flooded Areas, by Watershed, by Agricultural Category - Summary

Island	Watershed	Acres
Lopez	All	154
	Aleck Bay	3
	Davis Bay	116
	Fisherman Bay	0
	Hughes Bay	2
	Iceberg Point	0
	Lopez Sound	2
	Mackaye Harbor	3
	Shoal Bay	1
	Swift Bay	22
	Unidentified	4
Orcas Island	All	18
	Deer Harbor	6
	Eastsound	0
	President Channel	1
	West Sound	10
	Unidentified	1
San Juan	All	42
	False Bay	14
	Friday Harbor	1
	Garrison Bay	17
	Haro Strait	4
	Westcott Bay	5
	Unidentified	1
Shaw	All	1
Stuart	All	3
Waldron	All	2
Total		154

Table D-24. Acres of Farms in Frequently Flooded Areas, by Watershed, by Agricultural Category, on Lopez Island

Watershed	Agricultural Category	Acres
Aleck Bay	All	3
	Unspecified	3
Davis Bay	All	116
	Hay/ pasture	55
	Livestock	37
	Multiple Enterprises	17
	Unspecified	7
	Vegetables and Fruit	1
Fisherman Bay	All	0
	Livestock	0
Hughes Bay	All	2
	Hay Pasture / Not CUFA	2
Iceberg Point	All	0
	Unspecified	0
Lopez Sound	All	2
	Livestock	2
	Livestock / Not CUFA	0
Mackaye Harbor	All	3
	Unspecified	3
Shoal Bay	All	1
	Unspecified	1
Swift Bay	All	22
	Hay Pasture / Not CUFA	0
	Hay/ pasture	12
	Livestock	7
	Livestock / Not CUFA	0
	Multiple Enterprises	2
	Vegetables and Fruit	1
Unidentified	All	4
	Unspecified	4
Total		154

Table D-25. Acres of Farms that are in Frequently Flooded Areas, by Watershed, by Agricultural Category, on Orcas Island

Watershed	Agricultural Category	Acres
Deer Harbor	All	6
	Unspecified	6
Eastsound	All	0
	Unspecified	0
President Channel	All	1
	Livestock	1
West Sound	All	10
	Unspecified	10
Unidentified	All	1
	Unspecified	1
Total		18

Table D-26. Acres of Farms that are in Frequently Flooded Areas, by Watershed, by Agricultural Category, on San Juan Island

Watershed	Agricultural Category	Acres
False Bay	All	14
	Hay/ pasture	1
	Livestock	10
	Livestock / Not CUFA	3
Friday Harbor	All	1
	Hay/ pasture	1
Garrison Bay	All	17
	Livestock	16
	Unspecified	1
Haro Strait	All	4
	Hay/ pasture	4
Westcott Bay	All	5
	Multiple Enterprises	2
	Unspecified	2
	Vegetables and Fruit	2
Unidentified	All	1
	Hay/ pasture	1
	Multiple Enterprises	0
Total		42

Table D-27. Acres of Farms that are in Frequently Flooded Areas, by Watershed, by Agricultural Category, on Shaw Island

Watershed	Agricultural Category	Acres
Unidentified	All	1
	Unspecified	1
Total		1

Table D-28. Acres of Farms that are in Frequently Flooded Areas, by Watershed, by Agricultural Category, on Stuart Island

Watershed	Agricultural Category	Acres
Unidentified	All	3
	Unspecified	3
Total		3

Table D-29. Acres of Farms that are in Frequently Flooded Areas, by Watershed, by Agricultural Category, on Waldron Island

Watershed	Agricultural Category	Acres
Unidentified	All	2
	Unspecified	2
Total		2

Appendix E
Monitoring Metrics and Reporting Requirements

An overview of the monitoring metrics, logistics, and schedule is provided in tables E-1 and E-2 below. Under the VSP, SJICD is responsible for monitoring and reporting, assuming funding is provided. If funding is not provided, the County will adhere to the requirements in RCW 36.70A.735 to protect critical areas.

