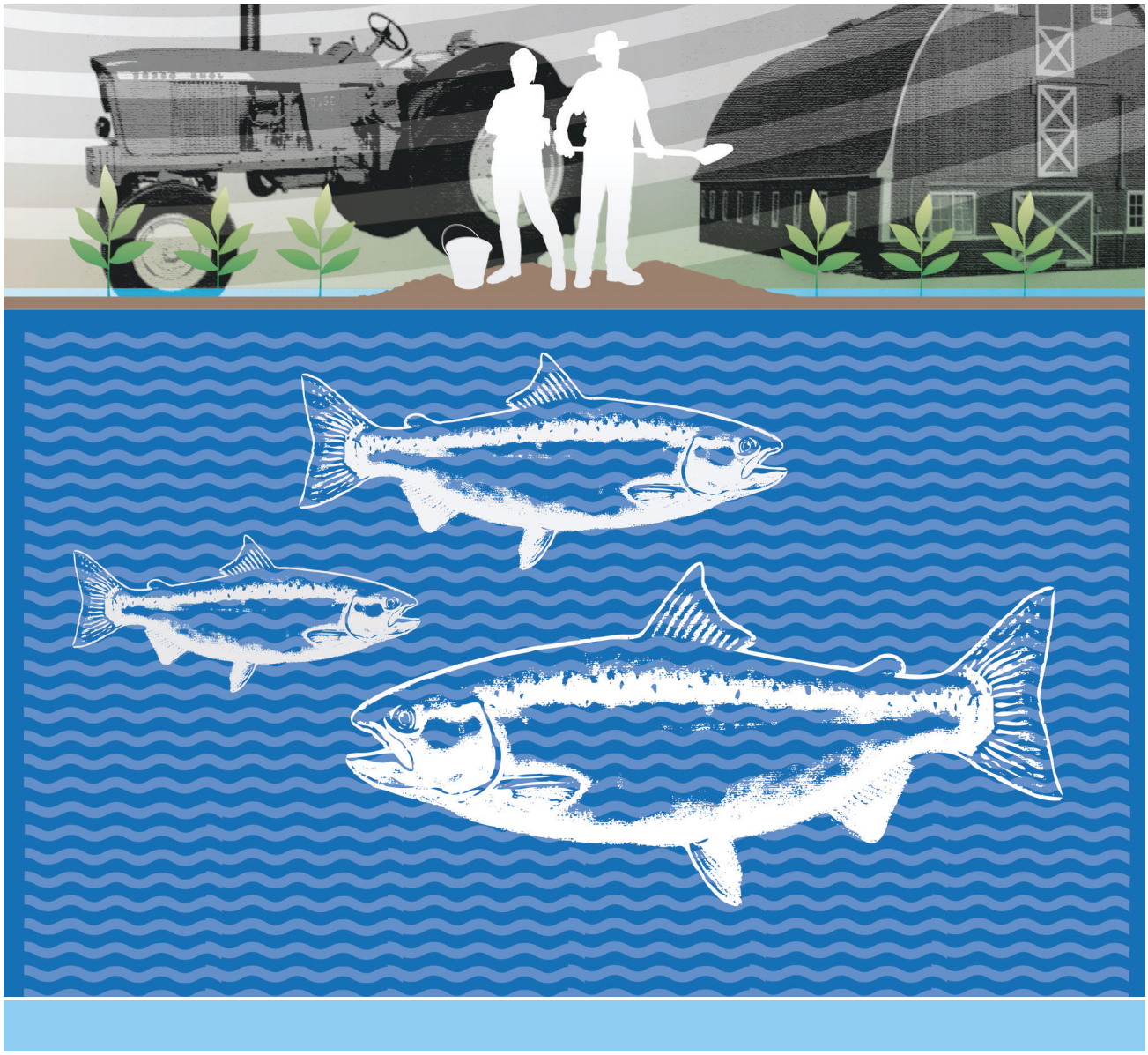
SALMON-SAFE
CERTIFICATION STANDARDS FOR FARMS



Version 2.7

May 2018

Salmon-Safe Inc.
1001 SE Water Ave, Suite 450
Portland, Oregon 97214
(503) 232-3750
info@salmonsafe.org

www.salmonsafe.org

SALMON-SAFE CERTIFICATION STANDARDS FOR FARMS

Version 2.7

May 2018

CONTENTS

Introduction

Since 1996, Salmon-Safe's certification programs have successfully defined and promoted sustainable land management practices that protect water quality and promote habitat conservation across the West Coast.

Why Farms?

As long-term stewards of the land, farmers play a key role in helping restore native salmon fisheries and in maintaining healthy watersheds. This is the case, particularly now, during this time of climate change. Salmon-Safe certified producers provide a vision for voluntary adoption of resilience-building practices that keep streams healthy enough for salmon. Because salmon are an indicator species, we know that, if salmon thrive, the watershed has potential to thrive as well.

Salmon-Safe has worked collaboratively with farmers in Oregon, Washington and California since 1997 and, in 2005, standardized fish-friendly farm guidelines under the Salmon-Safe Farm Management Certification Program (Salmon-Safe, 2005). In 2010, Salmon-Safe joined with two Canadian conservation organizations—Pacific Salmon Foundation and Fraser Basin Council—to expand Salmon-Safe certification across British Columbia.

Farmers face challenges of limited time and resources availability. Wherever possible, Salmon-Safe rewards growers and ranchers who protect streams and other natural resources by focusing on actions that provide the most benefit for fish and wildlife at the lowest cost to the landowner.

Some of the benefits Salmon-Safe certification can provide to farmers include:

- **Stewardship recognition.** By participating in the Salmon-Safe Farm Standards program, farms will be recognized for:

  (1) optimizing water use;

  (2) maintaining healthy riparian and in-stream habitat conditions;

  (3) using long-term soil conservation techniques;

  (4) exercising nutrient and pest management practices that protect water quality; and

  (5) contributing to overall habitat quality and productivity on the farm.

- **The Salmon-Safe brand.** Salmon are an important part of the cultural, economic and natural history of the Pacific Northwest and Salmon-Safe program participants lead the way in protecting these and other fish

and wildlife species. Consumers have shown a willingness to pay a premium for local, organic and Salmon-Safe products.

- **On-farm biodiversity.** By protecting and restoring habitat for native salmon and other fish populations, Salmon-Safe farm certification may result in habitat benefits for other desirable native fish and wildlife on the property.
- **Potential access to additional financial resources.** Salmon-Safe can assist with finding grants and other funding sources for salmon habitat restoration activities, leasing of water rights and other conservation actions that benefit salmon.
- **Regulatory assurance.** Farmers using "beyond compliance Salmon-Safe practices are less likely to create environmental risks subject to regulatory remedy and enforcement.

Biological Basis for Certification Standards

While the primary focus of Salmon-Safe's certification programs is salmonid species and their habitat requirements, compliance with Salmon-Safe certification standards is intended to promote landscape-level conservation and protection of biological diversity. Salmon are a key indicator species in the Pacific Northwest. Their conservation is tightly intertwined with the health of the larger ecosystem. Thus, the evaluation focuses on the following key areas of habitat vulnerability most critical to salmonid survival:

- **In-stream habitat**—direct alteration of in-stream habitat, including stream beds and stream banks, through bank armoring, channelization or removal of in-stream wood;
- **Riparian habitat**—elimination or reduction of riparian vegetation that can provide numerous stream habitat functions including shade, bank stabilization, source of in-stream cover (large and small wood) and food chain support;
- **Fish passage**—poorly designed or inadequately maintained stream crossings that are barriers to passage by adult or juvenile fish;
- **Water quantity**—increase in the magnitude, frequency and duration of peak flows due to the loss of vegetative cover and conversion of natural soils to impervious surfaces; reduction of in-stream flows due to surface or subsurface water withdrawal for irrigation;
- **Biodiversity**—loss of the biodiversity of aquatic life, wildlife and plants; and

- **Water quality**—introduction of sediment, metals, nutrients and other pollutants from surface or sub-surface runoff; increases in water temperature from loss of canopy cover and water withdrawals.

Salmon-Safe certification standards describe performance requirements that must be met for a farm to be considered for certification. These standards are designed to recognize farmers who operate with the explicit goal of avoiding impacts to (and ideally, improving) watershed health and habitat quality on their property. Each certification standard includes performance requirements that define desired outcomes and restoration efforts that provide specific guidance for reaching these performance requirements.

Certification standards are organized into seven categories:

F.1 In-stream Habitat Protection and Restoration

F.1 standards focus on assessing the condition of the channel, including the streambed and bank, protecting intact habitats, and correcting deficiencies where feasible. For example, restoring volume and density of in-stream large wood can be an important tool for improving stream habitat. Standards address both physical and biological conditions that contribute to habitat quality.

F.2 Riparian and Wetland Vegetation Protection and Restoration

F.2 standards focus on measures taken to protect the land areas closest to rivers, streams and wetlands. An intact riparian zone (an area generally defined as the transition between uplands and streams or rivers) is critical to the health and function of these waterways and to the health of salmonids and other aquatic species within them. Similarly, protection of wetlands and the transition zone adjacent to wetlands is important to maintaining water quality and proper ecosystem function required by salmonids and other aquatic species.

When properly functioning, these areas can:

- improve and maintain water quality by filtering runoff as it flows from upland areas;
- provide shade to regulate water temperatures;
- promote bank stabilization; and
- provide breeding, forage and cover habitat for both fish and wildlife.

F.3 Water Use Management

Water withdrawals can adversely affect salmonid habitat and other aquatic species, primarily by reducing in-stream flows. F.3 standards focus on actions to minimize impacts of water withdrawals on fish and wildlife habitat by:

- reducing the excess use of water and water losses not related to productivity through more efficient irrigation technologies and practices and, when applicable, converting the conserved water to in-stream use;
- adjusting the timing of water diversions so water is only withdrawn during periods when inadequate stream flow is not a major limiting factor for salmonid habitat and populations; and
- selecting alternative water sources for irrigation that help minimize or eliminate diversion of flow critical for salmon habitat and populations that minimize critical reductions to in-stream flows.

