Chapter Four: Protection & Enhancement Strategies

Agricultural producers are key to the stewardship and management of private lands and resources within Columbia County and Washington State. Agricultural producers are continually evaluating agricultural practices, applying new science and technology, and implementing stewardship strategies and practices which generally reduce agricultural impacts on critical areas and improve our natural resources. In addition, these practices maintain or increase the viability of the agricultural economy. In Columbia County, for generations, agricultural producers have adopted practices to address a variety of resource concerns, including practices to improve habitat, reduce soil erosion and improve soil and water quality.

This chapter introduces the connection between stewardship strategies and practices and critical areas functions and values. See the figure below. Additionally, this chapter discusses stewardship strategies and practices that have been implemented since 2011 (the baseline date), highlighting protections to critical areas and associated functions and values these practices are already providing.

VSP Crosswalk - Functions and Values Connection with Stewardship Practices

4.1 Examples of Stewardship Strategies & Practices that Protect Critical Areas

As discussed in Chapter 2, key critical areas functions include water quality, hydrology, soil health and habitat. Many stewardship strategies and practices have been developed within Columbia County that provide a wealth of benefits to these critical areas functions, while maintaining the viability of agriculture.

VSP Checklist

The VSP Checklist is a helpful tool to help assess how the VSP could support individual agricultural producers. It includes additional examples of stewardship strategies and practices that protect and enhance critical areas and promote agricultural viability.

Participation in Funded Programs

Federal, state and local government, and private-sector programs and opportunities are available to support producers in addressing agricultural and resource concerns. See Chapter 6 for additional resources and technical assistance available to agricultural producers on a voluntary basis. ***Participation in a government-funded program is not required to be a VSP participant.***

Table 4-1 summarizes some examples of practices that have been applied by agricultural producers in the County under NRCS programs. This table helps illustrate the types of practices that have been or can be implemented to protect critical areas functions. As noted in the table, these examples also address the promotion of agricultural viability. Additionally, a VSP Checklist has been developed for agricultural producers to determine how the VSP could support their farm operations by promoting agricultural viability while protecting critical area functions. See Appendix C for a more comprehensive "toolbox" of example practices that have been or could be implemented by agricultural producers in the County.

Table 4-1

Example of Stewardship Strategies & Practices	Description	Critical Area Functions		Agricultural Viability
Residue and Tillage Management	Managing crop and plant residue and limiting soil disturbance (e.g. direct seed or reduced-till)	Water Quality	~ Reduces runoff and erosion ~ Reduces transport of nutrients and sediment	~ Soil quality & conservation ~ Weed mgt ~Yield & fertility
		Hydrology	~ Increases infiltration and decreases evapotranspiration to increase water availability to crops	
		Soil	~ Maintains & improves soil structure & increases cover to reduce wind and water erosion	
		Habitat	~ Provides food & cover for wildlife	
Integrated Pest Management	Managing pesticide use to minimize environmental impact	Water Quality	~ Pesticide choice to minimize impact on surface and groundwater	~ Soil quality & conservation ~ Weed mgt ~ Pollinator/ beneficial organisms
		Soil	~ Decreases wind and water erosion	
		Habitat	~ Reduces the bio-accumulation of pesticides on habitats	
Nutrient Management	Managing application of nutrients to minimize loss to runoff	Water Quality	~ Residual nutrients in surface and groundwater due to matching plant needs to the amount, timing and placement of nutrients	~ Soil quality & conservation
		Habitat	~ Optimizes health and vigor of desired plant species ~ Increases food and cover for wildlife	~ Yield & fertility ~ Weed mgt

4.2 Changes Since 2011 Baseline

Since 2011, agricultural producers have implemented practices that provide protections and enhancements to critical areas and promote agricultural viability through private projects and projects funded by government agencies. One of the key purposes of the VSP and this Work Plan is to leverage existing resources by relying on existing local work and plans, existing private-sector activities and government programs to achieve Work Plan goals (as per RCW 36.70A.700 (2).

The following sections summarize documented stewardship strategies and practices that have been implemented since 2011 which have protected and/or enhanced critical area functions and improved agricultural viability over baseline conditions.

These documented practices likely represent only a fraction of all the stewardship strategies and practices that have been implemented since 2011. Many agricultural producers in Columbia County implement practices independent of government programs. Accounting for these improvements would require an extensive self-reporting and documentation processes that are not yet in place and are not economically feasible. Additionally, it should be acknowledged that during this same time, there are likely some practices which have been discontinued.