Reporting will occur as follows:

1. Biennial reports, beginning August 31, 2019 and every two years after.
2. Five-year and 10-year reports from Plan Implementation (due by December 31st, 2020 and 2025).

Reports will document the level of participation activities, ISPs, and projects, as well as stewardship activities undertaken under the VSP. It is assumed that funding will continue to be available to accomplish monitoring efforts undertaken as a part of the VSP.

Monitoring Frequency to Document Effects on Critical Areas and Agriculture relevant to the Protection and Enhancement Benchmarks

- Wetlands – Wetland reconnaissance at initial site visit and every five years. Annual visits may occur if wetland restoration is pursued, to document changes in wetland acreage during the first 5 years.
  - Coordinate with San Juan County Community Development and GIS to correct wetland area mapping as appropriate.
  - Document changes in wetland acreage using San Juan County GIS wetland layers annually.
  - Monitor change in the percent cover of appropriate native vegetation every five years or more frequently if planting occurs using data collected from ISPs and correlated with WDFW HRCD imagery.
  - Monitor change in area every five years using San Juan County GIS mapping.
- Streams – Use SVAP2 at initial site visit, and every two and five years.
- Water Quality – Water quality sampling will occur both at VSP sampling sites within priority watersheds identified below.
- Water Quantity – Conduct annual count of participation, stewardship, and effects on Critical Areas metrics. Flow will be measured at 6 sites, roughly monthly, from November – May each year to establish baseline.
- Climate Resilience – See metrics in Table E-1.

A detailed discussion of water resource monitoring is included below.

If the monitoring detects degradation at the watershed scale, an adaptive management approach will be initiated as discussed in Section 7. If degradation is detected at the site scale, SJICD planners will work with land managers on a voluntary basis, offering technical assistance, and potentially financial assistance to address concerns. Areas with known environmental concerns will be prioritized for potential funding.

VSP Water Resource Monitoring

VSP water resource monitoring will build off of existing San Juan County Water Resource Program Monitoring. San Juan County's current storm and surface water monitoring is based off of recommendations from Stillwater Sciences, 2012, 2014, and subsequent water quality monitoring results. There are currently 23 storm and surface water monitoring sites identified to be monitored under the VSP. Monitoring at these sites will be for temperature, pH, DO, turbidity, salinity, conductivity, fecal coliform, E. coli, total nitrogen, and total phosphorous.

Storm water sites are to be sampled 3 times per year, following standard stormwater sampling protocols. Storm water samples will be collected during first flush (September to October time-frame), once during December through February to document a large storm event, and once during March – April during dry weather.

For surface water sites, 6 metered samples will be collected, at roughly monthly intervals, from November through May to measure and build surface water flow rating curves. During all site visits metered water quality measures will be taken in the field following standard protocols. In addition, 3 water quality samples will be taken at the flow sites to look at nutrients and bacteria from November – May.

- Water Quality
  - Bacterial: Fecal coliform, E. coli, Total coliforms,
  - In situ – all parameters covered by Quanta multimeters: Temp, DO, salinity, Specific conductivity, turbidity, and pH
  - Total nitrogen and phosphorous
  - Nitrates

While the VSP flow monitoring will begin with 24 sites, the goal is to eventually have a program for surface water monitoring to address each of the critical area/agriculture overlaps to include:

- Flow metering at mid-stem and near mouth of main stems of VSP priority watersheds
- Temperature/barometric/level loggers at impoundments and near mouth of priority watersheds
- Water quality analysis near mouth of main stems of priority watersheds

In an effort to better inform hydrologic conductance within watersheds, additional rain gauge and/or tipping bucket installations will be established wherever possible and citizen scientists/VSP cooperators should be instructed and tasked with uploading information to the CoCoRhas network.

CocoRhas is the acronym for the Community Collaborative Rain, Hail and Snow network that collects precipitation data at numerous locations throughout the country. Eleven stations are present in San Juan County. More information on the CocoRhas network is available on-line at: https://www.cocorahs.org/ViewData/CountyDailyPrecipReports.aspx?state=WA&county=SJ

The section below identifies specific monitoring metrics for priority salmon recovery watersheds throughout San Juan County.

