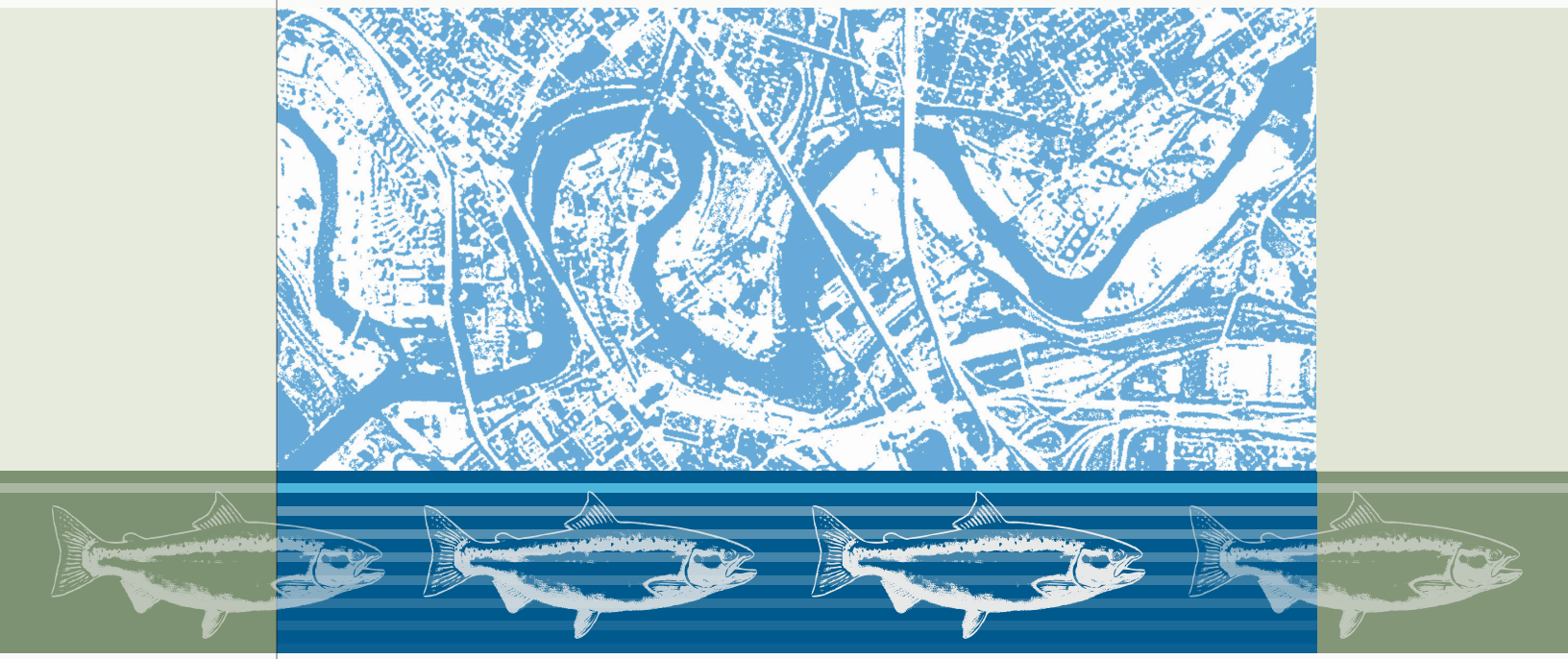
SALMON-SAFE INC.

SALMON-SAFE URBAN IMPLEMENTATION WORKBOOK

Integrated Pest Management

September 2018



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Salmon-Safe Urban IPM Worksheet

Site Name		Project Manager	
Primary IPM Contractor		Key Contact	
Date		Certification Date	

1. Describe IPM objectives

Salmon-Safe promotes Integrated Pest Management, as well as organic and pesticide-free management practices, to help site managers establish a pest management plan that takes the environment into account, avoids unnecessary treatments, and makes best use of the most effective products and strategies that pose the least risk to non-target organisms.

