CHAPTER 5 AND 6:

DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

TABLE OF CONTENTS

5 DESCRIPTION OF THE PROPOSED ACTION

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies.

The Federal Action

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the purpose of the Environmental Protection Agency's (EPA) proposed action is to provide pest control that "will not generally cause unreasonable adverse effects on the environment (40 CFR)." Under FIFRA, before a pesticide product may be sold or distributed in the U.S. it must be registered with a label identifying approved uses by EPA's Office of Pesticide Programs (OPP). Once registered, a pesticide may not legally be used unless the use is consistent with directions on its approved label(s) (http:www.epa.gov/pesticides/regulating/registering/index.htm). EPA authorization of pesticide uses are categorized as FIFRA sections 3 (new product registrations), 4 (re-registrations and special review), 18 (emergency use), or 24(c) Special Local Needs (SLN).

The proposed action for this consultation is EPA's registrations of all pesticides containing bromoxynil esters (bromoxynil heptanoate or bromoxynil octanoate) or prometryn for use as described on product labels.[1] The proposed action includes (1) approved product labels containing bromoxynil esters or prometryn, (2) degradates and metabolites of bromoxynil esters or prometryn, (3) formulations, including other ingredients within formulations, (4) adjuvants, and (5) tank mixtures. EPA's is required to reassess each registered pesticide at least every 15 years. Thus the duration of the action considered in this consultation is for 15 years.

EPA's pesticide registration process involves an examination of the ingredients of a pesticide, the site or crop on which it will be used, the amount, frequency and timing of its use, and its storage and disposal practices. Pesticide products may include active ingredients (a.i.s) and other ingredients, such as adjuvants, and surfactants (described in greater detail below). The EPA evaluates the pesticide to ensure that it will not have unreasonable adverse effects on humans, the environment, and non-target species. An unreasonable adverse effect on the environment is defined in FIFRA as, "(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of the pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under" section 408 of the United States Federal Food, Drug, and Cosmetic Act (FFDCA) (21 U.S.C. §346a; 7 U.S.C. 136(bb)).

[1] EPA's registrations are two separate actions that we have combined in one Opinion. We considered the effects of each of EPA's actions separately and independently. For convenience, we will refer to one action.

After registering a pesticide, EPA retains discretionary involvement and control over such registration. EPA must periodically review the registration to ensure compliance with FIFRA and other federal laws (7 U.S.C. §136d). A pesticide registration can be canceled whenever "a pesticide or its labeling or other material does not comply with the provisions of FIFRA or, when used in accordance with widespread and commonly recognized practice, generally causes unreasonable adverse effects on the environment" (7 U.S.C. §136d(b)).

EPA, the National Marine Fisheries Service (NMFS), and the Fish and Wildlife Service (FWS) agreed on December 12, 2007 that the federal action for EPA's FIFRA registration actions will be defined as the "authorization for use or uses described in labeling of a pesticide product containing a particular pesticide ingredient." In order to ensure that EPA's action will not jeopardize listed species or destroy or adversely modify critical habitat, NMFS' analysis encompasses the impacts to listed species of all uses authorized by EPA, regardless of whether those uses have historically occurred. Because uses are authorized by EPA on labels, it is reasonable to assume each of these uses may occur in the future, and therefore potential affects to listed species must be analyzed for all approved uses.

Pesticide Labels. For this consultation, EPA's proposed action encompasses all approved product labels containing bromoxynil esters and prometryn, including their degradates, metabolites, and formulations, other ingredients within the formulations, adjuvants, and tank mixtures. The effects of these comprise the stressors of the action. These a.i.'s combined are labeled for a variety of uses including applications to crop and non-crop areas.