It is expected that stewardship strategies and practices, such as fencing and stock watering facilities, will see very little discontinuation due to their capital investment. Less than 3% per year of these types of practices are anticipated to be discontinued or removed each year. There are other stewardship strategies and practices (such as pest and nutrient management) where a slightly higher rate of discontinuation (6%) is anticipated. See Table 4-2 for the various estimated disenrollment rates that are anticipated. See Chapter 5.2 for a discussion on how these anticipated disenrollment rates are considered in establishing the Work Plan's protection and enhancement benchmarks.

Programs may see a higher reduction in enrollment with the expiration of long-term government contracts, such as the Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP), that temporarily enhance wildlife habitat. However, this will occur on agricultural lands historically cultivated and may not have been part of designated critical areas. Measures and systems are typically put in place when lands are returned to production to conserve resources and protect affected critical areas adjacent to lands no longer enrolled in CRP (see Chapter 4.2.3 for additional CRP information).

Table 4-2

Anticipated Range of Disenrollment or Discontinuation	Stewardship Strategies and Practices Category	Example Practices
None	**Easements & Infrastructure** ~ Permanent stewardship strategies and practices	~ Permanent easements ~ Major infrastructure
Lower 0-3%	**Conservation Investments** ~ High Barriers to Entry or Exit - Conservation easements - Maintenance cost - Effectiveness ~ Increases land productivity ~ Lowers costs	~ Irrigation management ~ Watering facilities ~ Fencing
Higher 0-6%	**Conservation Actions** ~ Low Barriers to Entry or Exit - Easily removed ~ Reduced land in production ~ Rotational use - Market-driven rotation ~ Reliance on unstable conservation funding or incentives (e.g. Conservation Reserve Program and CREP)	~ Tillage management ~ Pest management ~ Nutrient management ~ Habitat restoration ~ Managed grazing ~ Cover crop ~ Range planting

4.2.1 NRCS Conservation Practices

Conservation projects have been implemented over 14,000 acres in Columbia County since 2011 through NRCS-funded programs on agricultural lands. The top practices that have been implemented include projects that protect water quality, reduce soil erosion and enhance soil quality, such as nutrient and pest management, access control, livestock watering and cover crops. As summarized in Table 4-1 (above), these practices also promote agricultural viability.

Table 4-3 provides a summary of top NCRS practices implemented under the Environmental Quality Incentives Program (EQIP), Wildlife Habitat Improvement Program (WHIP), and Agricultural Water Enhancement Program (AWEP) for number of projects and acreages.

VSP definitions determine whether a stewardship activity or project qualifies as a protection or an enhancement under the VSP. Under the VSP definitions

"enhance…means to improve the processes, structure and functions existing as of July 22, 2011…" and "protect…means to prevent the degradation of functions and values existing as of July 22, 2011." Because most conservation practices or projects installed since 2011 were designed to improve functions, they should generally be counted as enhancements. See Chapter 5.2 for further discussion on how these practices implemented since 2011 are counted toward protection and enhancement benchmarks.

Table 4-3
Top NRCS Conservation Practices Implemented from 2011 to 2016

Conservation Practice	Area Impacted	Projects Implemented
Access Control (472)	5956 acres	4
Nutrient Management (590)	2524 acres	9
Integrated Pest Mgt (595)	2524 acres	9
Livestock Pipeline (516)	1450 linear feet	1
Tree/Shrub Establishment (612)	309 acres	16
Cover Crop (340)	300 acres	6
Conservation Crop Rotation (328)	200 acres	1
Irrigation Water Mgt (449)	180 acre	2

Note: The information in the above table does not include private operations or self-funded conservation practices.

Table 4-4 summarizes enhancement projects implemented under NRCS's Conservation Stewardship Program (CSP), which provides additional incentives for producers to enhance existing practices by providing funding to actively manage, maintain, and expand existing conservation practices. Since 2011, CSP practices have been applied to over 37,000 acres in Columbia County. These practices have been in the areas of pest- and grazing- and nutrient-management, enhancing efforts to protect water quality, soil health and habitat. Stewardship enhancements under CSP can be reviewed during implementation to assess the level of enhancements that could be counted toward the Work Plan's goals and benchmarks.

Table 4-4
NRCS Practices Implemented under CSP from 2011 to 2016

CSP Conservation Practice	Critical Area Functions	Area Impacted	Projects Implemented
Pest Management	~ Soil quality & conservation ~ Weed mgt	20375 acres	11
Nutrient Management	~ Yield & fertility ~ Weed mgt ~ Soil quality & conservation	14130 acres	4
Integrated Pest Mgt	~ Pollinator and beneficial organisms	2379 acres	1
Livestock Pipeline	~ Soil quality & conservation	523 linear feet	3
Tree/Shrub Establishment	~ Soil quality & conservation	13 acres	2

Note: The information in the above table does not include private operations or self-funded conservation practices.

