San Juan County
Voluntary Stewardship Program
2024 Adaptive Management Plan

by San Juan Islands Conservation District,
on behalf of the San Juan County VSP Work Group

June 20, 2024

Contents

Introduction

This Adaptive Management Plan is an update to the currently used 2021 Adaptive Management Plan. This version of the 2024 Adaptive Management Plan was submitted alongside the 2024 Monitoring Plan and includes the incorporation of newly available tools in addition to a clarification of goals, benchmarks, and metrics used to monitor and report on San Juan County Voluntary Stewardship Program Work Plan progress to meet the goals of protecting and enhancing critical areas on farmland while maintaining agricultural viability in San Juan County. This plan is intended to replace the 2021 Adaptive Management Plan. It is also intended to replace Table 13 in the original San Juan County VSP Work Plan, as well as individual goals, benchmarks, and metrics found in Chapter 5 of the Work Plan. The Work Plan is available at: https://sccwagov.app.box.com/s/z4xzvoo5c54dz3hnkb3ixxc79rwsx7iu

Summary of Changes

Several changes were made to increase consistency in language in the plan and provide clarity on the what, why, and how of each monitoring goal and benchmark. A column for tools was added in reference to the 2024 Monitoring Plan to document the assessments needed for each metric. Language was also clarified in the heading of the column now titled "2011 Baseline Metrics and Tools Used" to demonstrate how pre-2011 baseline conditions were gathered and/or established. This column serves to highlight current and possible future discrepancies between how baseline data was gathered and how San Juan County is now gathering data as it accommodates and adapts to newly available and more suitable tools. It also accommodates for baseline dates that were established after the 2011 baseline year standard.

One such tool that was explored in the 2024 Monitoring Plan is the Washington Department of Ecology's Wetland Rating System. The San Juan County VSP Work Group previously used NRCS's Biology Technical Note-14 as the best available tool to assess wetlands conditions. The Work Group found that the tool did not adequately answer the question of meeting protection and enhancement benchmarks of wetland functions and values. While San Juan County will continue to utilize Tech Note-14 to assess habitat in upland areas and frequently flooded areas, the county will no longer use this tool to monitor wetlands; instead, wetland functions and values of water quality, hydrology, and habitat will be assessed using the Wetland Rating System.

Monitoring

The two broad types of monitoring that will take place for every goal have remained the same: implementation monitoring and effectiveness monitoring. Implementation monitoring is the most basic level of monitoring used to determine what has been accomplished on the ground, i.e., which BMPs have been implemented, and how much. Effectiveness monitoring will attempt to address the question of how well critical areas on farmland are being protected and/or enhanced. Both types of monitoring will reference baseline conditions in 2011, where possible. When 2011 baseline conditions are unattainable due to BMP implementation since that time, it is assumed that as long as the BMP has been maintained and meets the NRCS standard, that the enhancement goal for implementation was met on that particular property. While many of these implementation monitoring goals have remained the same, this plan expands upon the tools used to collect this data. San Juan County will rely on data gathered from the San Juan Islands Conservation District, the VSP administrators for the county, in a BMP Implementation Survey, ISP site visits, and restoration work. Data will also be retrieved from partners such as the County and NRCS for additional restoration and EQIP implementation.

Effectiveness monitoring will be achieved using two types of analysis: spatial analysis and field monitoring. Washington's Department of Fish and Wildlife High Resolution Change Detection (HRCD) data will continue to be used to monitor changes in all critical areas that intersect with farmland. Results from HRCD analysis will provide an understanding of where changes are occurring on the landscape and can help to focus field monitoring and outreach in those change locations. Since HRCD is not designed to measure habitat gains, this data will only be used to monitor progress toward protection goals, i.e., maintaining baseline rates of change since 2011.

Spatial analysis will also continue to be used in a small number of cases where streams intersect with land capability subclass “e” soils. Change in stream buffer widths will be measured using GIS and high resolution imagery to monitor vegetative buffers that help protect surface water quality from sedimentation that could occur on class e soils.