Active and Other ingredients. Bromoxynil esters and prometryn are the a.i.'s that kill or otherwise affect targeted organisms (listed on the label). However, pesticide products that contain these a.i.'s also contain other ingredients (referred to as "inerts" or "other" ingredients on the labels). Inert ingredients are ingredients which EPA defines as not "pesticidally" active. The specific identification of the compounds that make up the inert fraction of a pesticide is not required on the label. However, this does not necessarily imply that inert ingredients are non-toxic, non-flammable, or otherwise non-reactive. EPA authorizes the use of chemical adjuvants to make pesticide products more efficacious. An adjuvant aides the operation or improves the effectiveness of a pesticide. Examples include wetting agents, spreaders, emulsifiers, dispersing agents, solvents, solubilizers, stickers, and surfactants. A surfactant is a substance that reduces surface tension of a system, allowing oil-based and water-based substances to mix more readily. A common group of non-ionic surfactants is the alkylphenol polyethoxylates (APEs), which may be used in pesticides or pesticide tank mixes, and also used in many common household products. Nonylphenol (NP), one of the APEs, has been linked to endocrine-disruption effects in aquatic animals.

Formulations. Pesticide products come in a variety of solid and liquid formulations. Examples of formulation types include dusts, dry flowables, emulsifiable concentrates, granulars, solutions,

soluble powders, ultra-low volume concentrates, water-soluble bags, powders, and baits. The formulation type can have implications for product efficacy and exposure to humans and other non-target organisms.

Tank Mix. A tank mix is a combination by the user of two or more pesticide formulations as well as any adjuvants or surfactants added to the same tank prior to application. Typically, formulations are combined to reduce the number of spray operations or to obtain better pest control then if the individual products were applied alone. The compatibility section of a label may advise on tank mixes known to be incompatible or provide specific mixing instructions for use with compatible mixes. Labels may also recommend specific tank mixes. Pursuant to FIFRA, EPA has the discretion to prohibit tank mixtures. Applicators are permitted to include any combination of pesticides in a tank mix as long as each pesticide in the mixture is permitted for use on the application site and the label does not explicitly prohibit the mix.

Pesticide Registration. In 2006, EPA commenced a new program called registration review to reevaluate all pesticides on a regular cycle. EPA is required to review each pesticide at least every 15 years to make sure that as the ability to assess risks to human health and the environment evolves and as policies and practices change, all pesticide products in the marketplace can still be used safely. Registration review includes Sections 3, 24(c), and 18 labels. The label on a pesticide package or container is legally enforceable. The label provides information about how to handle and safely use the pesticide product and avoid harm to human health and the environment. Using a pesticide in a manner that is inconsistent with the use directions on the label is a violation of FIFRA and can result in enforcement actions to correct the violations; EPA's enforcement authorities are set forth in FIFRA §13 and §14. Pesticide registration is the process through which EPA evaluates product labels; EPA examines the ingredients of a pesticide; the site or crop on which it is to be used; the amount, frequency and timing of its use; and storage and disposal practices. Pesticide products (also referred to as "formulated products") may include active ingredients (a.i.s) and other ingredients, such as adjuvants and surfactants. The eligibility for continued registration may be contingent on label modifications to mitigate risk and can include phase-out and cancellation of uses and pesticide products. Registrants can submit applications for the registration of new products and new uses following reregistration of an active ingredient. Several types of products are registered, including the pure (or nearly pure) active ingredient, often referred to as technical grade active ingredient (TGAI), technical, or technical product. The technical product is generally used in manufacturing and testing, and not applied directly to crops or other use sites. Products that are applied to crops or other use sites (e.g., rights of way, landscaping), either on their own or in conjunction with other products or surfactants in tank mixes are called end-use products (EUPs).Sometimes companies will also register the pesticide in a manufacturing formulation, intended for sale to another registrant who then includes it into a separately registered EUP. Manufacturing formulations are not intended for application directly to use sites. The EPA may

also cancel product registrations. Section 6(b) of FIFRA authorizes EPA to take the initiative to cancel a pesticide registration when existing risks related to the use of the pesticide are unacceptable. EPA's procedures for non-voluntary cancellation are available at https://www.epa.gov/pesticides. EPA typically allows the use of canceled products, and products that do not reflect registration review label mitigation requirements, until those products have been exhausted. Labels that reflect current EPA mitigation requirements are referred to as "active labels." Products that do not reflect current label requirements are referred to as "existing stocks." EPA's actions includes all authorizations for use of pesticide products including use of existing stocks, and active labels, of products containing the two a.i.s for the duration of the proposed action.