4.2.2 Conservation District-Led Projects

Numerous other projects have also been implemented through the local conservation district (CD) and are often funded directly by the CD or through programs administered by other agencies like Bonneville Power Administration, Washington State Conservation Commission, Salmon Recovery Funding Board/Recreation Conservation Office, United States Department of Agriculture, Department of Ecology, Confederated Tribes of the Umatilla Indian Reservation etc. Major stewardship strategies and practices implemented by the CD include Fencing (#382), Riparian Forest Buffer (#391 which is primarily accounted for in CREP acres), and Stream Habitat Improvement and Management (#395). Other practices are implemented by the CD that are similar with the NRCS tables above.

The District can provide a mechanism to seek funding and supply Technical Assistance for designing and implementing BMPs. Best Management Practices

(BMPs), are the same as NRCS practices. NRCS practice #395 – Stream Habitat Improvement and Management is a common BMP installed through the District because funding sources are eager to put money towards ESA listed species and their habitats. Columbia county has multiple ESA listed/focal species within its boundaries.

Table 4-5 below summarizes those projects. These projects provide further protection and enhancement of critical area functions and values.

Table 4-5
Conservation Practices Implemented by the Local CD from 2011 to 2016

CCD Conservation Practice	Area Impacted	# of Contracts
Stream Habitat Improvement and Management (#395)	8.39 miles	6
Fencing (#382)	3.17 miles	3
Riparian Forest Buffer (#391)	40.84 acres	2

Note: The information in the above table does not include private operations or self-funded conservation practices.

In addition to the above, there are other efforts which have been implemented that are effective stewardship strategies and practices. The strategies and practices have been implemented by various entities in accordance with the CCD Long-Range Plan, Sub-basin Plans, Tucannon Conceptual Restoration plan, Integrated Species Plan, Snake River Salmon Recovery Plan, WRIA 32 & 35 Watershed Plans etc. Other strategies have been implemented on the producer's own justification to improve ag viability while protecting the natural resources present. For example, producers coming out of the CRP program, have left grass or filter strips in areas where erosion potential is more prevalent than others.

4.2.3 Conservation Reserve Program

Congress created the Conservation Reserve Program(CRP) in the 1985 Farm Bill to address concerns over soil erosion and as a cropland retirement mechanism to help a struggling farm economy due to the large surplus of certain commodity crops. The CRP is managed by the Farm Service Agency (FSA) and is a

federally-funded program that pays a annual rental amount in exchange for producers removing cropland from agricultural production and establishing native plant species. Acres enrolled in CRP vary from year to year, depending upon the availability of federal funding. The enrolled amount in Columbia County reported by FSA for 2011 was 50,014 acres. That amount has declined to 34,201 acres in 2016. (This latter figure also includes CREP acreage).

When the CRP program was introduced, many Columbia County producers welcomed it as a stewardship tool for selected areas in their farm management plan. In addition, there was a significant acreage of Columbia County crop land in the lower rainfall areas of the county that was enrolled due to additional incentives. The first was an economic incentive in that the annual payment rate was uniform across the county on a per acre basis, not on a historic yield potential. Hence, zones with limited annual moisture (below 15 inches annually} had a higher enrollment rate because the potential net income from payments exceeded any anticipated net from cropping, even in years having above average crop yield or price. The second factor was that the demographic composition of the active producers in this lower rainfall zone had a significant percentage approaching retirement age. Enrollment criteria could easily be met on a whole farm basis giving a transition to continued good resource stewardship with a stable retirement income insured.

Although it is recognized that properly functioning CRP lands do provide improved habitat for certain game species they do not become a wildlife critical area. These CRP lands are federally classified as agricultural lands and per the Shoreline Management Act (RCW 90.58.065) “allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state or federal conservation program”. For the 2011 baseline condition, this land was accounted for as agricultural land with temporary habitat enhancements benefits, not as a critical area that would need to be protected or offset by other steward-ship strategies and practices to meet protection benchmarks. CRP will be accounted for as a reported value in the enhancement category for each year CRP acreage is enrolled.

Columbia County producers that have returned CRP acreage to crop production have done this with good resource stewardship. With encouragement from the Columbia Conservation District, the WSU Agronomy Department jointly with WSU Extension conducted field trials in the early 90’s and developed protocol for return of the land to cropping using direct seeding or other low disturbance practice. These systems have been utilized in most of the acreage that has not been continued in the program and returned to crop production. Additionally, acreages within fields that classifies as highly sensitive are nearly always left in permanent cover.