F.4 Erosion Prevention and Sediment Control

Sediment delivery to fish-bearing streams is a major cause of habitat degradation, particularly for salmonid spawning areas. F.4 standards evaluate potential upland sources of erosion, such as farm roads, agricultural fields and pastures. (Bank erosion is primarily addressed in Category F.1 *"In-stream Habitat Protection and Restoration"*, described above). Effective erosion control and maintenance practices are identified to improve soil stability and promote the creation of healthy soils by encouraging soil-building conditions.

F.5 Integrated Pest Management (IPM) and Water Quality Protection

Salmon survival depends on clean water free from harmful levels of fertilizers (nutrients), pesticides (herbicides and insecticides, fungicides and other biocides), petroleum (e.g., gasoline, diesel, oils, hydraulic fluid) and organic waste. These contaminants can travel long distances in surface water runoff and through shallow soils. F.5 standards focus on actions to:

- minimize overall inputs of these contaminants;
- restrict the type of chemicals that could potentially enter streams;
- develop an acceptable method of application through a comprehensive management strategy such as an integrated pest management strategy; and
- construct proper facilities for their use, handling and storage.

F.6 Animal Management

This category promotes management practices that prevent adverse effects to waterways from livestock. Nutrients and pathogens from livestock operations can degrade water quality. Fecal contamination of streams and water bodies can be prevented by adequate manure storage and handling methods. Erosion can be minimized by avoiding overgrazing and by careful management of trails,

corridors and streams. Wetlands are protected by limiting animal access to riparian areas.

Good animal management practices maintain pasture and rangeland health at levels that provide adequate forage while conserving soil and groundwater resources and providing habitat for fish and wildlife species.

F.7 Landscape-level Biodiversity

F.7 standards focus on ensuring that farm practices support and enhance biodiversity for fish, wildlife and vegetation throughout the farm. There is a growing body of evidence that agriculture benefits from greater biodiversity. Soil microfauna, such as bacteria and fungi, break down organic matter, help maintain the quality of soils, and recycle nutrients. Insects, spiders and mites pollinate crop plants and fruit trees and prey on agricultural pests. At the ecosystem level, farm hedgerows, woodlots and native planting areas attract beneficial insects or predators that feed on agricultural pests.

Evaluation Process for Certification

Scope: Whole Farm Assessment

The Salmon-Safe Farm Certification Standards are a "whole-farm" certification process, including both farmed and non-farmed areas. The evaluation process for Salmon-Safe farm certification assesses how a farm's operations directly and indirectly affect water quality and fish and wildlife habitat.

The objective of the evaluation process is to compare overall farm management and operation to best management practices for protecting watershed health and enhancing fish and wildlife habitat. Salmon-Safe certification is intended to acknowledge farms that do more than the minimum required to protect streams and salmon. All candidate farms must comply with local, state and federal regulations on streams, wetlands and natural resource areas. Any existing restoration and enhancement projects are also assessed in the field to determine how effectively they provide habitat quality benefits for fish and wildlife. Based on the assessment, farm evaluators make additional conditions and/or recommendations for achieving certification under the Salmon-Safe Farm Standards.

Part A of the certification standards lists the general standards that must be met by the farm for certification (general standards). Part B of the certification standards lists additional performance requirements and restoration efforts specific to six management categories that relate to the habitat needs of salmonids and other aquatic species (habitat-specific requirements for certification).

The phrase "to the greatest extent operationally feasible" is used throughout this document to recognize the need to balance guideline compliance with productivity, finances and other site-specific conditions that may limit the ability of an operation to incorporate a portion of the standards or performance requirements into agricultural activities. Ultimately, the operational feasibility of implementing certain certification standards and performance requirements rests on the judgment of the evaluator(s) and is assessed on a site-specific basis.

Independent Evaluation

One or more qualified independent experts, hired by Salmon-Safe, conduct farm assessments. Salmon-Safe often partners with LIVE (Low Input Viticulture & Enology, Inc.), Oregon Tilth and other leading farm certification organizations to complete the farm assessment. Consequently, an evaluator from one of our partner organizations who is knowledgeable in aquatic ecological sciences may conduct the assessment.

The Evaluation Process

Salmon-Safe recognizes farms for "going above and beyond" the minimum requirements necessary to maintain a farm through addressing habitat quality benefits for fish and

wildlife and overall environmental quality. It is not possible for every farm to achieve the standards necessary to be certified as Salmon-Safe, however Salmon-Safe evaluators will make every effort to work with farm owners and/or managers to reach this goal.

The following is a general overview of the evaluation process.[1] Depending on the size of the farm, it may be modified.

Step 1—Review general standards in Part A

Confirm the farm currently meets general standards in Part A that are indicated as mandatory (R symbol) and that the farm owner/manager is willing to comply with the remaining general standards in Part A prior to certification.

Step 2—Contact Salmon-Safe or our regional partner

Salmon-Safe, or the regional partner representative, will ask questions to learn more about the property and eligibility for Salmon-Safe certification. If the farm is a potential candidate, Salmon-Safe will assign an evaluator to assist in the process.

Step 3—Preparation of baseline information

Prepare the following baseline information necessary for Salmon-Safe certification:

- Map of the property showing the information described in the inventory section of each standard. (A single map is sufficient if it clearly shows the items noted. Information to be included on the map is summarized in Appendix A);
- Pest management information including a minimum of 12 months of pesticide use records—a list of what has been used and what is planned to be used, with active ingredients. (See *Table B-1, Appendix B* for guidance);
- Irrigation management information, including existing water rights;
- Documentation or estimation of annual water usage, locations and condition of fish screens;
- Any habitat restoration, soil stabilization or soil conservation project planning documents;
- Descriptions of other restoration or conservation activities conducted on the farm, if conducted outside of an established program; and
- Documentation of current animal waste management practices.[2]

---

[1] For farms pursuing Salmon-Safe certification in BC, consult *Environmental Farm Plan (EFP)* (AGRI, 2010) for additional information.

[2] Farms pursuing Salmon-Safe certification in BC, consult the *Nutrient Management Reference Guide* (BC Ministry of Agriculture, 2010) and refer to the description of the nutrient management plan (NMP) in the EFP guidelines (AGRI, 2010). NMP is a subcomponent of the EFP that is triggered by specific soil test indicators. The NMP includes a calculator that helps farmers optimize their crop nutrient usage while protecting surface and ground water resources.

Step 4—On-site farm evaluation

Evaluator(s) will determine whether farms comply with standards by reviewing baseline documentation[3], interviewing farm owners/managers and conducting farm assessments.[4]

Step 5—Decision rule for certification

Certification is awarded when the farm meets all relevant certification standards and performance requirements. Specifically, the candidate farm must:

- meet all required R General Standards described in Part A of the certification standards;
- agree to meet the remaining General Standards described in Part A under an approved time line prior to certification;
- meet all applicable performance requirements described in Part B of the certification standards;
- meet or provide written agreement to meet restoration effort conditions stipulated by Salmon-Safe within a time period determined in conjunction with the farm evaluator. All certification candidates must show commitment to and progress toward meeting restoration effort conditions recommended by the evaluator; and
- meet any additional requirements enumerated by Salmon-Safe. Salmon-Safe may occasionally, on a case-by-case basis, stipulate one or more additional preconditions for certification that are specific to a particular candidate farm.

If the candidate farm does not fully meet the general standards and/or performance requirements, the evaluation team may allow a farm operation to be conditionally certified by stipulating one or more conditions that must be met during the 3-year certification period under an agreed-upon time line.

[3] For farms pursuing Salmon-Safe certification in BC, the Riparian Health Assessment and Plan process of the EFP (AGRI, 2010) may also assist in this determination.

[4] For large-scale farming operations, evaluators are typically not able to visit every part of candidate sites. Rather, the evaluators focus on key areas with the potential to positively or negatively impact fish, e.g., streams and other natural water resources, riparian areas, farm roads (which are often sources of sediment to streams) and other key areas.

Maintaining Certification

Salmon-Safe certification is valid for 3 years, subject to annual verification of satisfactory progress toward meeting any certification conditions. Annual verification requirements will vary depending on the scale and site characteristics of the farm, but typically at a minimum include photographs and/or written documentation. (Additionally, notice should be given to Salmon-Safe regarding plans for farm expansion, any changes in crop selection that affect water usage, changes in pesticide use and alterations to other management practices included in the certification standards).

After the initial 3-year certification period, farms may be recertified after a follow-up site assessment.

Certification Standards

Part A: General Standards for Certification

R (1) Farm operation is not in violation of federal, provincial, state, or local environmental laws or associated administrative rules or requirements[5], as determined by any regulatory agency through an enforcement action.[6]

R (2) Water rights are legal and farms have met monitoring and reporting requirements.[7]

(3) Standard management practices used in day-to-day farm maintenance do not jeopardize salmon or their habitat[8], as determined by conformance with performance requirements in Part B of the Certification Standards.

R (4) All pesticide use occurs within the context of an IPM process as documented in a comprehensive written strategy or as demonstrated or described during field assessment.[9]

(5) Satisfactory progress is being made to address farm features and operations, such as irrigation ponds, road crossings or concrete-lined streams that may degrade salmon habitat. These restoration efforts may include those required by the Salmon-Safe assessor as well as projects already being undertaken by farm management.[10]

Part B: Habitat-specific Requirements for Certification

Part B organizes performance requirements under seven management categories. Certification standards are designated with "F" prefixes (F.1 through F.7). The "F" designation is used to denote certification standards associated with farm operations in contrast to certification standards for other entities, including the "B" series for corporate and university campuses (Salmon-Safe, 2008), the "G" series for golf courses (Salmon-Safe, 2010) and the "R" series for residential developments (Salmon-Safe, 2009).

---

[5] The *BC Environmental Farm Plan* identifies all federal and provincial regulatory requirements laid out in the EFP planning workbook. Farming operations that violate legislation and/or regulations fall into red boxes and are "must correct" items.

[6] R symbol indicates that conformance with the criteria is required as a precondition for certification. Those not designated with the R symbol are mandatory, but may be implemented during the certification process or, as a requisite requirement, be implemented over time for conditionally certified farm operations.

[7] For farms pursuing Salmon-Safe certification in BC, surface water use must be licensed. Stored volumes, withdrawal rates and annual water use must comply with the license.