Duration of the Proposed Action. EPA is required to reassess registered pesticide active ingredients is at least every 15 years. Given EPA's timeframe for pesticide registration reviews, NMFS' evaluates effects to listed species that may result from the proposed 15-year action including any effects that may continue beyond the end of the 15 years.

Monitoring and Reporting. The current Federal Action does not include any specific provision for monitoring. However, Section 6(a)(2) of the Federal Insecticide, Fungicide and Rodenticide Act requires pesticide product registrants to report adverse effects information, such as incident data involving fish and wildlife to EPA (40 CFR part 159, https://www.ecfr.gov/ Title 40).

The following description of bromoxynil and prometryn registrations (the action) represents information acquired from EPA and Applicants.

5.1 Bromoxynil

Bromoxynil is a selective contact foliage herbicide used to control a variety of broadleaf weeds. It was first registered in the United States in 1965, and is currently registered for use on food and feed crops. Non-food uses include fallow/idle ground, rights-of-way, conservation reserve program lands (CRP), outdoor industrial areas, non-residential turf (golf course, industrial/commercial lawns), and sod farms. Residential uses of bromoxynil are not permitted. Bromoxynil, which is a substituted phenol, and two bromoxynil esters (bromoxynil octanoate and bromoxynil heptanoate) are registered with the Agency as active ingredients (a.i.). EUPs, such as wettable powder, emulsifiable concentrate, and soluble concentrate, are formulated with one or both bromoxynil esters. Bromoxynil is formed as a transitional breakdown product of the esters following product application (EPA 2004; EPA 2018).

There are currently 6 active registrants of bromoxynil EUPs with 26 active section 3 registrations. Additionally, there are two 24(c) - SLN labels that authorize use of bromoxynil in states where listed Pacific salmonids reside. SLN ID-080005 authorizes tank mixtures with strobilurin fungicides in Idaho wheat and barley. SLN CA-050012 permits the application of bromoxynil to field grown roses in California; while this use is still an active registration with

EPA, it is not currently registered by the state of California and Bayer has initiated cancellation procedures for this use (*see* Consultation History, Teleconference April 18, 2019; DPR 2019). Given the circumstances, NMFS will not evaluate this use further. Bromoxynil is applied as a liquid through irrigation (chemigation) or by ground or aerial sprays. Labels do not require any application set-backs (buffers) to aquatic habitats containing listed species. For effective control of weeds, bromoxynil labels advise product applications occur concurrent with periods of active weed growth. Calendar date limitations on timing are not specified. Currently, there are 22 multi-active ingredient products registered that contain bromoxynil esters and another herbicidal a.i. (e.g. 2,4-D; atrazine; fenoxaprop-p-ethyl; fluroxypyr; flucarbazone-sodium; MCPA; pyrasolfotole; or 2-methyl-chlorophenoxyacetic acid). Additionally, all bromoxynil EUP registrations allow tank mixing with other pesticide products.

Product labels describe where pesticides can be applied (use sites), application methods, and application rates. Table 1 summarizes label restrictions for all active bromoxynil products registered in the states containing listed Pacific salmonids. In general, the maximum single application rate does not exceed 0.5 lb a.i./A; however, up to 1.0 lb a.i./A is permitted on fallow land (e.g. EPA Reg. No. 71368-93). The maximum annual rate of bromoxynil that may be applied is 1.5 lbs a.i./A in mint (EPA Reg. No. 71368-78). Most labels restrict the annual maximum application rate to 0.5-0.75 lbs a.i./A. The label restrictions summarized here do not incorporate the changes proposed in EPA's Bromoxynil and Bromoxynil Esters Interim Registration Review Decision (Docket Number EPA-HQ-OPP-2012-0896). See chapter 18 for information on how the interim registration review decision was incorporated into the Opinion.

Table 1. Bromoxynil Master Use Summary– Pesticide use authorized within the states of California, Idaho, Oregon, and Washington.