Field monitoring will now consist of the following:

- For wetlands, ECY Wetland Rating System
- For stream habitat in FWHCAs, Stream Visual Assessment Protocol, version 2, elements 4, 5, and 6
- For stream surface water quality in FWHCAs, Stream Visual Assessment Protocol, version 2, elements 8, 9, and 14; water quality in-stream testing, when available[1]
- For upland habitat associated with FWHCAs, NRCS Biology Technical Note-14
- For Frequently Flooded Areas, NRCS Biology Technical Note-14

Detailed protocols for each type of monitoring have been developed and will be used to guide all future monitoring for VSP. See the 2024 Monitoring Plan for more details on how monitoring activities will occur.

[1] The previously mentioned University of Washington- Friday Harbor Laboratories False Bay Watershed water quality testing program referenced in the 2021 Adaptive Management Plan is no longer in existence due to the logistical and staffing difficulty of maintaining such a program on the islands. Water quality sampling data is available in shellfish growing areas through the Department of Health; this data will be utilized when available; however, this data excludes fresh surface water testing and is inconsistently available.

Table 1: New Goals and Benchmarks based on 2024 Adaptive Management

Critical Area	Goal	Benchmarks		Metrics	Tools	2011 Baseline Metrics and Tools Used[2]
WETLANDS	**Goal 1:** Protect wetlands	Implementation[3]				
		1.1	Maintain baseline quantity of all wetland-related BMPs in operation	Number and size of wetland related BMPs in operation	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of wetland-related BMPs in operation
		Effectiveness				
		1.2	Maintain baseline rates of canopy loss and impervious/semi-impervious gain within wetlands	Rate of canopy loss and impervious/ semi-impervious gain	HRCD	Rate of HRCD canopy loss and impervious/ semi-impervious gain within wetlands in agricultural areas
		1.3	Maintain wetlands functions of water quality, hydrology, and habitat over time	Wetland water quality, hydrological, and habitat assessment scores	Wetland Rating System[4]	Baseline data from 2018-2024 was collected using Tech Note-14 with each new ISP site visit; continue to establish baseline conditions using WRS assessments on identified parcels
	Goal 2: Enhance and/or restore wetlands	Implementation				
		2.1	Implement new wetland-related BMPs on farms with wetlands that have new ISPs written	Number and size of new wetland-related BMPs	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of wetland related BMPs in operation
		Effectiveness				
		2.2	Improve wetlands functions of water quality, hydrology, and habitat over time	Wetland water quality, hydrological, and habitat assessment scores	Wetland Rating System	Baseline data from 2018-2024 was collected using Tech Note-14 with each new ISP site visit; continue to establish baseline conditions with WRS scores for wetland water quality, hydrology, and habitat assessment prior to enhancement/restoration project

[2] Metrics used may have changed since 2011, given adaptive management.
[3] Critical area related BMPs for all implementation benchmarks are listed in Appendix A
[4] Adaptively managed in 2024 from previous NRCS Biology Technical Note-14

Critical Area	Goal	Benchmarks		Metrics	Tools	2011 Baseline Metrics and Tools Used[2]
						and on identified parcels, or collect baseline for enhancements that are already in place
FISH AND WILDLIFE HABITAT CONSERVATION AREAS: STREAMS	**Goal 3:** Protect Streams	Implementation				
		3.1	Maintain baseline quantity of all stream-related BMPs in operation	Number and size of stream-related BMPs in operation	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of stream-related BMPs in operation
		Effectiveness				
		3.2	Maintain baseline rates of canopy loss and impervious/ semi-impervious gain within riparian zones by mitigating recorded loss with BMPs	Rate of canopy loss and impervious/ semi-impervious gain	HRCD	Rate of HRCD canopy loss and impervious/ semi-impervious gain within riparian zones in agricultural areas
		3.3	Maintain stream habitat condition over time by monitoring and maintaining stream vegetation	Stream assessment scores for riparian area quantity, quality, and canopy cover	SVAP elements 4, 5, and 6	SVAP scores for elements 4, 5, & 6 (riparian area quantity, quality, and canopy cover)
		3.4	Maintain water quality in streams over time	Stream assessment scores for water quality proxy (nutrient enrichment, manure or human waste presence, aquatic invertebrate community) and water quality sampling when available	SVAP elements 8, 9, and 14; temperature; dissolved oxygen; water quality sampling when available	Water quality in-stream sampling and SVAP assessments; continue to establish baseline conditions using SVAP scores for elements 8, 9, and 14 (nutrient enrichment, manure or human waste presence, aquatic invertebrate community); temperature; and dissolved oxygen on identified parcels
	Goal 4: Enhance and/or restore streams	Implementation				
		4.1	Implement new stream-related BMPs on 75% of farms with streams that have new ISPs written	Number and size of new stream-related BMPs	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of stream-related BMPs in operation
		Effectiveness				