[8] In BC, farms must comply with regulatory requirements that state farm operations must use practices that do not cause pollution and avoid the direct or indirect deposit of deletrious substances into a watercourse. These are red box items in the EFP workbook.

[9] Farms pursuing Salmon-Safe certification in BC should reference the EFP Reference Guide *"Steps to Develop an Integrated Pest Management (IPM) Plan"* in addition to guidance provided in this document. *http://www.ardcorp.ca/userfiles/file/efp/EFP_Reference_Guide_March_2005_part_5.pdf*

[10] An evaluation of buildings located on farm property is not included in Salmon-Safe certification.

CORE CERTIFICATION STANDARDS

The **Core Certification Standards** lists standards and performance requirements organized into seven management categories, each covering a set of conditions important to conserving salmonid habitat. The standards are designated with alphanumeric prefixes "F.1" through "F.7". The "F" designation is used to denote standards and performance requirements associated with farms, which contrasts with other Salmon-Safe certification project or site types (e.g., "U" which denotes an *urban* core certification standard).

F.1 In-stream Habitat Protection/Restoration

Standard F.1.1: Stream channels provide habitat for salmonids and other aquatic species via naturally stabilized stream banks, meandering channel form and accumulations of large and small woody debris where hydrologically and geomorphically appropriate.[11]

Performance requirements:

i. Stream and river crossings, in-stream structures, irrigation diversion structures, ponds and any known historic channel manipulations are inventoried and locations are noted on a site map. See Appendix A for additional information on preparation of inventory maps.

ii. The number of stream crossings[12], including roads and trails, is minimized on the farm property. Stream crossings avoid filling, excavating or straightening of stream channels, unnecessary removal of wood and disconnection of off-channel wetlands and ponds.

iii. When a stream crossing is established, all applicable permits or authorizations from regulating agencies are obtained prior to undertaking any work[13], it is designed to avoid impacts to in-stream habitat, allow fish passage[14] and avoid constriction of flood conveyance during 25-year, 24-hour storm events (or meets more stringent flood conveyance if required by local, state, federal or provincial regulations).

iv. Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from agricultural operations and disturbed areas, unnecessary removal of wood or disconnection of off-channel wetlands. **R**

---

[11] For farms pursuing Salmon-Safe certification in BC, refer to *BC Ministry of Water, Land and Air Protection,* 2004; *MAFF* 2005a; and *MAFF* 2005b.

[12] For farms pursuing Salmon-Safe certification in BC, refer to *BC Ministry of Water, Land and Air Protection,* 2004.

[13] For farms pursuing Salmon-Safe certification in BC, Fisheries and Oceans Canada has developed materials to help those who plan to undertake projects in and around water comply with the federal Fisheries Act. See *DFO,* 2006 and *MOE,* 2005.

[14] See e.g., *NOAA Fisheries* (2008) or *BC Ministry of Water, Land and Air Protection* (2004).

v. Irrigation ponds that have the potential to have adverse impacts on stream temperature and water quality are not constructed or planned. R

vi. Irrigation diversion structures are designed to allow adult and juvenile fish passage and do not trap fish. New diversion structures meet applicable design guidance.[15] Note: Certification Standard F.3 also addresses irrigation withdrawals.

Restoration Efforts:

i. Key in-stream habitat quality deficiencies have been identified and active efforts are being taken to restore stream channels to their natural conditions using techniques such as bioengineered bank stabilization (typically using a combination of large wood, plants and other material to stabilize banks) and habitat enhancement. Channel manipulation, except for habitat restoration, is avoided to the greatest extent operationally feasible.

ii. Unnatural in-stream barriers to fish and wildlife have been removed. If barriers exist, plans are in place to remove these barriers where geomorphically appropriate.

iii. Existing levees have been removed or set back to avoid encroachment upon the floodplain; floodplains are restored to the greatest extent operationally feasible and no new levees or dikes are proposed.

[15] See e.g., *NOAA Fisheries* (2008) or *BC Ministry of Water, Land and Air Protection* (2004).

F.2 Riparian and Wetland Vegetation Protection and Restoration

The focus of category F.2 is protecting the land areas closest to streams and wetlands. An intact riparian zone is critical to the health and function of these waterways and the species within them. Protection of wetlands is essential to maintaining water quality and proper ecosystem function required by salmonids and other aquatic species.

For farm properties that do not contain streams or wetlands, upland vegetation can be critical in maintaining habitat complexity, reducing erosion and runoff, attracting beneficial insects and predators and protecting downstream resources. Refer to the Category F.7 for standards focused on promoting landscape biodiversity, including biodiversity in upland areas.

Standard F.2.1: Riparian areas are in good condition[16] and sufficiently maintain and restore stream health. Riparian buffers are maintained, restored or unimpeded by structures or improvements.[17] Degree of canopy cover is comparable to healthy ecological reference conditions, such that it provides adequate shade, wood recruitment, leaf litter supply, stream bank stability and filtration of sediment to maintain aquatic habitat functions.

Performance requirements:

i. Riparian areas, including size and quality of stream buffer areas, have been noted on a site map. At a minimum, the inventory consists of a map indicating areas where riparian function is impaired as described in Appendix A.

ii. Riparian zones or cultivation setbacks of perennial waterways (year-round flow) and seasonal waterways potentially harboring salmonids and other aquatic species are an average of 50-100 feet wide, with a minimum width of 35 feet.[18] As the slope of the adjoining field increases, the width of the riparian buffer zone must be increased to adequately protect the area from erosion and runoff. On slopes of 10 percent or greater, riparian buffer zones should be no less than 50 feet in width. The required buffer zone size will also be affected by the width and depth of the adjacent waterway, riparian cover, soil properties and steep slopes.

---

[16] For farms pursuing Salmon-Safe certification in BC, refer to the *EFP Riparian Health Assessment Guide* (AGRI, 2010) for additional guidance.

[17] For farms pursuing Salmon-Safe certification in BC, setbacks for farm buildings and manure storage facilities from watercourses conform to the Agricultural Waste Management Code and Health Act. Consult EFP guidance (AGRI, 2010) for additional requirements.

[18] Some flexibility in these distances may be considered if the riparian zone can be demonstrated to be protecting waterways against sediment, agricultural chemicals and other pollutants; providing shade when needed; and providing habitat for wildlife. Larger buffer widths are particularly important in geomorphic environments where the stream has a greater tendency to migrate widely and rapidly. In such instances, riparian buffer widths should extend across the entire channel migration zone. If 100 percent avoidance of the above setbacks and conditions is not possible, the effect on riparian buffers is minimized and mitigated to offset impacts to the function and qualities of the buffer and the water resources they protect.

iii. Riparian zones and buffer areas are adequately vegetated.[19] Riparian zones and buffer areas are vegetated and contiguous with the channel and adequately protect water resources.

iv. If 100 percent avoidance of disturbance to the riparian zone and buffer area is not possible, impacts are minimized and mitigated to maintain the function and quality of buffers and the water resources they protect.

Restoration Efforts:[20]

On farms where riparian buffer enhancements are needed, efforts are being taken to improve the vegetative cover and functional integrity of riparian zone buffer systems, with the most serious deficiencies being addressed first. Riparian zone restoration can be a large undertaking. Salmon-Safe looks to see that farms with riparian zone deficiencies have identified the problem areas, have a strategy in place for remedial action and are showing signs of steady progress over a reasonable time frame. Implementation of this restoration strategy is the responsibility of the grower, who will report progress to Salmon-Safe.

i. Problem invasive plants within riparian buffers are identified[21], removed and replaced with suitable plant species adapted to site conditions.

ii. Riparian zones are replanted with suitable plant species adapted to site conditions.

iii. New plantings for buffers are selected to improve overall biodiversity on a site within the constraints of project conditions. Priority is given to a diverse selection of native species over other plant types. Plant selections that attract pollinators are encouraged, as they have the potential to improve site biodiversity and agricultural productivity.[22]

iv. Where riparian buffer zones are already established, high priority is given to establishing tree canopy cover over salmonid-bearing and potentially salmonid-bearing streams in ways comparable to undisturbed local reference conditions (i.e. riparian zone restoration efforts aim to establish canopy cover similar to that present over relatively undisturbed salmon-bearing streams in the watershed). Subcanopy trees, shrubs and groundcover provide additional cover and habitat, especially along stretches of streams or rivers in need of bank stabilization and shade.[23]

---

[19] For farms pursuing Salmon-Safe certification in BC, use the quantitative methodology of *EFP Riparian Health Assessment* (AGRI, 2010) for further guidance.

[20] For farms pursuing Salmon-Safe certification in BC, refer to *MAFF*, 2004.

[21] For farms pursuing joint Salmon-Safe/EFP certification, there are funding opportunities to assist with riparian assessments. See AGRI, 2010.

[22] For farms pursuing Salmon-Safe certification in BC, refer to *ARDDCORP*, 2010.

[23] For farms pursuing Salmon-Safe certification in BC, refer to *Whatcom Conservation District*, 2011.

v. Dying trees, snags and downed logs are left undisturbed in riparian buffer areas to provide cover, forage and habitat complexity for species that use these ecosystems.

vi. Water from areas where runoff tends to concentrate is detained and treated before being discharged to the riparian buffer[24] (see Standard F.4).

Standard F.2.2: Wetlands are protected and wetland buffers established to the greatest extent operationally feasible. Wetland protection is prioritized to provide off-channel salmonid (fish) habitat, improved water quality, additional floodplain storage or other habitat benefits associated with proper wetland function.[25]

Performance requirements:

i. Wetlands not currently in production remain set aside and protected to the greatest extent operationally feasible. If 100 percent of such wetland area cannot remain set aside and protected, wetland loss is mitigated on site to the greatest extent operationally feasible in a way that contributes to overall site ecological and hydrological functions. R

ii. In dedicated agricultural production areas, wetlands are protected by a minimum 25-foot uncultivated buffer or to the greatest extent operationally feasible.[26]

Restoration Efforts:

i. Impacts to wetland functions, including water quality, water quantity and habitat connectivity are minimized within 100 feet of wetlands to the greatest extent operationally feasible.

ii. Problem invasive plants in both wetlands and wetland buffers are identified, removed and replaced with suitable plant species adapted to site conditions. Whenever possible, native species are selected over other plants.

iii. Wetlands and wetland buffers should be vegetated consistently with local intact reference wetland conditions. Wetland vegetation, whether emergent, scrub-shrub or forest is characteristic of local reference wetlands and is

---

[24] For farms pursuing joint Salmon-Safe/EFP certification, refer to AGRI (2010) for additional requirements that vary regionally depending on precipitation.