VSP Water Resource Monitoring Network Details

The section below identifies specific monitoring metrics for priority salmon recovery watersheds throughout San Juan County. Monitoring will occur on property accessible by public right away, or through access voluntarily provided by a private landowner. Data collected through San Juan County's Salmon Recovery Program may be included in VSP's overall watershed-based reporting.

Priority Salmon Recovery Watersheds (*Identified by stream main stem)*

- **Hummel Creek (Swift Bay Watershed) Lopez Island**
  - Level, temperature, water quality in Hummel Lake
  - Temperature and flow in Hummel Creek approximately halfway to Swift Bay
  - Temperature and water quality in Hummel Creek near Swift Bay outlet
- **Rowboat Cove (Davis Bay Watershed) Lopez Island**
  - Temperature, flow, and water quality data from some point near headwaters (source)
  - Temperature and levels in any major impoundments (ponds > 5 acres)
  - Temperature, flow, and water quality data from near Davis Bay
- **Mya Cove (Davis Bay Watershed) Lopez Island**
  - Temperature, flow, and water quality data from some point near headwaters (source)
  - Temperature and levels in any major impoundments (ponds > 5 acres)
  - Temperature, flow, and water quality data from near Davis Bay
- **Doe Bay Creek (Doe Bay Watershed) Orcas Island**
  - Originates out of NWI wetland
    - Wetland has been mostly confined to small pond and stream with narrow riparian corridor
  - Temperature, flow, and water quality data from a point upstream of Point Lawrence Road and downstream of pond on parcel #173512002000
  - Temperature and levels in any major impoundments (ponds > 5 acres)
  - Temperature, flow, and water quality data from near Doe Bay
- **Fish Trap Creek (Deer Harbor Watershed) Orcas Island**
  - Flow is limited due to large impoundment near headwaters; there has been previous contact with landowner via Salmon Recovery Board, and they are willing to repair dam and install valve to allow streamflow. Once flow is restored to the system, monitor:

  - Level, temperature, and water quality at impoundment
  - Flow and temperature near mid-stem of channel
  - Flow, temperature, and water quality near Cayou Lagoon

- **West Beach Creek (Presidents Channel Watershed) Orcas Island**
  - Appears to originate out of NWI identified wetlands. There are also several ponds in what may be considered the "headwater" area. Additional data required to understand connectivity and extent of headwaters.
  - Assuming there is a culvert under West Beach Road between Cadden Lane and Red Cross Quarry Road, this would be a good location for temperature and level data
  - This creek does pass through some agricultural lands so establishing baseline water quality data near the outlet would be good. The same site can be used for future effectiveness monitoring (perhaps a spot off Enchanted Forest Road).

- **Crow Valley Creek (Westsound Watershed) Orcas Island**
  - At approximately 2.5 miles, it is one of the longest streams in the county and runs through many agricultural plots. Headwaters appear to be impounded, possibly affecting flow and temperature of system. Additional data are required.
  - A basic assessment of the ponds near the natural headwaters for baseline data – size, depth, vegetation types, and management practices
  - If possible, outflow data from lowest elevation pond in headwaters
  - Stage gauge along with Level and temp data from site near crossing at Nordstrom's Lane
    - Use this location for Swoffer flow monitoring as well in order to establish a rating curve
  - Stage, level, temperature, and water quality parameters from near the mouth
    - There was a gauge installed near the estuary at one point, and it may still be in place.

- **Bayhead Creek (G&G Coves Watershed) Orcas Island**
  - Level, temperature, and outflow from pond (management/operation plan if available)
    - Install gauging station approximately 200' downstream of Meadow Brook Lane with staff gauge, temperature, and level logger. Obtain flow data with Swoffer and implement scheduled water quality sampling.