Describe the IPM objectives for this site, including the structure of the decision making process for pest management on the site. Include descriptions of (1) who makes the pest management decisions, (2) what resource types this person uses to make decisions, and (3) how decisions are evaluated after practices are implemented.

2. Pest-specific IPM Strategies (IPM Plan Framework)

Salmon-safe requires documentation of IPM strategies (including thresholds and monitoring protocols) for primary pests encountered on site to ensure that prevention and physical, mechanical, or biological control methods are evaluated for use before pesticides are applied. Criteria for choosing any method of pest control includes evaluation of potential negative environmental impacts, particularly to aquatic systems.

This section will be the basis of your IPM plan, a working document. For each IPM strategy that includes pesticide use, provide a pesticide reduction strategy that will be considered and implemented.

Pest	IPM Strategy	Pesticide Reduction Strategy

Pest-specific IPM strategies will be re-evaluated a minimum of once a year. ☐

3. Pesticides approved for limited use on this site

Salmon-Safe requires that the use of any pesticides on farm is limited in an IPM program.

These pesticides will only be used when there is no undue risk of harm to salmon and aquatic ecosystems. This list is established and reviewed on an annual basis by site management to ensure that potential environmental harm is minimized.

Salmon-Safe maintains a "High Hazard List" list (HHL) of restricted pesticides that pose excessive risks to salmon and aquatic ecosystems, even when used carefully and in accord with product label directions. A Salmon-Safe site using any of the pesticides indicated as "High Hazard" can maintain certification only if written documentation is provided that demonstrates a clear need for one-time or ongoing restricted 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 risk to water quality and fish habitat.

SALMON-SAFE URBAN HIGH HAZARD LIST OF PESTICIDES

Insecticides / Miticides			
abamectin	chlorpyrifos[1,2] (2)	imidacloprid[2]	prallethrin[1,2]
acetamiprid	cyfluthrin[1,2]	indoxacarb[2]	spinosad[2]
alpha-cypermethrin[1]	cypermethrin[1,2]	lamda-cyhalothrin[1,2]	spiromesifen[1]
bifenthrin[1,2]	deltamethrin[1,2]	malathion[1,2] (1)	tralomethrin[1]
carbaryl[2] (2)	esfenvalerate[1,2]	naled[1] (3)	zeta-cypermethrin[1]
chlorantraniliprole[2]	etofenprox[1]	novaluron	
chlorfenapyr[1,2]	fipronil[1,2]	permethrin[1,2]	
Fungicides			
acequinocyl	cyazofamid	folpet	thiram
azoxystrobin[2]	cyprodinil	pentachlorophenol (PCP) wood treatment	trifloxystrobin[1]
captan (4)	difenoconazole	propiconazole[2]	
chlorothalonil[1,2] (4)	fluazinam[1]	pyraclostrobin[1,2]	
copper[1,2]	fludioxanil[2]	thiophanate methyl	
Herbicides			
2,4-D[2] (4)	dithiopyr[2]	linuron[2] (4)	prodiamine
atrazine[2]	diuron[2] (4)	oxadiazon[2]	triclopyr BEE[2] (4)
benefin	diquat dibromide[2]	oxyfluorfen[2]	trifluralin[2] (5)
diclofop-methyl	flumioxazin[2]	pendimethalin[2] (5)	

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 it's field dissipation half-life (persistence) ***http://ccpestmanagement.ucanr.edu/files/237465.pdf***

Salmon-Safe Urban High Hazard List of Pesticides | 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 sub-lethal 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

Salmon-Safe must approve any "High Hazard" variance (see attachment A).

Pesticides approved for limited use on this site

Product Name	Active Ingredient(s)	Method of Use application type–rate–frequency–location–amount	Confirmed not listed High Hazard
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐

To list additional pesticides approved for limited use at this site, please attach an additional form.