Critical Area	Goal	Benchmarks		Metrics	Tools	2011 Baseline Metrics and Tools Used[2]
		4.2	Improve stream habitat following enhancement and/or restoration project (increase in native plant cover, decrease in invasive plant cover)	Stream assessment scores for riparian area quantity, quality, and canopy cover	SVAP elements 4, 5, and 6	SVAP scores for elements 4, 5, & 6 (riparian area quantity, quality, and canopy cover) assessment prior to enhancement/restoration project and on identified parcels, or collect baseline for enhancements that are already in place
		4.3	Improve water quality following enhancement and/or restoration project	Stream assessment scores for water quality	SVAP elements 8, 9, 14; temperature; dissolved oxygen; water quality sampling when available	Water quality in-stream sampling and SVAP assessments; continue to establish baseline conditions using SVAP scores for elements 8, 9, and 14 (nutrient enrichment, manure or human waste presence, aquatic invertebrate community); temperature; and dissolved oxygen prior to enhancement/restoration project and on identified parcels, or collect baseline for enhancements that are already in place
FISH AND WILDLIFE HABITAT CONSERVATION AREAS: UPLAND HABITAT	**Goal 5:** Protect habitats and species of local importance	Implementation				
		5.1	Maintain baseline quantity of all upland habitat-related BMPs in operation	Number and size of upland habitat-related BMPs in operation	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of upland habitat-related BMPs in operation
		Effectiveness				
		5.2	Maintain baseline rates of canopy loss and impervious/semi-impervious gain within upland habitat	Rate of canopy loss and impervious/ semi-impervious gain	HRCD	Rate of HRCD canopy loss and impervious/semi-impervious gain within upland habitat in agricultural areas
		5.3	Maintain habitat functions over time	Habitat assessment scores	Tech Note-14	Habitat assessment scores during ISP site visits
		Implementation				

Critical Area	Goal	Benchmarks		Metrics	Tools	2011 Baseline Metrics and Tools Used[2]
	Goal 6: Enhance and/or restore habitats and species of local importance	**6.1**	Implement new habitat-related BMPs on farms with upland habitat that have new ISPs written	Number and size of new upland habitat-related BMPs	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of upland habitat-related BMPs in operation
		Effectiveness				
		6.2	Improve habitat functions following enhancement project	Habitat assessment scores	Biology Tech Note-14	Habitat assessment scores prior to enhancement project
GEOLOGICALLY HAZARDOUS AREAS	**Goal 7:** Avoid and minimize the impacts of sedimentation, erosion, and landslide hazards on water quality and fish and wildlife habitat by upland agricultural use	Implementation				
		7.1	Maintain baseline quantity of all GHA-related BMPs in operation	Number and size of GHA-related BMPs in operation	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of GHA-related BMPs in operation
		Effectiveness				
		7.2	Maintain baseline rates of canopy loss and impervious/semi-impervious gain within GHAs	Rate of canopy loss and impervious/semi-impervious gain	HRCD	Rate of HRCD canopy loss and impervious/semi-impervious gain within GHAs in agricultural areas
		7.3	Maintain vegetative buffer widths around streams and wetlands where they intersect with class e soils	Buffer width around streams and wetlands that intersect with class e soils	Spatial mapping	Buffer width along streams and wetlands that intersect with class e soils
	Goal 8: Enhance geologically hazardous areas	Implementation				
		8.1	Implement new GHA related BMPs on farms with GHAs that have new ISPs written	Number and size of new GHA-related BMPs	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of GHA-related BMPs in operation
		Effectiveness				