- **False Bay Creek (False Bay Watershed) San Juan Island**
  - Utilize existing and recent historical water quality data from the San Juan County Stormwater Monitoring Program (SWMP) for baseline
  - Utilize future water quality data acquirement from existing San Juan County SWMP sites (see "Existing Stormwater Monitoring Network" attachment
  - Implement monitoring recommendations from Northwest Hydraulic Consultants that arose from the PIFA False Bay Watershed Hydrologic & Habitat Assessment. Entire document available upon request and includes the following:
    - Datalogger installations on upper and lower Zylstra Lakes
    - Three step process to define water flows leaving Lower Zylstra
      - Sealing of the stop logs to prevent leakage

  - There are currently three exit points on Lower Zylstra, so raising the stop log weirs on two of them by 3" will force flows to exit at only one
  - Install a V-notch weir plate across the exit point weir to allow for more accurate flow calculations
- Moving of existing station at Bailer Hill Road to a little further downstream of the culvert in conjunction with the addition of another station upstream of the culvert on Land Bank property
  - The station on Land Bank property will be most effective once channel restoration is begun
- Collaborate with Town of Friday Harbor to use data from their diversion and water treatment facility
- Installation of an ultrasonic Doppler velocity sensor and a water depth sensor inside the culvert San Juan Valley Road on San Juan Creek – the main tributary to False Bay Creek (Stuart, 2016).

- **Garrison Creek (Garrison Bay Watershed) San Juan Island**
  - Utilize existing and recent historical water quality data from the San Juan County Stormwater Monitoring Program (SWMP) for baseline
  - Utilize future water quality data from existing San Juan County SWMP sites (SJICD works cooperatively with San Juan County Public Works and San Juan County Health and Community Services in their water quality data collection and analysis. Reporting will include these data as appropriate).
  - There are several ponds in the lower elevations along this waterway
    - Work with private property owners to gain access for initial pond assessment of size, depth, vegetation types, management practices, etc.
    - Level and temperature logger in largest pond on States Inn & Ranch property (parcel # 463632007000)
    - Installation of in-stream gauging station on upstream side of Yacht Haven Road for level, temperature, and flow measurements

Stormwater Focus Watersheds (*Identified by receiving bay)*

False Bay and Garrison Bay on San Juan Island are already covered in Salmon Recovery Priority Watersheds. All other Stormwater Focus Watersheds not listed here have been dropped as part of VSP since they are urban-focused and do not intersect with agricultural activities.

- **Eastsound (stream that empties into Judd Cove) Orcas Island**
  - Temperature, flow, and water quality data from some point near headwaters (source)
  - Temperature and levels in any major impoundments (ponds > 5 acres)
  - Temperature, flow, and water quality data from near Judd Cove

Methods

WDFW High Resolution Aerial Imagery Change Detection. Advances in digital imaging and Federal initiatives to monitor agriculture have led to the acquisition of state-wide 1-m aerial imagery for 2006, 2009, 2011, 2013 and 2015 (hereafter referred to as the NAIP data). HRCD quantifies canopy loss and new impervious and semi-pervious surface and provides information as to the likely cause of change (e.g. forestry, development, stream migration) for events as small as 1/20th of an acre. The high accuracy, fine scale, and broad scope of this data set provides a unique opportunity to address land use and land cover questions. San Juan County, through the SJICD, proposes to use WDFW's HRCD model to track the change in % cover of critical areas every 5 years.

Stream Visual Assessment Protocol Version 2 (SVAP2). The Stream Visual Assessment Protocol (SVAP) is a national protocol that provides an evaluation of the overall condition of wadeable streams, their riparian zones, and their instream habitats. The SVAP2 is a qualitative assessment tool that measures 14 elements to evaluate features that affect overall stream conditions at the property level. These 14 elements are correlated to stream function. The tool assesses visually apparent physical, chemical, and biological features within a specified reach of a stream corridor. San Juan County proposes to use SVAP2 to establish the baseline monitoring for streams where they intersect with agricultural activities under VSP. SVAP2 will be used during the initial site evaluation, and again every 2 years, for the initial 5 year reporting period. If, at the first 5 year monitoring report, no changes have been detected between SVAP2 metrics during 2 year intervals, then it will be proposed that SVAP2 data collection occur every 5 years.