[25] The goal is to improve wetland function consistent with local intact (properly functioning) reference wetland conditions. Note: Some enhancements may require agency notification or permitting documentation. Consultation with a local conservation specialist will help farm owners/managers navigate these options. Depending on the local reference conditions, enhancements may include:

- improvements of wetland hydrology and wetland vegetation;
- variations in wetland depth or spatial complexity;
- introduction of habitat features, such as placement of woody debris or encouragement of snags; and
- creation of adjacent upland habitats to support the life histories of wildlife using both wetland and upland habitats.

[26] For farms pursuing Salmon-Safe certification, refer to *Wetland Stewardship Partners*, 2009.

consistent with habitat needs of local wetland species. New plantings are selected to improve overall biodiversity on a site within the constraints of project conditions. Plantings that attract pollinators will also improve site biodiversity and may provide benefits for agricultural productivity.

iv. If no livestock are kept on the property, wetlands and wetland buffers may be unfenced to allow unhindered access for local wildlife. Grazing by livestock is minimized and properly managed in wetland areas.

v. Degraded wetlands and wet areas exhibiting poor agricultural productivity have been identified. When possible, there is a plan to remove these areas from production and to restore natural functions to the greatest extent operationally feasible. Mitigate impacts from use of wetland areas by removing them from agricultural production, when possible, or by creating improved floodplain habitat, off-channel habitat and/or other wetland functions (e.g., habitat quality or water storage and infiltration).

F.3 Water Use Management

The focus of this category is the use of water for irrigating farms. Withdrawals from waterways have the potential to impact salmonid and other aquatic species habitat, primarily by reducing in-stream flows. Impacts can be minimized by selecting alternative water sources that do not reduce in-stream flows critical for salmon habitat and populations and by reducing water use on such stream reaches. Water conservation methods that change the rate and volume of withdrawal are also beneficial and include drought-tolerant crops, efficient irrigation systems[27] and the reduction of irrigated areas.

Standard F.3.1: Irrigation practices are managed to avoid impacts to salmonids and other aquatic species.

Performance requirements:

i. Irrigation system is efficient and minimizes water losses that do not contribute to crop productivity to the greatest extent operationally feasible. When applicable, conserved water is converted to in-stream use.

ii. For farms with a choice of irrigation water sources, the selected source of irrigation water results in the least potential impact to in-stream flows or stream reaches critical for salmon and other aquatic species both on farm property and downstream from it.

iii. Fish losses are avoided by installing fish screens (or comparable quality and type). Due to the presence of debris and sediment, and because of temperature changes and other damaging factors, fish screens are maintained on a regular basis.[28]

iv. Work on diversions, including installing and servicing pumps and intakes, is only done when salmon are not present in streams, during approved in-stream work periods and in accordance with federal, provincial, state and local government regulations and permits.[29] R

v. Water is conserved by scheduling timing of water application in specific consideration of crop requirements, daily rainfall amounts, soil types and evapotranspiration rates for the area. Soil moisture is monitored to provide timely information about soil moisture levels relative to crop needs to improve irrigation efficiency. Excessive water application is unacceptable.[30]

---

[27] For farms pursuing Salmon-Safe certification in BC, refer to AGRI (2010) for irrigation management planning and to modify equipment to improve water use efficiency.

[28] See, e.g., *NOAA Fisheries 2008* or *DFO*, 1995.

[29] If in-stream work is done when there is water in the stream, water is diverted around the construction area to limit impacts to water quality. As part of the dewatering, the program shall incorporate fish salvage/fish rescue to remove fish from the work area and prevent them from entering the construction area. Turbidity curtains or other in-stream sediment control and containment measures are used to prevent sediment and construction debris from entering the waterway.

[30] For farms pursuing Salmon-Safe certification in BC, an *Irrigation Assessment Guide* is part of the EFP materials (AGRI, 2010).

vi. Irrigation withdrawal volumes and rates are estimated with the intent of showing a reduction in water use over time to demonstrate that no additional efficiencies are feasible.

vii. The performance of irrigation system equipment is routinely monitored to verify that motors, pumps and delivery systems are performing well and according to specifications.

Restoration Efforts:

i. If the only available irrigation source is salmon-bearing or potentially salmon-bearing streams, irrigation withdrawals are not harming fish or significantly limiting habitat quality for fish. If it is reasonably possible that fish may be harmed by irrigation withdrawals, the farmer implements one or more of the following to the greatest extent operationally feasible:

- reduce the amount of area planted with high water demand crops;
- select alternate crops that demand less water; and/or
- seek alternative sources of water that do not limit habitat quality, particularly when required by fish during critical periods of their life cycle.

ii. If excess water rights not used for crop production exist for the property, consider leasing or transferring these excess water rights.

F.4 Erosion Prevention and Sediment Control

Sediment delivery to fish-bearing streams is a major cause of habitat degradation, particularly for salmonid spawning beds. Stream bank erosion and upland surface soil erosion are the principle sources of sediment. Management practices need to adequately protect soils from movement in low and upland environments.

Standard F.4.1: Soil is protected from erosion and sediment is not transported to downstream waterways or surface water bodies.[31] Erosion is prevented using regionally adapted vegetative cover, mulch or other methods to prevent off-site movement of sediment.

Performance requirements:

i. There is no evidence of unstabilized areas where surface runoff reaches streams or other waterways (e.g., rills, ditches, ruts) on farm property.

ii. Region adapted cover crops or pasture grasses are used to minimize soil erosion losses.[32]

iii. Cover crops and pasture grasses selected are drought-tolerant and regionally adapted, sustain or increase soil organic matter levels, enhance soil fertility (reducing the need for nutrient application) and provide habitat value for wildlife (e.g. native plants) to the greatest extent operationally feasible. See Standard F.7.

iv. Highly erodible areas, such as the ends of row crop furrows, steep areas or locations with unstable soils are maintained in continuous vegetative cover or covered with straw, crop residues, mulch or geotextile fabric to prevent erosion.

v. Deep-rooting native plants are used wherever possible to control erosion, improve soil stability and enhance habitat value of crop rotation areas, buffers and set-aside areas.

vi. Soil compaction is minimized by avoiding use of heavy farm machinery when soils are susceptible to wasting or damage (e.g., when wet) and by planting deep-rooted crops or cover crops in high traffic areas. These practices help increase the soil infiltration rate and water holding capacity, thereby reducing surface runoff and associated erosion and sedimentation.

vii. To the greatest extent operationally feasible, farm roads are stabilized, where appropriate, (e.g., where materials will not enter streams) with gravel, pine or hemlock wood chips (avoid cedar), or geotextile fabric or vegetative ground cover capable of withstanding farm machinery.

[31] For farms pursuing Salmon-Safe certification in BC, refer to EFP guidelines (AGRI, 2010) for additional requirements.

viii. Stormwater management systems reduce runoff from buildings and impervious surfaces such as roadways and parking lots using techniques such as dispersion (vegetated swales, rain gardens) and/or infiltration (vegetated filter strips) to minimize erosion and water quality impacts.[32]

Restoration Efforts:

i. Reduced or minimum tillage allows plant residues to accumulate on the soil surface. This increases organic matter in the soil and increases soil organism diversity.

ii. Crop rotation is used to build soil to the greatest extent operationally feasible.

Standard F.4.2: Best management practices (BMPs)[33], such as filter strips, water quality treatment ponds, swales or other measures are used to prevent sediment from high erosion hazard areas including roads, steep slopes, dry gullies, animal watering and feeding locations and animal trails from reaching waterways.

Performance requirements:

i. Erosion prevention and sediment control BMPs are developed and maintained at the farm. Farm property is regularly inspected following storm events. Evidence of erosion or surface runoff during inspections is immediately repaired consistent with BMPs and the above standards.

[32] For farms pursuing Salmon-Safe certification in BC, AAFC has produced a *"Revised Universal Soil Loss Equation for Application in Canada"* (RUSLEFAC). *http://sis.agr.gc.ca/cansis/publications/manuals/2002-92/intro.html*

[33] For farms pursuing Salmon-Safe certification in BC, the EFP uses the phrase "beneficial management practices". Agricultural BMPs are farm management practices that help producers meet environmental and economic goals by: a) minimizing and mitigating impacts and risks to the environment by maintaining or improving the quality of soil, water, air and biodiversity; and b) ensuring the long-term sustainability of natural resources used for agricultural production.

F.5 Integrated Pest Management and Water Quality Protection

Salmon survival depends on clean water free from harmful levels of nutrients (fertilizers), pesticides (herbicides and insecticides, fungicides and other biocides), organic waste and other pollutants. These contaminants can travel long distances in stormwater runoff to receiving streams. The principal methods for avoiding contamination of salmon-bearing waters are to minimize overall inputs of these contaminants, restrict the type of inputs and develop an acceptable method of application through comprehensive management processes, such as an IPM strategy.

Standard F.5.1: Soil Fertility

Soil fertility is maintained without excess nutrient runoff from cropland to surface waters and without nutrient leaching into shallow subsurface or groundwater.

Performance requirements:

i. Plant tissue analysis, soil testing, or other methods of analysis are conducted on a routine basis to determine that fertilizer is not being over-applied to crops. Yield targets are set to avoid excessive rates of fertilization.

ii. Nutrient application is timed to minimize runoff. Fertilizer use within buffer zones is restricted, with timing, application rate and methods and fertilizer selection based on minimizing impacts to riparian vegetation. R

iii. Soil compaction is minimized by avoiding field operations when soils are wet and by periodically planting deep-rooted crops or cover crops where possible. These practices help increase the soil infiltration rate and water holding capacity.

iv. The farm operation has developed and is adhering to a nutrient management strategy covering all major crops produced on the farm. Fertilizer, manure, compost and other sources of nutrients are applied at agronomic levels. If excess nutrients remain in the soil at the end of the growing season, small grains or other cover crops are planted to help keep excess nutrients from leaching to downstream waterways.[34]

Standard F.5.2: Avoiding Use of High Hazard Pesticides

Salmon-Safe maintains a "High Hazard" list of restricted pesticides (Appendix C) that pose excessive risks to salmon and aquatic ecosystems, even when used carefully and in accordance with product label directions. The compilation of the list, and additions to it, are driven by potentially acute or chronic impacts on salmonid

[34] For farms pursuing Salmon-Safe certification in BC, refer to EFP guidelines (AGRI, 2010) and Environmental Management Act for additional provincial reporting requirements.

fish and other aquatic species, including developmental and behavioral impacts. Adverse impacts on essential organisms in the salmon food chain are also a factor in determining whether a pesticide should be placed on the list.