Agricultural viability can be affected by CRP in that it reduces the amount of land in agricultural production impacting the economic viability of local businesses which support agricultural supply distribution.

Federal funding for land retirement programs (like CRP) has been decreasing in recent years, while spending on performance-based programs like the CSP, EQIP and the Conservation Reserve Enhancement Program (CREP) has increased.

Accordingly, CRP lands with temporary habitat improvements have been determined through the VSP process to not be designated as critical areas in Columbia County. Habitat benefits from CRP lands are included in VSP as enhancements and the level of CRP-base enhancement varies based upon the public funding available and how this translates into acres enrolled in the program in a given year. For the 2011 baseline condition, this land was accounted for as agricultural land with temporary habitat enhancements benefits, not as a critical area that would need to be protected or offset by other steward-ship strategies and practices to meet protection benchmarks. CRP will be accounted for in the enhancement benchmark as a reported value for each year CRP acreage is enrolled, on a county basis.

Producers with expiring CRP contracts are encouraged to renew or transition into higher priority practices (e.g., direct seeding, CSP, field-edge filter strips, wetland restoration) while maintaining agricultural viability through self-funded efforts, or through public partnership programs, as applicable. Agricultural viability can be affected by CRP when it reduces the amount of land in agricultural production and the economic viability of local businesses which support agricultural viability.

4.2.4 Other Programs

Additional programs, entities and agencies that support farmers in implementing stewardship strategies and practices are further described in Chapter 6.4. Technical assistance is available from the Columbia County Cattlemen's Association, the Columbia County Farm Bureau, the Washington Association of Wheat Growers and the Washington State University Extension Service. Additional technical assistance and stewardship programs and incentives are also provided through Washington State Department of Ecology, Washington State Department of Fish and Wildlife and the Washington State Conservation Commission and through private lands programs such as the Farmed Smart Partnership and Aquatic Land Enhancement Account.

Snake River Salmon Recovery Board

One of the programs which has implemented numerous projects in and along the waterways of Columbia County is the Snake River Salmon Recovery Board (SRSRB). The, SRSRB is located in Southeast Washington and was first convened in 2002 for the purpose of developing a locally supported, technically sound plan to recover salmon that has been adopted by the State of Washington and Federal Government. The SRSRB is represented by each of the five counties in Southeast Washington and the Confederated Tribes of the Umatilla Indian Reservation. The SRSRB has met monthly for the last 10 years to advise, recommend, and approve funding for habitat projects, monitoring programs and administrative functions necessary to implement the salmon recovery plan. As context and guiding principles for the work the SRSRB conducts the following information is provided.

The Federal Government is required by law to develop plans to recover plants and animals when they become endangered with the risk of extinction. The act is known as the Endangered Species Act (ESA). Salmon and steelhead in the Columbia Basin, which includes the Snake River, were determined to be at risk of extinction in the 1990's following one hundred years of declining numbers to the Columbia River.

The reason the number of salmon and steelhead declined over the last century is due to many factors. Over fishing from the late 1800's to 2000 (over harvest is not a significant factor since 2000), habitat loss, hydropower, and over use of hatcheries are factors that humans are responsible for but there are also ocean conditions, droughts, diseases and predation by other animals that must also be considered. Combined, these factors proved to be too much for wild salmon and steelhead, causing decline in their numbers from as many as 18 million to less than 1 million over the last century

Recovering salmon and steelhead requires a balance. The SRSRB seeks to balance the needs of fishermen, habitat (property) owners, and hydropower in a way that supports the recovery of our salmon and steelhead. The SRSRB uses hatcheries as a way to provide fishing opportunities and as a way to conserve our salmon and steelhead populations when needed. The SRSRB improves survival of salmon and steelhead at our dams in a way that allows for the continued generation of hydropower and navigation. The SRSRB works with landowners to restore and protect habitat on their property. And, the SRSRB manage fisheries in a way to protect wild fish and to harvest hatchery produced fish.

Today, the SRSRB we have a plan to recover these fish that reflects a balance between the needs of the salmon and the needs of people. This plan is unique in that it was develop and approved by local cities, counties, landowners, not by the state and federal agencies. State and federal agencies provided the information and were great partners but they did not write the plan. This is important because while the ESA requires the Federal Government to develop recovery plans, the Federal Government does not have the local knowledge and ability to commit implementation of the actions (projects, programs and policies) needed to achieve recovery.