4. Precautions taken to prevent pesticide drift.

Salmon-Safe IPM requires adoption of drift management strategies. Salmon-Safe requires that great care be taken to ensure that pesticide drift does not reach non-targeted areas by using appropriate equipment and methods. **Spray applications are not allowed in the buffer area when wind speed is above 5 mph or wind direction would carry pesticides toward open water.** The buffer zone is defined as a corridor of land that is 60 feet in width on the sides of a stream or other body of water. Measurement of this buffer zone begins at the edge of the water line at the time of application. Please describe pesticide drift management strategies for this site.

5. Precautions taken to prevent runoff.

Some pesticides have potential to be transported via runoff due to rainfall events that occur after application. Please describe steps taken to minimize risk of runoff to aquatic habitats.

6. Pesticide tracking system and plan for verifying compliance with Salmon-Safe requirements.

Salmon-Safe requires that detailed records be maintained for all pesticide applications, including applications to aquatic areas and buffer zones, consistent with state requirements. Please describe pesticide tracking and attach a sample summary report that will be submitted to Salmon-Safe as part of the recertification process.

Sample summary report is attached. ☐

7. Pesticide applicator licensing requirements.

Salmon-Safe requires that all persons applying pesticides must be licensed as. or supervised by, pesticide applicators, as applicable by the state department 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. Please describe pesticide applicator licensing policies for this site.

All pesticide applicators are licensed. ☐

8. Pesticide storage, rinsate and disposal policies.

Salmon-Safe requires that policies be in place to ensure that no contamination of stormwater or streams occurs due to storage, cleaning of equipment, or disposal of pesticides and these policies are adhered to by site personnel. Please describe pesticide storage, rinsate and disposal strategies for this site.

Policy is attached. ☐

9. Training and education in pest management techniques and IPM plan.

IPM is knowledge intensive. Facilities managers, maintenance staff, and contracted landscapers should have working knowledge of the Salmon-Safe approved IPM plan. Continuing education on science-based IPM strategies must be required for landscapers at Salmon-Safe certifited sites. Please describe the IPM training and education requirements for this site.

10. Ensuring Salmon-Safe compliance by contract landscapers.

Contract landscapers at Salmon-Safe certified sites should be committed to managing sites in accordance with the Salmon-Safe approved IPM plan. Please describe strategies to ensure ongoing compliance by contract landscapers.

Salmon-Safe compliance is included in RFP's for contract landscape management. ☐

ATTACHMENT A: High Hazard Variance Request Form

Full Site Name			
Project Manager		Email	
Primary IPM Contractor			
Key Contact		Email	
Date of Variance Request			

Salmon-Safe has designed this form to assist in achieving the desired results for particular solutions to problems that cannot be addressed with options available under Salmon-Safe guidelines. A Salmon-Safe site using any pesticide indicated as "High Hazard" can maintain certification only if documentation is provided that demonstrates (1) a clear need for a one-time or ongoing restricted use of the pesticide, (2) that no safer alternatives exist, and (3) the method of application, such as timing, location, and amount used, represents a negligible risk to water quality and fish habitat.

1. Pest(s) / Problem(s) and Justification for High Hazard Variance

2. IPM Strategies Considered / Solutions Attempted

3. Proposed Solution

A variance is requested for the following "High Hazard" pesticide product and method of application.

Product Name	Active Ingredient(s)	Method of Use application type–rate–frequency-location–amount	Reduction Strategy

To list additional pesticides for "High Hazard" variance at this site, please attach an additional form.

4. Assessment of Risk to Water Quality and Fish Habitat

Describe any potential impacts to water quality and fish habitat from the proposed variance described above, including proximity to sensitive habitats and proposed strategies to ensure negligible risk to salmonids and other aquatic life.

Describe your research efforts including references and consultation with university extension or other technical experts.

Outside IPM experts/university extension have been consulted. ☐

ADMIN USE ONLY Salmon-Safe Variance Decision

Approved ☐ Not approved ☐

Name _____ Date _____