Performance requirements:

i. No pesticide from the "High Hazard Pesticide List" (Appendix C) is to be applied.[35] R

ii. For applicable farms, PRiME risk levels for both aquatic and non-aquatic indicators are within the acceptable range or mitigation strategies are applied to reduce risk levels with PRiME model output[36].

Standard F.5.3: Implementation of IPM Program

To minimize the possibility of waterway contamination with agricultural chemicals, it is important that growers look carefully at how they manage pests. IPM helps growers establish an effective pest control management strategy that takes into account the environment, avoids unnecessary treatments and makes best use of the least toxic products and methods available.

Performance requirements:

i. Farm managers are committed to and demonstrate the use of IPM. Grower agrees to provide documentation of the use of IPM from scouting reports, ongoing pesticide use records, logs of cropping histories and past pest problems or records of other practices. It is recommended that sightings of beneficial insects also be recorded in a farm log.

ii. Fields are scouted to enable early detection and targeted treatment of pest, disease and weed outbreaks.

iii. Pesticide selection considers environmental persistence of chemicals, toxicity to aquatic species, runoff and leaching potential.

iv. Growers adopt soil fertility and cultural methods that help crops build natural pest resistance, attract pests away from crops and help slow the arrival and migration of pest species to crops.

[35] Salmon-Safe is able to allow highly restricted and limited use of high risk pesticides as an exception based on consultation with university researchers or extension and submission to Salmon-Safe of a variance request as described in "Appendix C: High Hazard List".

[36] Salmon-Safe PRiME implementation model currently under development. More information available at *http://www.salmonsafe.org/PRiME*

Restoration Efforts:

i. A pesticide reduction strategy is in place that reduces the impact of, the unnecessary reliance upon or eliminates the need for pesticides. These practices generally include use of non-spray control methods (cultural practices and mechanical controls) and increased use of biologically based methods for reducing the amount of chemical control required (see Appendix B).

Standard F.5.4: Responsible/Safe Use of Pesticides

It is essential that growers be committed to using agricultural chemicals safely[37] and responsibly and that they provide thorough training for all workers who handle pesticides. BMPs for responsible pesticide use are in place to assess conditions, evaluate needs and protect people and the environment during the course of daily farm activities where pesticides are used.

Performance requirements:

i. Spraying is managed carefully to avoid drift and run-off. The use of ultra low volume (ULV) applications is discouraged, except under ideal spraying conditions. Spraying is timed to avoid rain.

ii. Policy requiring field worker training in pesticide handling and use is in place and effectively implemented. This ensures farm worker safety is never compromised.

iii. Spray equipment is calibrated routinely to assure accurate rates of application and minimize control failures and environmental impacts.

iv. Anti-backflow devices are used on all continuous water, fertilizer or pesticide application systems. Air gaps are maintained over spray tanks.

v. Mixing, loading, transport and cleaning of pesticide and fertilizer application equipment do not produce appreciable surface water runoff. Practical steps are taken to minimize the chance of accidental spills.

vi. On farms where fuel, fertilizer or pesticides are stored in underground tanks, a groundwater or subsurface monitoring well is in place and checked at least once annually.

vii. Pesticides are stored in a safe locked building with ready access to safety and fire protection equipment. To prevent liquid products from flowing directly into streams or rivers in the case of a fire or explosion, the storage building is either surrounded by a berm or is sited sufficiently far from waterways.

[37] For farms pursuing Salmon-Safe certification in BC, consult EFP guidelines (AGRI 2010) for additional restrictions related to pesticide use, applicator certification, spill reporting, and restrictions on petroleum storage and use.

Standard F.5.5: Material and Waste Storage and Handling

Proper handling, storage and disposal of potentially hazardous materials, including pesticides and agricultural waste, is critical to protecting streams, salmon and other wildlife.

Performance requirements:

i. Materials handling is done in dry areas and where spills can be cleaned up without risk of contamination of stormwater or streams.

ii. Materials that could potentially contaminate streams or stormwater are stored in a secure dry location.

iii. The farm has rigorous policies in place to ensure that no contamination of stormwater or streams occurs due to storage, cleaning of equipment or disposal of materials and these policies are adhered to by farm personnel.

F.6 Animal Management

Intensive management of livestock through rotational grazing practices is highly recommended. Rotating or moving livestock from pasture to pasture is determined by the number of livestock, pasture size, whether the pasture is dry land or irrigated, the season and plant growth.

Standard F.6.1: Livestock are managed to avoid excessive soil compaction, erosion and loss of vegetation cover while enhancing pasture condition.

Performance requirements:

i. On pasture lands, adequate forage remains or is restored throughout the year to protect soil and root systems, promote water infiltration and soil fertility and filter surface water runoff.

ii. Corridors and trails used to move livestock around pastures or to range land are managed to limit gullying and erosion and to preserve vegetation cover.

iii. Fencing, water gaps, dense vegetation or other methods are utilized to prevent unwanted livestock access to streams[38] and other fish-bearing water bodies. R

iv. Alternative watering methods[39], like solar pumps, nose pumps or wind pumps are considered.

v. Intensive rotational grazing systems are utilized to help prevent compaction and erosion, maintain appropriate mowing and grazing heights and allow pastures to recover from grazing.

vi. Forage areas are routinely monitored for invasive plant populations. Spreading invasive plant populations on forage lands are identified through this process and treated early before they become a significant or pervasive problem.

Standard F.6.2: Conduct animal waste management activities that limit fecal contamination of streams and water bodies. Manure has a high nutrient resource value that can be utilized to reduce fertilizer needs and to help avoid contamination of waterways.

Performance requirements:

i. Watering facilities are installed that limit or eliminate the need for livestock to have access to streams and irrigation ditches. R

---

[38] BC-based Salmon-Safe candidate farms refer to BCMAL. BC Range Fact Sheets & Publications: *"Riparian Grazing Management"*, *http://www.agf.gov.bc.ca/range/factsheets.htm#riparian*

[39] BC-based Salmon-Safe candidate farms refer to BCMAL, 2008. *"Livestock Watering Worksheet: Watering Livestock Directly from Watercourses"*, *http://www.agf.gov.bc.ca/resmgmt/publist/500Series/590302-1.pdf*

ii. There is a manure management system in place (or one actively in development) to prevent contamination of surface or groundwater by animal waste.[40] See Appendix B for components of a manure management system. There is no evidence of manure leachate overflow from manure storage areas. R

iii. The operation has, or is actively developing, a manure and nutrient management strategy covering all manure produced on the farm as well as all other sources of nutrients. A system is in place to beneficially recycle the nutrients in manure when supplies are in excess of local crop needs. Manure is applied to fields and pastures at agronomic rates, preferably in the form of compost. This field application should not be done during the rainy season.[41] Where appropriate, fields are dragged to ensure even distribution of manure.

[40] For farms pursuing Salmon-Safe certification in BC, refer to *Waste Management Code* and EFP guidelines (AGRI, 2010) for additional restrictions related to manure management.

[41] For farms pursuing Salmon-Safe certification in BC, see Farmwest for suggested spreading dates. *http://www.farmwest.com/climate*

F.7 Landscape-level Biological Diversity Enhancement

There is a growing body of evidence suggesting that agriculture benefits from greater biodiversity. Soil microfauna, such as bacteria and fungi, break down organic matter, help maintain the quality of soils and recycle nutrients. Insects, spiders and mites pollinate crop plants and fruit trees and prey on agricultural pests. At the ecosystem level, farm hedgerows and woodlots can attract beneficial insects or predators that feed on agricultural pests. F.7 standards in this category are focused on ensuring that farm practices support and enhance biodiversity for fish, wildlife and vegetation throughout the farm.

Standard F.7.1: Manage cultivated areas on the farm to encourage biodiversity. Using practices such as crop rotation and intercropping (the use of two or more crops together in combinations) supports beneficial insect diversity and adds residues of different crops to the soil, stimulating soil organism diversity and aiding nutrient and disease management.

Performance requirements:

i. In-farm biodiversity requires 5% ecological compensation area or in-farm functional equivalent. Add biological complexity to farming systems by increasing biodiversity of crops or areas surrounding crop margins. Strategies may include crop rotation, intercropping, strip cropping, pollinator or beneficial insect planting strips, hedgerows, windbreaks or other practices that increase ecosystem well-being. R

Standard F.7.2: Manage cultivated areas on the farm in a manner that maintains long-term soil health, biodiversity, structure and fertility. Incorporate soil amendments, cover crops and plant residues as necessary to maintain soil. Compost, cover crops and tilled-in plant residues help increase biodiversity within the soil which can lead to competitive exclusion of food-borne pathogens, increased soil fertility and a more dynamic soil ecosystem.

Performance requirements:

i. To the extent operationally feasible, provide soil cover (e.g., mulch, compost dressing) between cropping cycles or in areas where the ground is not cropped. Cover crops introduce nutrients and organic matter to soils, support soil microbial diversity and provide habitat for beneficial insects and bird populations.

ii. To the extent operationally feasible, use reduced or minimum tillage techniques to decrease the intensity of soil cultivation and allow plant residues to accumulate on the soil surface. These strategies may promote an increase in the diversity of soil organisms on and below the soil surface, limit loss of topsoil to erosion and reduce the amount of carbon dioxide released into the atmosphere from farming practices.

Standard F.7.3: Implement farm practices that protect and maintain habitat for beneficial insects and wildlife within fields and field margins.