Critical Area	Goal	Benchmarks		Metrics	Tools	2011 Baseline Metrics and Tools Used[2]
		8.2	Increase vegetative buffers around streams and wetlands where they intersect with class e soils to a minimum of 50'	Buffer width around streams and wetlands that intersect with class e soils	Spatial mapping	Buffer width along streams and wetlands that intersect with class e soils
CRITICAL AQUIFER RECHARGE AREAS	**Goal 9:** Protect and maintain groundwater recharge	Implementation				
		9.1	Maintain baseline quantity of all groundwater recharge-related BMPs in operation	Number and size of groundwater recharge-related BMPs in operation	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of groundwater recharge-related BMPs in operation
		Effectiveness				
		9.2	Maintain baseline rate of impervious/semi-impervious gain within CARAs	Rate of impervious/ semi-impervious gain	HRCD	Rate of HRCD impervious/semi-impervious gain within CARAs in agricultural areas[5]
	Goal 10: Enhance groundwater recharge	Implementation				
		10.1	Implement new groundwater recharge-related BMPs on farms that have new ISPs written	Number and size of new groundwater recharge-related BMPs	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP	Number and size of groundwater recharge-related BMPs in operation
	Goal 11: Prevent the degradation of groundwater quality resources due to agricultural activities	Implementation				
		11.1	Maintain baseline quantity of all groundwater quality-related BMPs in operation	Number and size of groundwater quality-related BMPs in operation	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP	Number and size of groundwater quality-related BMPs in operation
	Goal 12: Enhance groundwater quality	Implementation				
		12.1	Implement new groundwater quality-related BMPs on farms that have new ISPs written	Number and size of new groundwater quality-related BMPs	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP	Number and size of groundwater quality-related BMPs in operation
		Implementation				

[5] Unlike other critical areas, a decrease in canopy cover may benefit CARAs specifically, due to increased aquifer recharging potential.

Critical Area	Goal	Benchmarks		Metrics	Tools	2011 Baseline Metrics and Tools Used[2]
FREQUENTLY FLOODED AREAS	**Goal 13:** Protect frequently flooded areas for habitat and groundwater recharge	**13.1**	Maintain baseline quantity of all FFA-related BMPs in operation	Number and size of FFA-related BMPs in operation	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of FFA-related BMPs in operation
		Effectiveness				
		13.2	Maintain baseline rates of canopy loss and impervious/ semi-impervious gain within FFAs	Rate of canopy loss and impervious/ semi-impervious gain	HRCD	Rate of HRCD canopy loss and impervious/semi-impervious gain within FFAs in agricultural areas
		13.3	Maintain habitat functions over time	Habitat assessment scores	Biology Tech Note-14	Habitat assessment scores during ISP site visits
	Goal 14: Enhance frequently flooded areas for habitat and groundwater recharge	Implementation				
		14.1	Implement new FFA-related BMPs on farms with FFAs that have new ISPs written	Number and size of new FFA-related BMPs	BMP Implementation Survey, ISP Site Visits, Cost Share, EQIP, restoration work	Number and size of FFA-related BMPs in operation
		Effectiveness				
		14.2	Improve overall habitat functions following enhancement project	Habitat assessment scores	Biology Technical Note-14	Habitat assessment scores prior to enhancement project
AGRICULTURAL VIABILITY	**Goal 15:** Maintain and improve agricultural viability over time	**15.1**	Maintain participation of at least eight agricultural producers per year	Number of ISPs written or updated per year	ISPs completed	
		15.2	Increase the proportion of farm acres with ISPs to 30% by 2025	Agricultural acres of farms with ISPs as a percent of total agricultural acres		As of May 2024, 31% of farm acres have ISPs.

Conclusion

In conclusion, this 2024 Adaptive Management Plan was designed to help San Juan County better meet its goals and benchmarks for protection and enhancement of critical areas on farmland. Many of the changes clarify how the San Juan Islands Conservation District will fulfill its responsibilities under the VSP Work Plan. San Juan County will continue to engage in evaluation of its Work Plan to adaptively manage and be better prepared to achieve its goals and benchmarks into the future.