SVAP2, as stated in the introduction to the protocol is: "a qualitative assessment tool to evaluate features that affect overall stream conditions at the property level. The tool assesses visually apparent physical, chemical, and biological features within a specified reach of a stream corridor….It…provide{s} a means to assess site conditions in the context of a larger watershed." For the purposes of San Juan County's VSP, SJICD staff are trained in the application and use of SVAP2. It provides a means of collecting baseline data at the parcel scale that can be reviewed within a watershed context. It provides quantitative scores, based on the presence of physical features, for the following elements on a scale of 0 to 10:

- Channel condition
- Hydrologic alteration
- Bank condition
- Riparian area quality and quantity
- Canopy cover
- Water appearance
- Nutrient enrichment
- Manure or human waste presence
- Pools
- Barriers to aquatic species movement
- Fish habitat complexity
- Aquatic invertebrate habitat

- Aquatic Invertebrate community (invertebrate sampling)
- Riffle embeddedness
- Salinity

Results of SVAP2 are recorded with an aggregate score for the stream reach assessed, but it is also possible to view reach scores by individual element, and to compare both aggregate scores, as well as individual element reach scores, over time. For the purposes of VSP the stream reach will be defined by each ISP participant's parcel. SJICD does not anticipate collecting data for invertebrate sampling or salinity, though these are elements of the method. The intent of using SVAP2 is to use a transparent, science-based, easily repeatable method that allows for comparison over time, and is appropriate for the scale of VSP implementation in San Juan County.

San Juan County GIS mapping of Critical Areas. San Juan County's VSP Program relies on existing GIS mapping of Critical Areas. Changes to critical areas will be documented annually on VSP participating properties, and provided to San Juan County's Community Development Department for their review and approval. Once reviewed and approved, San Juan County CD&P will submit map changes to San Juan County GIS. These changes will provide the basis for measuring against baseline, in combination with other projects which may result in changes to critical areas mapping, such as salmon recovery-funded stream restoration projects, for example. Changes to stream and wetland acreage and the change in the percentage of vegetative cover will be reported on in biennial, and 5 and 10 year monitoring reports.

Water Quality Monitoring.

A Quality Assurance Project Plan and Standard Operation Procedures that meets Department of Ecology and EPA guidelines will be developed for all water quality monitoring under this Plan. San Juan County Health and Community Services and WSDOH groundwater data will be reviewed for biennial, 5- and 10-year reporting.