With the completion of the 2005 Snake River Salmon Recovery Plan for SE Washington, habitat factors limiting each population were identified leading restoration objectives. In the 2005 restoration plan, habitat factors most limiting salmonid populations regionally included; barriers, unscreened diversions, low/dewatered streams, high stream temperature, lack of stream channel complexity, fine sediments, absent or degraded riparian cover and stream channel confinement.

Since initiation of restoration implementation, great strides have been made in removing fish passage barriers, unscreened irrigation diversions, minimizing fine

sediments and planting riparian buffers (see Table 4-6 below). The removal of barriers has opened > 229 miles of habitat and improved access to even more, and the placement of screens has reduced mortality on juvenile salmonids. The conversion from conventional agricultural tillage practices to ones which minimize tillage and increase ground cover have greatly reduce the loss of soil from uplands, improving spawning and rearing habitat. The planting of hundreds of miles of riparian buffers has had a synergistic effect of further reducing fine sediment, shading the stream channel reducing temperature and providing large wood debris increasing channel complexity.

Table 4-6: Habitat restoration metric completed by the project sponsors between 1999 and 2012 in the Snake River Salmon Recovery Region.

Limiting Factor Addressed	Number	Unit of Measure
Fish Passage Barriers Removed or Modified	52	Number
Irrigation Diversions Properly Screened	526	Number
In-stream Flow Increased Through Efficiency and Leases	81.8	Cubic Feet/Sec
Channel Complexity (Meeting 1 key piece per bank width)	13.49	Miles
Upland Agriculture Best Management Practices Reduce Erosion	121,730	Acres
Riparian Habitat Restored	262	River Miles
Stream Channel Confinement Reduced	7.26	River Miles

Blue Mountain Land Trust

Another program that has been implemented within Columbia County involves a conservation easement along the Touchet River. Larry and Barbara Fairchild chose their 100-acre site on the Touchet River because of its natural beauty. The

largely-untouched forest along the river provides habitat for an abundance of wildlife, and the river contains critical spawning habitat for salmon and steelhead.

Because they had been drawn to the land's natural setting, the Fairchilds wanted to enhance that aspect of their property. For several years, Larry and Barbara worked with the Columbia Conservation District to restore salmon habitat on their property, planting willows along the banks and restoring pools in the stream channel. On the advice of the Conservation District, they also contacted the Blue Mountain Land Trust to learn more about preserving this valuable habitat.

After consulting with Blue Mountain Land Trust staff, Larry and Barbara chose to pursue a conservation easement that would extinguish all development rights outside the existing home site, permanently protecting the unspoiled natural areas on the property and the restoration work the Fairchilds had completed.

The Fairchilds sold this conservation easement to BMLT for the full value of the unused development rights. Because of the property's high-quality fish habitat, the Snake River Salmon Recovery Board funded this purchase.

Timber Management Plans

In Columbia County, a number of private landowners have chosen to participate in the state Timber Land and Designated Forest Land classification. To enroll in this program, the landowner must have a minimum of twenty contiguous acres, must develop a Timber Management Plan and comply with other requirements. The benefit towards the protection of critical area function and values comes through the wise stewardship of the forest lands. Especially important is the protection of streamside habitat and the provision for wildlife habitat.

Watershed Resource Inventory Area (WRIA)

Within Columbia County there are portions of three WRIA. Each WRIA has a Watershed Plan which was approved by the WRIA Watershed Planning Unit and then adopted by the Columbia County Board of Commissioners. Working in concert with local landowners involved in forestry, agriculture, cattle, and range

practices as well as citizens and local, state, federal and tribal governments enabled us to discuss complex resource issues and come to consensus on important issues throughout the WRIA. The Planning Units efforts were guided by the following mission statement:

> "Treat water as a valuable resource through the development and implementation of a watershed plan consistent with RCW 90.82 for the beneficial management of water resources to balance the present and future needs of local rural and urban communities, agriculture and other industries, fish and wildlife, and tribal communities and treaty rights."

The WRIA Plans contain obligations and recommendations that provide solutions and strategies for short-term and long-term water resource management within the WRIA. The Plans are an informed, up-to-date effort to balance water supply and demand and to provide a cooperative grass roots process for local and state agencies to continue to work together with local citizens to manage the water resources within the respective WRIAs. Crucial components of the Plans include:

- Setting Minimum Instream Flows for the creeks and rivers;
- Monitoring stream flows, assessing instream habitat, and conducting ground water studies for future instream flow and groundwater management recommendations;
- Managing water resources by balancing the instream and out-of-stream needs within the WRIA.

Specific projects and plans relating to Columbia County can be found at http://asotinpud.org/watershed-planning-documents/