Appendix

Table A - 1 Best Management Practices for Protection and Enhancement of Wetlands

Wetland-related BMPs		
Select practices that can help protect or improve wetland water quality, water quantity, and habitat.		
Name	**Practice Number**	**Description**
Access Control	472	The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.
Brush Management	314	The management or removal of woody (non-herbaceous or succulent) plants including those that are invasive and noxious.
Composting Facility	317	A structure or device to contain and facilitate an aerobic microbial ecosystem for the decomposition of manure, other organic material, or both, into a final product sufficiently stable for storage, on-farm use, and application to land as a soil amendment.
Cover Crop	340	Grasses, legumes, and forbs planted for seasonal vegetative cover.
Fence	382	A constructed barrier to animals or people.
Filter Strip	393	A strip or area of herbaceous vegetation that removes contaminants from overland flow.
Herbaceous Weed Treatment	315	The removal or control of herbaceous weeds including invasive, noxious, and prohibited plants.
Grassed Waterway (swale)	412	A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
Nutrient Management	590	Manage rate, source, placement, and timing of plant nutrients and soil amendments while reducing environmental impacts.
Restoration of Rare or Declining Natural Communities	643	Restoring, conserving, and managing unique or diminishing native terrestrial and aquatic ecosystems.
Wetland Enhancement	659	The augmentation of wetland functions beyond the original natural conditions on a former, degraded, or naturally functioning wetland site; sometimes at the expense of other functions.
Wetland Restoration	657	The return of a wetland and its functions to a close approximation of its original condition as it existed prior to disturbance on a former or degraded wetland site.
Wetland Wildlife Habitat Management	644	Retaining, developing, or managing wetland habitat for wetland wildlife.

Table A - 2 Best Management Practices for Protection and Enhancement of Streams

Stream-related BMPs		
Select practices that can help protect or improve water quality, water quantity, and riparian habitat, including fish passage barrier removal.		
Name	**Practice Number**	**Description (from NRCS Conservation Practice Standard sheets)**
Access Control	472	The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.
Brush Management	314	The management or removal of woody (non-herbaceous or succulent) plants including those that are invasive and noxious.
Composting Facility	317	A structure or device to contain and facilitate an aerobic microbial ecosystem for the decomposition of manure, other organic material, or both, into a final product sufficiently stable for storage, on-farm use, and application to land as a soil amendment.
Conservation Cover	327	Establishing and maintaining permanent vegetative cover .
Conservation Crop Rotation	328	A planned sequence of crops grown on the same ground over a period of time (i.e., the rotation cycle).
Cover Crop	340	Grasses, legumes, and forbs planted for seasonal vegetative cover.
Fence	382	A constructed barrier to animals or people.
Field Border	386	A strip of permanent vegetation established at the edge or around the perimeter of a field.
Filter Strip	393	A strip or area of herbaceous vegetation that removes contaminants from overland flow.
Forage and Biomass Planting	512	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production.
Grassed Waterway (swale)	412	A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
Heavy Use Area Protection	561	Stabilization or protection of an intensively used area.
Hedgerow Planting	422	Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.
Herbaceous Weed Treatment	315	The removal or control of herbaceous weeds including invasive, noxious, and prohibited plants.
Irrigation System, Micro-irrigation	441	An irrigation system for frequent application of small quantities of water on or below the soil surface as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line.
Irrigation Water Management	449	The process of determining and controlling the volume, frequency, and application rate of irrigation water.
Nutrient management	590	Manage rate, source, placement, and timing of plant nutrients and soil amendments while reducing environmental impacts.
Prescribed grazing	528	Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.
Residue and Tillage Management, No Till	329	Limiting soil disturbance to manage the amount, orientation, and distribution of crop and plant residue on the soil surface year around.
Restoration of Rare or Declining Natural Communities	643	Restoring, conserving, and managing unique or diminishing native terrestrial and aquatic ecosystems.
Riparian Forest Buffer	391	An area predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies.
Riparian Herbaceous Cover	390	Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.
Roof Runoff Structure	558	A structure that will collect, control, and convey precipitation runoff from a roof.
Stream Crossing	578	A stabilized area or structure constructed across a stream to provide controlled access for people, livestock, equipment, or vehicles.
Stream Habitat Improvement and Management	395	Maintain, improve, or restore physical, chemical and biological functions of a stream, and its associated riparian zone, necessary for meeting the life history requirements of desired aquatic species.