Table E-1. Monitoring Metrics across Critical Areas

Monitoring Metrics across Critical Areas

Monitoring Metrics	CRITICAL AREAS					CLIMATE	LOGISTICS		
	Wetlands	FWHCA: Streams	Critical Aquifer Recharge Areas	Frequently Flooded Areas	Geologically Hazardous Areas	Climate Change Resilience	Frequency	Method	Location
PARTICIPATION									
# acres	●	●					Annual	ISP totals/ SJC GIS	County-wide
# participants	●	●	●	●	●	●	Annual	ISP totals	County-wide
# of participants planting native plants	●	●				●			
# of BMPs aimed at increasing surface water storage	●	●	●	●		●	Annual	CS Projects	County-wide
# of BMPs targeted to improve irrigation efficiencies	●	●	●			●	Annual	CS Projects	County-wide
STEWARDSHIP									
acreage protected by fencing	●	●	●	●	●		Annual	CS Projects	County-wide
acreage protected by seasonal grazing	●	●	●	●			Annual	CS Projects	County-wide
acreage/area restored	●	●				●	Annual	SJC GIS	County-wide
# and type of infrastructure installed	●	●					Annual	CS Projects	County-wide
# of manure management facilities installed	●	●	●				Annual	CS Projects	County-wide
# and type of erosion control BMPs installed	●	●	●	●		●	Annual	CS Projects	County-wide
WATER QUALITY									
water quality samples (pH, temp, DO, salinity, turbidity, conductivity, nutrients, metals, bacteria)		●					2X Year	Field Samples	See Table E-2
WATER QUANTITY									
# of catchment systems installed	●		●	●		●	Annual	CS Projects	County-wide
# of livestock watering systems installed	●			●			Annual	CS Projects	County-wide
in-stream flow data		●				●	Seasonal	Field Measures	See Table E-2
HABITAT									
% native veg cover that intersects with agriculture	●	●					5-year	HRCD/SJC GIS	Ag Land
acreage planted with native species	●	●				●	Annual	CS Projects	Ag Land
# of BMPs implemented to improve habitat	●	●					Annual	CS Projects	County-wide
% cover by invasive species		●					2-year	SVAP2 results	Streams w/ Ag
# of fish passage barriers removed		●					2-year	SVAP2 results	Streams w/ Ag
streamflow		●					6x/year	SJICD VSP	Streams w/ Ag
Bird, vegetation, or amphibian surveys	●						5-year	Std. protocals	Wetlands w/ Ag
Channel and bank condition		●					2-year	SVAP2	Streams w/ Ag
Hyrdologic alteration		●					2-year	SVAP2	Streams w/ Ag
Riparian area quality and quantity		●					2-year	SVAP2	Streams w/ Ag
Canopy cover		●					2-year	SVAP2	Streams w/ Ag
Water appearance		●					2-year	SVAP2	Streams w/ Ag
Nutrient enrichment		●					2-year	SVAP2	Streams w/ Ag
Manure or human waste presence		●					2-year	SVAP2	Streams w/ Ag
Pools		●					2-year	SVAP2	Streams w/ Ag
Barriers to aquatic species movement		●					2-year	SVAP2	Streams w/ Ag
Fish and aquative invertebrate habitat complexity		●					2-year	SVAP2	Streams w/ Ag
Riffle embeddedness		●					2-year	SVAP2	Streams w/ Ag

Table E-2. Monitoring Metrics and Locations			
Metrics	**Lopez Island**	**Orcas Island**	**San Juan Island**
Flow, level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous	Swift Bay Watershed (Hummel Creek)	Doe Bay Watershed (Doe Bay Creek)	False Bay Watershed (False Bay Creek)
Flow, level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous		President's Channel Watershed (West Beach Cr.)	Garrison Bay Watershed (Garrison Creek)
Flow, level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous		West Sound Watershed (Crow Valley Creek)	
Flow, level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous		G&G Coves Watershed (Bayhead Creek)	
Flow, level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous		Eastsound Watershed	
Level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous	Shoal Bay Watershed	Deer Harbor Watershed (Fish Trap Creek)	San Juan Watershed (2 locations)
Level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous	Fisherman's Bay Watershed		Griffin Bay Watershed
Level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous	Lopez Sound Watershed		Juan de Fuca Straight Watershed
Level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous	Davis Bay Watershed (Rowboat & Mya Cove)		
Level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous	Mud Bay Watershed		
Level, temp, pH, DO, turbidity, salinity, conductivity, fecal coliform, E.coli, total coliforms, nitrogen, phosphorous	Hughes Bay Watershed		

Appendix F
San Juan County Fish & Wildlife Habitat Conservation Areas Ordinance SJCC 18.35.110

San Juan County Code, Title 18.35.115 Fish and wildlife habitat conservation areas – Types of fish and wildlife habitat conservation areas (FWHCAs).

Following are the types of fish and wildlife habitat conservation areas protected by these regulations. Fish and wildlife habitat conservation areas do not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.

A. Areas with which Endangered, Threatened and Sensitive Species Have a Primary Association.

1. Animal species listed under the state or federal Endangered Species Acts as of the adoption date of the ordinance codified in this section are identified below.