Performance requirements:

i. To the extent operationally feasible, harvest forage crops and mow to manage grass in sections (alternate mowing) to ensure that beneficial insects and wildlife have some habitat intact at any given time. Practice mulch mowing and maintain a mowing or grazing height that is no less than 3 inches in order to protect soil from weed establishment. Omit mowing from the annual maintenance cycle and implement biannual or varied mowing. Where possible, mow native species only after they have gone to seed.

ii. Create and implement an IPM protocol that incorporates strategies to attract beneficial insects. Where possible, provide planting strips as habitat for beneficial insects and other wildlife and promote overall biodiversity. Examples include beetle banks (grass strips in the center of large fields) and pollinator strips/ hedgerows (multi-species planting strips that provide habitat for native insect species/pollinators and also increase biological diversity and resilience) located between fields, at field borders and in riparian zones.

iii. Planting strips are strategically placed where possible to improve or expand riparian buffers, provide critical wildlife habitat, encourage beneficial insects near crops and fields, reduce soil erosion, provide slope stabilization and uptake nutrients and intercept sediment and other pollutants that may emanate from fields or developed areas and roadways.

iv. When possible, provide tillage refuges by leaving areas with a native cover or soil amending cover crop between planting periods. When possible, delay fieldwork until after ground-nesting birds have finished nesting (young have fledged).

Restoration Efforts:

i. Incorporate strategies to encourage beneficial insects and provide habitat diversity within large fields such as planting strips, intercropping, hedgerows and beneficial-insect attracting crops.

ii. To the extent operationally feasible, where shading will not adversely affect crops, plant and protect new trees to promote ecosystem services.

Standard F.7.4: Protect and restore permanent non-farmed areas, including forests, wetlands, marginal fields, unimproved grasslands, fence rows or other areas that are not actively farmed to promote refuges for biodiversity.

Performance requirements:

i. Incorporate native flowering plants[42] that attract beneficial insects in areas that are not actively farmed.

ii. Encourage development of areas with plantings that include both structural (trees, shrubs, and groundcover species) and species diversity along field borders and irregularly shaped areas of the farm to offer wildlife habitat and encourage beneficial insects.

iii. Leave wildlife trees (dying trees, snags and downed logs) undisturbed in uncultivated areas to provide cover, forage and habitat complexity for species that use such ecosystems.[43]

iv. Encourage bats and insect and rodent-eating birds through farm management practices.

Restoration Efforts:[44]

i. Identify and eradicate problem invasive plants in non-farmed areas. Where invasive species and noxious weeds are identified, replace with native plant species to improve overall biodiversity in uncultivated areas.

ii. Develop a strategy to monitor and control invasive species and noxious weeds using IPM protocols.

iii. Apply weed- and pest-free seed, planting stock, soil amendments and mulches.

iv. Where suitable, install nest boxes, nesting platforms, nest perches, bee blocks and other habitat enhancement features such as conserving snags to improve habitat for bats, birds, pollinators or other wildlife.

[42] Such plants are particularly important to adults of the wasp and fly families, which require nectar and pollen sources to reproduce the immature larval stages that parasitize or prey on insect pests.

[43] Leave woodlands as "wild" as possible. Retain fallen and rotting trees to provide habitat for insects, decomposers and soil microorganisms. Incorporate taller grass margins and low-growing shrubs in woodland edges to provide continuous habitat from field to woodlands.

[44] For farms pursuing Salmon-Safe certification in BC, refer to *ARDCORP* (2010).

Standard F.7.5: Protect and restore permanent non-farmed areas, including forests, wetlands, marginal fields, unimproved grasslands, fence rows or other areas that are not actively farmed to promote refuges for biodiversity.

Performance requirements:

i. Encourage wide ranging rodent-eating terrestrial predators through farm management practices.

ii. Habitat features on the property are connected by vegetated corridors to other habitat areas on the farm and on adjacent properties to the greatest extent operationally feasible.

iii. Avoid impediments to wildlife movement, including fencing, contiguous development or other unnatural barriers between habitats, to the extent operationally feasible. If fencing is needed, it is designed to be wildlife-friendly.

Restoration Efforts:

i. Where habitat features are not connected to other habitat areas (especially water), establish hedgerows, grass strips, tree canopy or other contiguous vegetation.

ii. To the extent operationally feasible, remove existing barriers to wildlife movement.

APPENDIX A | Documents Required for Certification

The following documentation should be prepared to the greatest extent possible prior to a site visit by a Salmon-Safe evaluator. The evaluator can assist in completing any outstanding information from this list during the site visit and will be able to identify these information needs.

Farm Map

Farm map(s) should be prepared using an aerial photograph, topographic map, a photocopy of a road map or a tax map as a base. If none of these base maps are available, the farm map may be hand-drawn. It should be legible and able to show, as applicable, the following information:

- parcel boundaries
- rivers, waterways, wetlands[45]
- irrigation ponds and canals
- buildings/infrastructure[46]
- steep slopes, bare soils and/or other highly erodible land
- primary roads/bridges

Integrated Pest Management Summary Information

Integrated pest management strategies and related documentation including pesticide use records, minimum of 12 months (see Appendix B for guidance).

Manure Handling and Storage Design Information

Provide calculations demonstrating manure handling system has adequate capacity[47] for 25-year, 24-hour storm event.

Provide calculations or other documentation demonstrating manure handling system has sufficient storage capacity to store 120 to 180 days of manure production or provide design information for composting, biogas or other methods for manure handling consistent with Standard F.6.1.

Irrigation Management Summary

Provide an overview of irrigation methods, including water right summary and estimated annual water use.

---

[45] For farms pursing Salmon-Safe certification in BC, refer to the nutrient management section of the EFP (AGRI, 2010) for manure storage guidelines.

[46] including farm operation areas (fields, animal feeding areas, equipment storage areas, etc.).

[47] For farms pursuing Salmon-Safe certification in BC, refer to the nutrient management section of the EFP (AGRI, 2010) for manure storage guidelines.

APPENDIX B | Guidance on Developing an Integrated Pest Management (IPM) and Nutrient Containment Strategy

IPM is a decision-making process that treats pests as a part of the total production system.

IPM Process

There are five parts to the IPM process:

(1) Pest Identification—to positively identify the pest and learn about its biology

(2) Field Monitoring—to track pest problems and beneficial insects over time

(3) Setting Action Thresholds—to determine at what point treatment is necessary

(4) Reviewing Treatment Options and Making the Treatment—using "least toxic" products when necessary, but also biological controls, trapping and other non-chemical methods

(5) Evaluation—to determine whether the treatment was effective and what else needs to be done

Key Elements of a Salmon-Safe IPM Strategy

A Salmon-Safe IPM Strategy contains the following key elements:

(1) Pest control strategy that emphasizes pest prevention and commitment to evaluate and use physical, mechanical or biological control methods to the greatest extent operationally feasible before pesticides are used. Pest control strategies will be reevaluated at least once per year.

(2) Commitment to refrain from using high-hazard pesticides identified in Appendix C

(3) Criteria for choosing any method of pest control including any potential negative impacts to aquatic systems

(4) List of Limited Use pesticides approved for use with annual review based on available information on impacts to aquatic systems

(5) Training and education in pest management techniques and IPM strategy

(6) Buffer zone width and restrictions for use of pesticides within buffer zones

(7) List of pesticides applied and discussion of methods (including equipment, frequency, timing, location and formulation and amount used)

(8) Precautions taken to prevent pesticide drift

(9) Pesticide applicator licensing requirements

(10) Pesticide storage, rinsate and disposal policies

(11) Pesticide tracking system

Manure Management System

Components of a manure management system include the following:

(1) A manure storage management strategy in place which takes into consideration a 25-year, 24-hour storm event.

(2) Sufficient storage capacity to store 120 to 180 days of manure production, unless the operation has access to other environmentally acceptable methods to recycle manure nutrients such as composting and/or biogas production. All manure and/or compost piles are covered during rainy periods and/or a leachate containment system is in place.

(3) Confined livestock facilities, manure piles, liquid storage tanks and lagoons are not located in floodplains or areas with shallow groundwater tables and/or frequently moist or saturated soils. Clean water run-off from roofs, surface flows and overflowing waters are diverted away from manure piles.

(4) Livestock confinement and manure storage facilities are designed to prevent any direct or indirect flow of manure into streams, rivers or other surface waters in the event of sustained heavy rains and runoff, ruptures in storage tanks, leaching from in-ground pits or breaching of storage lagoons.

(5) Seasonal livestock feeding areas are managed to avoid environmental contamination.

Biologically-based Methods for Salmon-Safe Growers

Biologically-based methods for Salmon-Safe growers may include:

(1) Insect-eating birds and bats can be encouraged by providing species-specific nesting boxes.

(2) Beneficial plantings and/or choosing to not mow beneficial plants around the fields can encourage predatory insects and thereby reduce the need for chemicals.

(3) Trap cropping or planting rows designated for insect use can decrease insect pressure on viable crops.

(4) Beetle banks can be installed. These grass strips may be planted in the center of large fields to provide habitat for beneficial insects. These take their name from ground beetles, an important predatory insect.

Additional resources for developing and improving IPM strategies can be found at *"Farmscaping for Beneficials Resource List"* (*www.beetlebank.org or www.ipmnet.org*) and *"Plants for Pollinators in Oregon" (USDA & NRCS Plant Material No. 13).* See Standard F.7 for additional methods for promoting on-farm biodiversity.

IPM Template

This section is provided as one option for demonstrating compliance with Standard F.5.3. Alternative formats are acceptable, as long as they address the items described in the Standard.

Pest Control Strategy

Describe how pesticides are selected.

Limited Use List

(1) Describe which pesticides are approved for use in aquatic buffers.

(2) What methods or restrictions are used to protect waterways when applying pesticides within buffer zones?

(3) What policies are in place to ensure no contamination of stormwater or streams occurs due to the storage and cleaning of equipment or disposal of pesticides?

(4) How are these policies communicated to farm staff?

Pesticide Tracking

How is pesticide use tracked? Confirm the farm conforms with required Department of Agriculture tracking and describe any additional information collected.

Table B-1. Pesticide Use and Storage Locations

List all pesticides stored and used on farm (attach additional pages if necessary).[1]	High hazard? Y / N[2]	Active Ingredient	Storage Location	Location(s) where pesticide is applied	Distance from waterways	Application rates

[1] Farm owner or manager must provide update to Salmon-Safe if additional pesticides are added.