Streambank and Shoreline Protection	580	Treatment(s) used to stabilize and protect banks of streams or constructed channels and shorelines of lakes, reservoirs, or estuaries.
Structures for Wildlife	649	A structure installed to replace or modify a missing or deficient wildlife habitat component.
Tree-Shrub Establishment	612	Establishing woody plants by planting seedlings or cuttings, by direct seeding, and/or through natural regeneration.
Watering Facility	614	A watering facility stores or provides drinking water to livestock or wildlife.

Table A - 3 Best Management Practices for Protection and Enhancement of Upland Habitats

Upland Habitat-related BMPs		
Select practices that can help protect or improve habitats for species of local importance.		
Name	**Practice Number**	**Description**
Access Control	472	The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.
Brush Management	314	The management or removal of woody (non-herbaceous or succulent) plants including those that are invasive and noxious.
Conservation Cover	327	Establishing and maintaining permanent vegetative cover .
Cover Crop	340	Grasses, legumes, and forbs planted for seasonal vegetative cover.
Early Successional Habitat Development	647	Manage plant succession to develop and maintain early successional habitat to benefit desired wildlife and/or natural communities.
Fence	382	A constructed barrier to animals or people.
Field Border	386	A strip of permanent vegetation established at the edge or around the perimeter of a field.
Filter Strip	393	A strip or area of herbaceous vegetation that removes contaminants from overland flow.
Forest Stand Improvement	666	The manipulation of species composition, stand structure, or stand density by cutting or killing selected trees or understory vegetation to achieve desired forest conditions or obtain ecosystem services.
Grassed Waterway (swale)	412	A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
Heavy Use Area Protection	561	Stabilization or protection of an intensively used area.
Hedgerow Planting	422	Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.
Herbaceous Weed Treatment	315	The removal or control of herbaceous weeds including invasive, noxious, and prohibited plants.
Nutrient management	590	Manage rate, source, placement, and timing of plant nutrients and soil amendments while reducing environmental impacts.
Prescribed grazing	528	Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.
Residue and Tillage Management, No Till	329	Limiting soil disturbance to manage the amount, orientation, and distribution of crop and plant residue on the soil surface year around.
Restoration of Rare or Declining Natural Communities	643	Restoring, conserving, and managing unique or diminishing native terrestrial and aquatic ecosystems.
Roof Runoff Structure	558	A structure that will collect, control, and convey precipitation runoff from a roof.
Structures for Wildlife	649	A structure installed to replace or modify a missing or deficient wildlife habitat component.
Tree-Shrub Establishment	612	Establishing woody plants by planting seedlings or cuttings, by direct seeding, and/or through natural regeneration.
Upland Wildlife Habitat Management	645	Provide and manage upland habitats and connectivity within the landscape for wildlife.
Watering Facility	614	A watering facility stores or provides drinking water to livestock or wildlife.
Wildlife Habitat Planting	420	Establishing wildlife habitat by planting herbaceous vegetation or shrubs.

Table A - 4 Best Management Practices for Protection and Enhancement of Geologically Hazardous Areas

GHA-related BMPs		
Select practices that help to minimize erosion and prevent sedimentation.		
Name	**Practice Number**	**Description**
Access Control	472	The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.
Conservation Cover	327	Establishing and maintaining permanent vegetative cover .
Contour Buffer Strips	332	Narrow strips of permanent, herbaceous vegetative cover established around the hill slope, and alternated down the slope with wider cropped strips that are farmed on the contour.
Contour Farming	330	Aligning ridges, furrows, and roughness formed by tillage, planting, and other operations to alter velocity and/or direction of water flow to around the hillslope.
Contour Orchard and Other Perennial Crops	331	Planting orchards, vineyards, or other perennial crops so that all cultural operations are done on or near the contour.
Cover Crop	340	Grasses, legumes, and forbs planted for seasonal vegetative cover.
Critical Area Planting	342	Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal seeding/planting methods.
Fence	382	A constructed barrier to animals or people.
Filter Strip	393	A strip or area of herbaceous vegetation that removes contaminants from overland flow.
Grassed Waterway (swale)	412	A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
Heavy Use Area Protection	561	Stabilization or protection of an intensively used area.
Hedgerow Planting	422	Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.
Prescribed grazing	528	Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.
Residue and Tillage Management, No Till	329	Limiting soil disturbance to manage the amount, orientation, and distribution of crop and plant residue on the soil surface year around.
Tree-Shrub Establishment	612	Establishing woody plants by planting seedlings or cuttings, by direct seeding, and/or through natural regeneration.