Birds[1]
Brown pelican
Common loon
Marbled murrelet
Peregrine falcon
Marine Mammals
Southern resident orca
Steller sea lion
Humpback whale
Gray whale
Sea otter
Insects
Taylor's checkerspot butterfly
Fish
Salmon
Chinook – Puget Sound Evolutionary Significance Unit
Chum – Hood Canal summer run Evolutionary Significance Unit
Steelhead – Puget Sound Distinct Population Segment
Rockfish
Bocaccio (In SJC code: Boccocio {stet}) – Georgia Basin Distinct Population Segment
Canary – Georgia Basin Distinct Population Segment
Yelloweye – Georgia Basin Distinct Population Segment

[1] The bald eagle has been delisted but continues to be protected under other statutes.

2. Plants listed under the state or federal Endangered Species Acts as of the adoption date of the ordinance codified in this section are identified below.

Adder's-tongue (Ophioglossum pusillum)
Arctic aster (*Eurybia merita*)
Blunt-leaved pondweed (*Potamogeton obtusifolius*)
California buttercup (*Ranunculus californicus*)
Coast microseris (*Microseris bigelovii*)
Erect pygmy-weed (*Crassula connata*)
Few-flowered sedge (*Carex pauciflora*)
Golden paintbrush (*Castilleja levisecta*)
Lesser bladderwort (*Utricularia minor*)
Nuttall's quillwort (*Isoetes nuttallii*)
Slender crazy weed (*Oxytropis campestris* var. *gracilis*)
Rosy owl-clover (Orthocarpus bracteosus)
Rush aster (Symphyotrichum boreale)
Sharpfruited peppergrass (*Lepidium oxycarpum*)
Twayblade (Liparis loeselii)
Water lobelia (*Lobelia dortmanna*)
White meconella (*Meconella oregana*)
White-top aster (*Sericocarpus rigidus*)

B. Shellfish areas;

C. Kelp and eelgrass beds;

D. Herring, smelt, sand lance and other forage fish spawning areas;

E. Naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat;

F. The following waters of the state: lakes and streams;

G. State natural area preserves, natural resource conservation areas and state wildlife areas;

H. Habitats of Local Importance.

1. Critical Salt Water Habitats. These habitats include all kelp beds; eelgrass beds; spawning and holding areas for forage fish, such as herring, smelt and sandlance; subsistence, commercial and recreational shellfish beds; mudflats; intertidal habitats with vascular plants; and areas with which priority species have a primary association.
2. West side prairie.
3. Herbaceous balds and bluffs.
4. Garry oak (*Quercus garryana*) woodlands and savannas.
5. Pocket beaches.
6. Bluff backed beaches.

I. Areas with which the following species of local importance have a primary association:

1. Black oystercatcher.
2. Golden eagle.
3. Great blue heron.
4. Island marble butterfly.
5. Pigeon guillemot.
6. Townsend's big-eared bat.
7. Flying squirrel.
8. Sharp-tailed snake.
9. Western toad.
10. Taylor's checkerspot butterfly.
11. Great arctic butterfly.
12. Valley silverspot butterfly.
13. Sand verbena moth.
14. Areas with roosting concentrations of bats (all species).
15. Active nests of any of the following birds: golden eagle, northern harrier, merlin, black oystercatcher, Wilson's snipe, short-eared owl, long-eared owl, northern pygmy owl, sooty grouse, common nighthawk, American dipper, western bluebird, chipping sparrow, vesper sparrow, horned lark, western meadowlark, western screech owl, lazuli bunting, and American kestrel.
16. 16. Brittle prickly pear cactus (*Opuntia fragilis*).
17. 17. Alaska alkaligrass (*Puccinellia nutkaensis*). (Ord. 1-2015 § 3; Ord. 2-2014 § 10; Ord. 29-2012 § 1; Ord. 12-2001 § 4; Ord. 2-1998 Exh. B § 3.6.9. Formerly 18.30.160(B))
18. 18.35.120 Fish and wildlife habitat conservation areas – Maps.