[2] If any pesticide included on the high hazard pesticide list is used, a written explanation for each high hazard pesticide must be provided. Describe why the pesticide is needed, what practices are used to minimize hazard to aquatic systems and provide specific information on locations, timing and methods of application.

Table B-2. Fertilizer Use

List all fertilizers stored and used on farm (attach additional pages if necessary).	Fertilizer Grade			Slow Release?	Location(s) where applied	Application rates
	Nitrogen	Phosphorus	Potassium	Y / N		

Pesticide Applicator Licensing

All persons applying pesticides must be currently licensed as private pesticide applicators by the Oregon or Washington Departments of Agriculture. Licensed personnel must be specifically endorsed for any of the state-defined categories of pest control they undertake, such as aquatic endorsement for all aquatic pest control activities. Verbal check with landowner or manager.

APPENDIX C | Salmon-Safe List of High Hazard Pesticides

High hazard pesticides are a serious threat to salmon and other aquatic life. Pesticide formulations can also contain other ingredients that are potentially more toxic than the active ingredients, such as non-ionic surfactants. In addition to killing fish, high hazard pesticides at sublethal concentrations can stress juveniles, alter swimming ability, interrupt schooling behavior, cause salmon to seek suboptimal water temperatures, inhibit seaward migration and delay spawning. All of these behavioral changes ultimately affect survival rates.

The table below lists many of the pesticides known to cause problems for salmon and other aquatic life. Use this list to identify pesticides that require special consideration.

Note: This table lists only some of the currently available and commonly used pesticides.

SALMON-SAFE LIST OF HIGH HAZARD PESTICIDES

revised 1/18

INSECTICIDES			
abamectin*	dimethoate (3)	methamidophos (3)	propargite* (7)
acephate	esfenvalerate*	malathion* (1)	spirodiclofen*
bifenthrin*	ethoprop (3)	methidathion	spirotetramat
carbaryl (2)	fenamiphos* (3)	methomyl (2)	tefluthrin*
chlorantraniliprole	fenbutatin-oxide *+ (7)	methyl parathion	terbufos*
chlorpyrifos *+ (2)	fenpyroximate*	naled* (3)	thiacloprid
cyfluthrin*	fipronil*	novaluron	tralomethrin*
cypermethrin*	imidacloprid	permethrin*	zeta-cypermethrin
diazinon *+ (1)	indoxacarb	phorate *+ (3)	
diflubenzuron (7)	lambda-cyhalothrin*	phosmet* (3)	
FUNGICIDES			
azoxystrobin*	copper sulfate**	maneb*	thiram
bensulide	fenarimol	picoxystrobin*	trifloxystrobin*
captan	folpet*	propiconazole	triflumizole
carboxin	iprodione	pyraclostrobin*	
chlorothalonil* (4)	mancozeb	quintozene (PCNB)	
HERBICIDES			
2,4-D (4)	dithiopyr	norflurazon+	thiobencarb
alachlor	diuron+ (4)	oryzalin (5)	triallate
atrazine	fluazifop-p-butyl	oxadiazon+	triclopyr BEE (4)
bromoxynil*	isoxaben	oxyfluorfen	trifluralin+ (5)
copper sulfate**	linuron (4)	pendimethalin+ (5)	paraquat dichloride
dichlobenil	metolachlor	pentachlorophenol (PCP)*	simazine
diclofop-methyl			

Very Highly Acutely Toxic and/or Highly Acutely Toxic[1] to fish and/or aquatic invertebrates. Based on EPA's Aquatic Life Benchmarks[2].

Pesticide names followed by a number in parentheses indicates the specific NOAA /NMFS Biological Opinion where it was assessed for jeopardy and/or habitat destruction/modification to endangered salmonids in accordance with the Endangered Species Act (***https://www.epa.gov/endangered-species***), regarding the 37 pesticides listed in the Washington Toxics Coalition (WTC) court settlement. Completed BiOps listed below[3].

* Active ingredients being Very Highly Acutely Toxic (LC50 or EC50 <100 ug/L) to BOTH fish and aquatic invertebrates

\+ Active ingredients determined to generally have very high potential for risk of off target movement through surface runoff, based on the pesticide's adsorption to soil/sediment and its field dissipation half-life (persistence) ***http://ccpestmanagement.ucanr.edu/files/237465.pdf***

**Salmon-Safe limited use restrictions apply to any copper containing pesticide, including copper hydroxide, copper ammonium hydroxide, copper carbonate, copper oxide and others.

Salmon-Safe High Hazard Pesticides List | List and Table References with Additional Notes

1. US EPA Toxicity Classification	Acute Aquatic LC50 or EC50 (ug/L)
Practically Nontoxic	> 100,000
Slightly Nontoxic	> 10,000; <= 100,000
Moderately Toxic	> 1,000; <= 10,000
Highly Toxic	**> =100; <= 1,000**
Very Highly Toxic	**< 100**

These ratings are based on acute toxicity and do not account for chronic and/or possible sublethal effects:

- Fish acute toxicity is generally the lowest 96-hour LC50 or EC50 in a standardized test, commonly using rainbow trout, fathead minnow or bluegill.
- Acute invertebrate toxicity values are usually the lowest 48 or 96-hour LC50 or EC50 in a standardized test commonly using midge, scud or daphnia.

2. Both EPA-established acute and chronic aquatic benchmarks are available on the EPA website: *https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-pesticide-registration*

In addition to inherent toxicity, the overall assessment of the risk of a specific pesticide to aquatic water quality should consider a number of other factors: Pesticide Properties (e.g., water solubility, soil adsorption, half-life), Environmental Properties (e.g., soil makeup, climate) and Management Practices (e.g., application methods, use rate, irrigation, no-till). These properties and their possible interactions are discussed in detail in the following UC publications: *http://anrcatalog.ucanr.edu/pdf/8119.pdf* and *http://ccpestmanagement.ucanr.edu/files/237465.pdf*

The 28 Threatened or Endangered species listed in the Biological Opinions (BiOps) are described as Evolutionarily Significant Units (ESU) and are species, location/habitat and temporally specific. For example, Chinook salmon are assessed as 9 separate ESU's in the BiOps: (1) Chinook salmon (Puget Sound); (2) Chinook salmon (Lower Columbia River); (3) Chinook salmon (Upper Columbia River Spring-run); (4) Chinook salmon (Snake River Fall-run); (5) Chinook salmon (Snake River Spring/Summer-run); (6) Chinook salmon (Upper Willamette River); (7) Chinook salmon (California Coastal); (8) Chinook salmon (Central Valley Spring-run); and (9) Chinook salmon (Sacramento River Winter-run).

Refer to the Biological Opinions for a detailed list and description of each ESU and their geographic range *http://www.nmfs.noaa.gov/pr/consultation/pesticides.htm*

Refer to the NOAA/NMFS Biological Opinion Schedule on the NOAA Fisheries website *http://www.nmfs.noaa.gov/pr/consultation/pesticide_schedule.htm*

Variances and Variance Requests

A farm using any of the pesticides indicated as "High Hazard" may be certified only if written documentation is provided that demonstrates a clear need for use of the pesticide, that no safer alternatives exist and that the method of application (such as timing, location and amount used) represents a negligible hazard to water quality and fish habitat. All variances must be approved in advance by Salmon-Safe.

For more information about the variance process, or to request a variance form, please contact Salmon-Safe at **info@salmonsafe.org.**

Salmon-Safe Inc.
1001 SE Water Ave, Suite 450
Portland, Oregon 97214
(503) 232-3750
info@salmonsafe.org

www.salmonsafe.org

APPENDIX D | Resources for Preliminary Assessment and Restoration Funding

Water Management and Irrigation Efficiency Resources

Freshwater Trust

Freshwater Trust works with landowners to restore flows to Columbia River tributary basins that are a priority for watershed restoration because of the presence of ESA-listed fish species. Farms with surface water withdrawals from streams in the Hood, Umatilla, Grande Ronde and John Day River basins would be eligible for lease, sale or efficiency incentives focused on restoring flows.

The Freshwater Trust
http://www.thefreshwatertrust.org/

Washington Water Project of Trout Unlimited

Washington Water Project advocates for collaborative, commonsense water planning solutions that balance the needs of communities, farms and ranches with the health of rivers, fish and wildlife habitat. WWP also partners with ranchers and landowners to restore damaged streams and watersheds.

Washington Water Project of Trout Unlimited
http://www.tu.org/conservation/western-water-project/washington

Columbia Basin Water Transactions Program

The Columbia Basin Water Transactions Program (CBWTP) works with landowners in Oregon, Washington, Idaho and Montana to restore flows to streams through permanent acquisitions, leases, investments in efficiency and other incentive-based approaches.