Table A - 5 Best Management Practices for Protection and Enhancement of Aquifer Recharge

(CARA) Recharge-related BMPs		
Select practices that help to retain water in the landscape and promote water conservation. Encourage cooperators to measure their own water levels.		
Name	**Practice Number**	**Description**
Access Control	472	The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.
Conservation Cover	327	Establishing and maintaining permanent vegetative cover .
Conservation Crop Rotation	328	A planned sequence of crops grown on the same ground over a period of time (i.e., the rotation cycle).
Contour Farming	330	Aligning ridges, furrows, and roughness formed by tillage, planting, and other operations to alter velocity and/or direction of water flow to around the hillslope.
Contour Orchard and Other Perennial Crops	331	Planting orchards, vineyards, or other perennial crops so that all cultural operations are done on or near the contour.
Cover Crop	340	Grasses, legumes, and forbs planted for seasonal vegetative cover.
Field Border	386	A strip of permanent vegetation established at the edge or around the perimeter of a field.
Filter Strip	393	A strip or area of herbaceous vegetation that removes contaminants from overland flow.
Forage and Biomass Planting	512	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production.
Grassed Waterway (swale)	412	A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
Grazing Land Mechanical Treatment	548	Modifying physical soil and/or plant conditions with mechanical tools by treatments such as pitting, contour furrowing, and chiseling, ripping, or subsoiling. (For the purpose of fracturing compacted soil layers and improving soil permeability; reducing water runoff and increasing infiltration)
Irrigation System, Micro-irrigation	441	An irrigation system for frequent application of small quantities of water on or below the soil surface as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line.
Irrigation Water Management	449	The process of determining and controlling the volume, frequency, and application rate of irrigation water.
Prescribed grazing	528	Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.
Residue and Tillage Management, No Till	329	Limiting soil disturbance to manage the amount, orientation, and distribution of crop and plant residue on the soil surface year around.
Riparian Forest Buffer	391	An area predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies.
Riparian Herbaceous Cover	390	Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.
Wetland Enhancement	659	The augmentation of wetland functions beyond the original natural conditions on a former, degraded, or naturally functioning wetland site; sometimes at the expense of other functions.
Wetland Restoration	657	The return of a wetland and its functions to a close approximation of its original condition as it existed prior to disturbance on a former or degraded wetland site.

Table A - 6 Best Management Practices for Protection and Enhancement of Aquifer Groundwater Quality

(CARA) Groundwater quality-related BMPs		
Select practices that can help prevent groundwater pollution.		
Name	**Practice Number**	**Description**
Access Control	472	The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.
Composting Facility	317	A structure or device to contain and facilitate an aerobic microbial ecosystem for the decomposition of manure, other organic material, or both, into a final product sufficiently stable for storage, on-farm use, and application to land as a soil amendment.
Conservation Cover	327	Establishing and maintaining permanent vegetative cover .
Conservation Crop Rotation	328	A planned sequence of crops grown on the same ground over a period of time (i.e., the rotation cycle).
Cover Crop	340	Grasses, legumes, and forbs planted for seasonal vegetative cover.
Fence	382	A constructed barrier to animals or people.
Field Border	386	A strip of permanent vegetation established at the edge or around the perimeter of a field.
Filter Strip	393	A strip or area of herbaceous vegetation that removes contaminants from overland flow.
Grassed Waterway (swale)	412	A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
Heavy Use Area Protection	561	Stabilization or protection of an intensively used area.
Irrigation System, Micro-irrigation	441	An irrigation system for frequent application of small quantities of water on or below the soil surface as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line.
Irrigation Water Management	449	The process of determining and controlling the volume, frequency, and application rate of irrigation water.
Nutrient management	590	Manage rate, source, placement, and timing of plant nutrients and soil amendments while reducing environmental impacts.
Prescribed grazing	528	Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.
Roof Runoff Structure	558	A structure that will collect, control, and convey precipitation runoff from a roof.
Riparian Herbaceous Cover	390	Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.
Tree-Shrub Establishment	612	Establishing woody plants by planting seedlings or cuttings, by direct seeding, and/or through natural regeneration.
Stream Crossing	578	A stabilized area or structure constructed across a stream to provide controlled access for people, livestock, equipment, or vehicles.
Stream Habitat Improvement and Management	395	Maintain, improve, or restore physical, chemical and biological functions of a stream, and its associated riparian zone, necessary for meeting the life history requirements of desired aquatic species.
Watering Facility	614	A watering facility stores or provides drinking water to livestock or wildlife.
Wetland Enhancement	659	The augmentation of wetland functions beyond the original natural conditions on a former, degraded, or naturally functioning wetland site; sometimes at the expense of other functions.
Wetland Restoration	657	The return of a wetland and its functions to a close approximation of its original condition as it existed prior to disturbance on a former or degraded wetland site.