Maps of FWHCAs, including those created and maintained by state and federal agencies, are available from San Juan County. These maps show lakes, the location and type of most streams, and the approximate location of some protected species and habitats. These maps are however only a guide to the possible location of these critical areas, and conditions in the field control. Maps showing habitats and species that have been positively identified, including Type F streams, shall however be presumed to be correct until proven otherwise by a qualified professional. (Note: Though state regulations prohibit general dissemination of detailed maps showing the location of protected species, staff can provide available information for particular sites.) (Ord. 1-2015 § 3; Ord. 2-2014 § 10; Ord. 29-2012 § 1; Ord. 12-2001 § 4; Ord. 2-1998 Exh. B § 3.6.9. Formerly 18.30.160(C))

18.35.125 General protection standards for all FWHCAs.

A. Lighting.

Exterior lighting fixtures must be shielded and the light must be directed downward and away from streams, lakes, ponds designated as FWHCAs, the marine shoreline, and habitat of specific animals protected under this section.

B. Final Inspections and Financial Guarantees.

Unless exempt under SJCC 18.35.020 through 18.35.050, all development activities, vegetation removal and other site modification requiring a project or development permit must have a final inspection to verify compliance with approved plans and the requirements of this section. The property owner shall notify the department when the work is complete and ready for inspection. For permitted projects that are not complete at the time that any associated building construction is completed, or for those that do not occur in conjunction with a permitted structure, the director may require a financial guarantee and associated agreement in conformance with Chapter 18.80 SJCC. (Ord. 1-2015 § 3; Ord. 2-2014 § 10; Ord. 29-2012 § 1; Ord. 12-2001 § 4; Ord. 2-1998 Exh. B § 3.6.9. Formerly 18.30.160(D))

18.35.130 Protection standards for aquatic fish and wildlife habitat conservation areas (FWHCAs).

This subsection establishes protection standards for aquatic FWHCAs including a site-specific procedure for sizing buffers and tree protection zones.

Aquatic FWHCAs are those that contain or are inundated with water at some time during a normal year as follows:

1. Streams.
2. Lakes.
3. Naturally occurring ponds that provide fish and wildlife habitat.
4. Shellfish areas.
5. Kelp and eelgrass beds.
6. Spawning and holding areas for forage fish.
7. Mudflats.
8. Intertidal habitats with vascular plants.
9. Pocket beaches.
10. Bluff backed beaches including associated feeder bluffs.
11. Areas with which the following have a primary association: brown pelican; common loon; marbled murrelet; peregrine falcon; southern resident orca; Steller sea lion; humpback whale; gray whale; sea otter; designated stocks of steelhead and chinook and chum salmon; boccocio rockfish; canary rockfish; yelloweye rockfish; black oystercatcher; great blue heron; and pigeon guillemot.

A. Sizing Procedures for Buffers and Tree Protection Zones.

This subsection provides a site-specific procedure for determining the size of vegetative buffers and tree protection zones necessary to protect aquatic FWHCAs. Three separate components are considered: a water quality buffer that applies in all cases, tree protection zones that apply to areas with trees, and a coastal geologic buffer that applies to areas subject to erosion caused by currents, tidal action, or waves. For properties with characteristics that vary (e.g., a portion of the parcel has trees or a geologically hazardous area, and other areas of the parcel do not), the size of required

buffers and tree protection zones may vary, resulting in buffers and tree protection zones that are larger in some areas and smaller in others. (Note: SJCC 18.50.330 also contains setback standards for marine shorelines and lakes over 20 acres.)

Appendix G
Agricultural Viability Survey and Results

Agricultural Viability 2017 Survey Results can be accessed at the following link:
https://static1.squarespace.com/static/57732786f5e231100a586a29/t/59f7a6d3e31d194935e5926d/1509402338178/SJCD17+Data+Report+17-10.pdf

Appendix H

Maps: Agricultural Activities and Critical Areas Intersections

Maps can be downloaded at the following link:

https://s3-us-west-2.amazonaws.com/sjcgis-data/Project.zip