Columbia Basin Water Transactions Program
http://www.cbwtp.org/jsp/cbwtp/index.jsp

Washington Water Trust

Washington Water Trust (WWT) works with landowners in Washington State to restore in-stream flows through lease or purchase of water rights. WWT prioritizes the Washington State Department of Ecology's designated 16 Critical Basins
http://www.ecy.wa.gov/programs/WR/measuring/images/pdf/16basinsmap.pdf

Washington Water Trust
http://www.washingtonwatertrust.org/

Technical Assistance with Restoration

Alberta Riparian Habitat Management Society (also known as "Cows and Fish")
http://www.cowsandfish.org/about/about.html

ARDCORP
Environmental Farm Plan.
Management Plan Resources.
http://www.ardcorp.ca/index.php?page_id=40

- Drainage Management Guide
- Irrigation Management Guide
- Irrigation Assessment Guide
- Nutrient Management Guide
- Grazing Management Guide Assessment
- Riparian Health Assessment Factsheet
- Riparian Management Field Workbook

BC Ministry of Agriculture, Food and Fisheries
Agricultural Ditch Maintenance Lower Fraser Valley and Vancouver Island, ND.
http://www.al.gov.bc.ca/resmgmt/ditchpol/brochure/AgDitchMtceBrochure.pdf

BC Ministry of Environment
Best Management Guidelines
http://www.env.gov.bc.ca/wld/BMP/bmpintro.html

BC Ministry of Environment
Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia. March 2006. Available online: http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html

BC Ministry of Environment
Best Management Practices for Installation and Maintenance of Water Line Intakes. July 27, 2006.
http://www.env.gov.bc.ca/okanagan/documents/BMPIntakes_WorkingDraft.pdf

BC Ministry of Environment
Wetland Ways: Interim Guidelines for Wetland Protection and Conservation in British Columbia. Chapter 3: Agriculture. March 2009. http://www.env.gov.bc.ca/wld/documents/bmp/wetland-ways2009/Wetland%20Ways%20Ch%203%20Agriculture.pdf

BC Ministry of Water, Land and Air Protection
Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia. November 2004. http://www.env.gov.bc.ca/wld/BMP/herptile/HerptileBMP_final.pdf

BC Ministry of Water, Land and Air Protection
Standards and Best Practices for Instream Works. March 2004.
http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf

Ducks Unlimited
Wetland and Wildlife Conservation Programs.
http://www.ducks.ca/conserve/programs/index.html

Earnshaw, S. 2000. *Hedgerows for California Agriculture*. Community Alliance with Family Farmers.
http://www.caff.org

Fisheries and Oceans Canada and Ministry of Environment, *Lands and Parks*. 1992.
"Land Development Guidelines for the Protection of Aquatic Habitat".
http://www.dfo-mpo.gc.ca/Library/165353.pdf

Millar, J., N. Page, M. Farrell, B. Chilibeck, and M. Child. 1997. "Establishing Fisheries Management and Reserve Zones in Settlement Areas of Coastal British Columbia. Fisheries and Oceans Canada". *Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2351*. Vancouver, B.C.
Available from http://www.dfo-mpo.gc.ca/Library/213234.pdf

Stewardship Centre for British Columbia
http://www.stewardshipcentre.bc.ca/

Xerces Society
http://www.xerces.org/pollinator-conservation/

References

AGRI. 2010. *BC Environmental Farm Plan Reference Guide*. BC Ministry of Agriculture, Sustainable Agriculture Management Branch. http://www.agf.gov.bc.ca/resmgmt/EnviroFarmPlanning/EFP_Refguide/Refguide_toc.htm

Anderson, M., Englehard, C., Gilgert, W., Henry, H., Isaacs, B., Schoeneberger, M., Sennett, B., Streif, B., Townsend, L., Toor, R., Tuttle, R., Valentine, G., and White, B. Part 614.4. "Conservation Corridor Planning at the Landscape Level: Managing for Wildlife Habitat." USDA, *Natural Resources Conservation Service. National Biological Handbook, Part 190*. 1999. ftp://ftp-fc.sc.egov.usda.gov/WHMI/NBHpdf/nbh613.pdf

ARDCorp. 2010. *Planning for Biodiversity: a Guide for Farmers and Ranchers*. BC Agricultural Research Development Corporation, BC Agriculture Council. http://www.ardcorp.ca/userfiles/file/Biodiversity/2010%20BD%20Guide/BiodiversityGuide2010_TitlepagePrefaceTofC_WEB.pdf

BC Ministry of Agriculture. 2010. *Nutrient Management Reference Guide. Second Edition.* Sustainable Agriculture Management Branch.

BC Ministry of Agriculture. 2011. *Integrated Pest Management*. http://www.agf.gov.bc.ca/cropprot/ipm.htm

BC Ministry of Agriculture. 2003. "Riparian Factsheet: Grazing Frequency and Utilization". http://www.agf.gov.bc.ca/range/publications/documents/frequency.pdf

BC Ministry of Water, Land and Air Protection, March 2004. *Standards and Best Practices for Instream Works*. http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf

DFO. 1995. *Freshwater Intake End-of-Pipe Fish Screen Guideline*. Department of Fisheries and Oceans. http://www.dfo-mpo.gc.ca/library/223669.pdf

DFO. 2006. *Working Near Water in BC and Yukon. Fisheries and Oceans Canada*. http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm

Ecology. 2005. *Stormwater Management Manual for Western Washington*. Washington State Department of Ecology. Available for download: http://www.ecy.wa.gov/programs/wq/stormwater/index.html

MAFF. 2004. "Riparian Factsheet: Bank Re-Vegetation for Agricultural Land". Available for download: http://www.agf.gov.bc.ca/resmgmt/publist/500Series/533440-1.pdf

MAFF. 2005a. "Agricultural Watercourse Classification, Environmental Fact Sheet", BC Ministry of Agriculture, Food and Fisheries. Available for download: http://www.agf.gov.bc.ca/resmgmt/publist/500Series/533500-1.pdf

MAFF. 2005b. *Drainage Management Guide*. 2005. BC Ministry of Agriculture, Food and Fisheries, Resource Management Branch. Available for download: http://www.al.gov.bc.ca/resmgmt/EnviroFarmPlanning/EFP_Drainage_Mgmt_Guide/Drainage_Mgmt_Guide_toc.htm

MOE. 2005. *A Users' Guide to Working in and Around Water: Understanding the Regulation Under British Columbia's Water Act*. BC Ministry of Environment Water Stewardship Division. http://www.env.gov.bc.ca/wsd/water_rights/cabinet/working_around_water_v5.pdf

NFMS (National Marine Fisheries Service). 2008. *Anadromous Salmonid Passage Facility Design*. NMFS, Northwest Region. Portland, Oregon.

Oregon DEQ. 2009. *Willamette Basin Rivers and Streams Assessment*. Oregon Department of Environmental Quality, Laboratory and Environmental Assessment Division, Watershed Assessment Section.

Oregon State Bulletin EM 8721, *A Guide to Multifunctional Hedgerows in Western Oregon*. http://ir.library.oregonstate.edu/jspui/handle/1957/15725

PSAT and WSU. 2005. *Low Impact Development: Technical Guidance Manual for Puget Sound*. Puget Sound Action Team and Washington State University Pierce County Extension. http://www.psat.wa.gov/Publications/LID_tech_manual05/lid_index.htm

Salmon-Safe. 2005. *Salmon-Safe Certification Standards for Corporate and University Campuses, Draft 3.1*. Prepared by Peter Bayles, Northwest Watershed Institute, and Dan Kent, Salmon-Safe Inc.

Salmon-Safe. 2007. *Report of the Evaluation Team Regarding Salmon-Safe Assessment of the South Waterfront Central District, Portland, Oregon*. Salmon Safe Inc.

USDA Economic Research Service. 2010. Retrieved from the internet on April 28, 2010 from http://www.ers.usda.gov/statefacts/

Wetland Stewardship Partners. 2009. *Wetland Ways: Interim Guidelines for Wetland Protection and Conservation in British Columbia*. http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways_docintro.html

WDFW. 2000. *Reference Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual. Washington Department of Fish and Wildlife.* http://wdfw.wa.gov/hab/tapps/fishbarr.htm

WDFW. 2003. *Design of Road Culverts for Fish Passage*. Washington Department of Fish and Wildlife. http://wdfw.wa.gov/hab/engineer/cm/

Whatcom Conservation District. Conservation Reserve Enhancement Program. http://www.whatcomcd.org/CREP

Wild Farm Alliance
www.wildfarmalliance.org

WLAP. 2004. *Standards and Best Practices for Instream Works*. BC Ministry of Water, Land and Air Protection. http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf

Glossary[48]

303(d) list

Under the Clean Water Act (CWA), the 303(d) list is the list of waters (streams and lakes) identified as impaired for one or more pollutants and that do not meet one or more water quality standards. The CWA is administered by the U.S. Environmental Protection Agency, with authority often designated to a state agency for local implementation. In Oregon, the 303(d) list is maintained by the Oregon Department of Environmental Quality (Oregon DEQ).

Best management practices, or BMPs

Schedules of activities, prohibitions of practices, maintenance procedures, and structural or management measures that prevent or reduce the release of pollutants and other adverse impacts on the environment.

Canopy cover

A direct measure of the vegetation over the stream channel. Canopy cover is important in regulating stream water temperature.

Certification standards

A set of specific guidelines or BMPs developed by Salmon-Safe for farm owners and other personnel with an interest in the design, construction, maintenance, and operation of farms in a manner that protects imperiled salmonid species and other associated aquatic and terrestrial habitat elements.

Channel migration zone

A channel migration zone (CMZ) is a geographic area along a stream or river channel where the channel is, has been, or may be in the future.

Evaluation team

Farm assessments are conducted by qualified independent experts hired by Salmon-Safe. The evaluation team is well versed in aquatic ecological science, environmental engineering and landscape and stormwater management.

Large woody debris (LWD)

Wood that is naturally occurring or artificially placed in streams. LWD is essential to a healthy stream because it provides habitat diversity and protects against flooding. Many streams negatively affected by human use lack a necessary amount of LWD.

Management category

In the context of these certification standards, six primary management categories have been defined to express the desired outcome of habitat conditions in a given project area: (1) in-stream habitat protection and restoration; (2) riparian, wetland, and locally significant vegetation protection and

[48] See EFP Reference Guide for terms used in British Columbia. *http://www.ardcorp.ca/index.php?/page_id=40*

restoration; (3) stormwater management; (4) water use management (irrigation activities); (5) erosion prevention and sediment control; and (6) chemical and nutrient containment.

National wetlands inventory (NWI)

A nationwide inventory and mapping database of wetland habitat, as maintained by the U.S. Fish and Wildlife Service. http://www.fws.gov/nwi/

Performance requirement

Specific, measurable criteria that represent the desired outcome for habitat conditions associated with a project. Performance requirements are a subset of their broader certification standards.

Riparian habitat

Characterized by vegetated areas along bodies of surface water, including streams, wetlands and lakes. Typically, riparian habitats are distinct from upland areas, demonstrating an obvious difference in vegetation types, densities and structure.

Salmon-Safe

Salmon-Safe is an independent, nonprofit organization devoted to restoring agricultural and urban watersheds so that salmon can spawn and thrive. Founded as a project of the Pacific Rivers Council, Salmon-Safe became an independent organization in 2002 and is based in Portland, Oregon.

TMDL (Total Maximum Daily Load)

A calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

Wetlands

Areas that are inundated or saturated by ground or surface water at a frequency and duration sufficient to support hydric soils and vegetation typically adapted for life in hydric soil conditions. Wetlands are regulated at the federal, state and local level.