Table A - 7 Best Management Practices for Protection and Enhancement of Frequently Flooded Areas

FFA-related BMPs		
Select practices that can help to preserve natural flood control, stormwater storage, drainage, and floodplain connectivity, including flood channels and/or high-flow channels.		
Name	**Practice Number**	**Description**
Access Control	472	The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.
Brush Management	314	The management or removal of woody (non-herbaceous or succulent) plants including those that are invasive and noxious.
Conservation Cover	327	Establishing and maintaining permanent vegetative cover .
Conservation Crop Rotation	328	A planned sequence of crops grown on the same ground over a period of time (i.e., the rotation cycle).
Contour Farming	330	Aligning ridges, furrows, and roughness formed by tillage, planting, and other operations to alter velocity and/or direction of water flow to around the hillslope.
Contour Orchard and Other Perennial Crops	331	Planting orchards, vineyards, or other perennial crops so that all cultural operations are done on or near the contour.
Cover Crop	340	Grasses, legumes, and forbs planted for seasonal vegetative cover.
Early Successional Habitat Development	647	Manage plant succession to develop and maintain early successional habitat to benefit desired wildlife and/or natural communities.
Fence	382	A constructed barrier to animals or people.
Field Border	386	A strip of permanent vegetation established at the edge or around the perimeter of a field.
Filter Strip	393	A strip or area of herbaceous vegetation that removes contaminants from overland flow.
Forage and Biomass Planting	512	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production.
Grassed Waterway (swale)	412	A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
Grazing Land Mechanical Treatment	548	Modifying physical soil and/or plant conditions with mechanical tools by treatments such as pitting, contour furrowing, and chiseling, ripping, or subsoiling. (For the purpose of fracturing compacted soil layers and improving soil permeability; reducing water runoff and increasing infiltration)
Hedgerow Planting	422	Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.
Herbaceous Weed Treatment	315	The removal or control of herbaceous weeds including invasive, noxious, and prohibited plants.
Prescribed grazing	528	Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.
Residue and Tillage Management, No Till	329	Limiting soil disturbance to manage the amount, orientation, and distribution of crop and plant residue on the soil surface year around.
Restoration of Rare or Declining Natural Communities	643	Restoring, conserving, and managing unique or diminishing native terrestrial and aquatic ecosystems.
Riparian Forest Buffer	391	An area predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies.
Riparian Herbaceous Cover	390	Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.
Stream Habitat Improvement and Management	395	Maintain, improve, or restore physical, chemical and biological functions of a stream, and its associated riparian zone, necessary for meeting the life history requirements of desired aquatic species.
Streambank and Shoreline Protection	580	Treatment(s) used to stabilize and protect banks of streams or constructed channels and shorelines of lakes, reservoirs, or estuaries.
Structures for Wildlife	649	A structure installed to replace or modify a missing or deficient wildlife habitat component.
Tree-Shrub Establishment	612	Establishing woody plants by planting seedlings or cuttings, by direct seeding, and/or through natural regeneration.
Watering Facility	614	A watering facility stores or provides drinking water to livestock or wildlife.

Conclusion

In conclusion, this Adaptive Management Plan was designed to help San Juan County better meet its goals and benchmarks for protection and enhancement of critical areas on farmland. Many of the changes clarify how the San Juan Islands Conservation District will fulfill its responsibilities under the VSP Work Plan. These changes also account for the ever-evolving library of new tools being made available to counties to assist with monitoring activities. With these changes moving forward, San Juan County will be better prepared to achieve its goals and benchmarks into the future.