Use Site	Application Method[a]	Maximum Single Application Rate (lbs a.i./A)	Maximum Annual Application Rate (lbs a.i./A)	Number of Applications	Re-treatment Interval	Required Buffer to Aquatic Habitats Containing Listed Species
Alfalfa seedlings	G, A	0.375	0.5	NS[b]	NS	None
	C	0.5	0.5	NS	NS	None
Barley	C, G, A	0.5	0.75	NS	NS	None
Corn[c]	C, G, A	0.5	0.5	NS	NS	None
CRP[d]	C, G, A	0.5	0.5	NS	NS	None
Fallow[d]	G, A	1	1	2	NS	None
Flax	G, A	0.25	0.25	NS	NS	None
Garlic	C, G, A	0.5	0.5	NS	NS	None
Grasses grown for seed and sod	C, G, A	0.5	0.5	NS	NS	None

Use Site	Application Method[a]	Maximum Single Application Rate (lbs a.i./A)	Maximum Annual Application Rate (lbs a.i./A)	Number of Applications	Re-treatment Interval	Required Buffer to Aquatic Habitats Containing Listed Species
Industrial sites	G, A	0.5	0.5	NS	NS	None
Mint	C	0.5	1.5	NS	NS	None
	G, A	0.37	1.5	NS	NS	None
Non-residential turfgrass	C, G, A	0.5	0.5	NS	NS	None
Oat	C, G, A	0.5	0.75	NS	NS	None
Onion – dry bulb	C, G, A	0.375	0.375	NS	NS	None
Rights-of-way[d]	G, Helicopter	0.5	0.5	1	NS	None
Rye	C, G, A	0.5	0.75	NS	NS	None
Sorghum[c]	C, G, A	0.5	0.5	NS	NS	None
Sudan grass[d]	C, G, A	0.5	0.5	NS	NS	None

Use Site	Application Method[a]	Maximum Single Application Rate (lbs a.i./A)	Maximum Annual Application Rate (lbs a.i./A)	Number of Applications	Re-treatment Interval	Required Buffer to Aquatic Habitats Containing Listed Species
Triticale	C, G, A	0.5	0.5	NS	NS	None
Wheat	C, G, A	0.5	0.75	NS	NS	None

[a]Application Methods: C (chemigation), G (ground spray), A (aerial spray)
[b]NS(Not Specified)
[c] In California, post emergence applications only
[d] Not approved for use in California

5.2 Prometryn

Prometryn is a systemic herbicide for control of broadleaf weeds and grasses on cotton and a variety of vegetable and herb crops. The chemical was first registered in the United States in 1974 and is a substituted thiomethyl triazine herbicides. Prometryn is only permitted for agricultural crops and is applied one to three times per crop cycle. Prometryn containing products are formulated as suspended concentrates or wettable granules (EPA 2002; EPA 2017).

There is currently one active registrant of prometryn technical material, and 3 active registrants of prometryn EUPs with 4 active section 3 registrations. Additionally, there is one 24(c) - SLN label for transplanted celery in California and one SLN label for seed crops in Washington state (carrot, parsley, parsnip, and dill). There are no other active labels for prometryn use in the states where listed Pacific salmonids reside (California, Idaho, Oregon, and Washington). Prometryn is applied as a liquid through irrigation (chemigation) or by ground, or by aerial sprays for cotton only. Labels do not require any application set-backs (buffers) to aquatic habitats containing listed species. Applications times are relative to crop growth stage and may occur prior to emergence, post-emergence, or for winter weed control. Calendar date limitations on timing are not specified. There is one multi-active ingredient product registered that contains prometryn and trifloxysulfuron sodium, a sulfonylurea herbicide. This product (EPA Registration 100-1163), the only wettable granule formulation, has an active registration but is not currently registered for use within the states where listed Pacific salmonids reside. All prometryn labels allow tank mixing with other pesticide products. Table 2 summarizes label restrictions for all active prometryn products that may be applied in the states where listed Pacific salmonids reside. The maximum single application rate is generally between 1-2 lbs a.i./acre. However, applications of up to 2.4 lbs a.i./A are authorized in cotton in some regions of California. Maximum annual application rate are generally less than 6 lbs a.i./A. However, up to 8 lbs a.i./A can be applied in carrots over two crop cycles (up to 4 lbs a.i./A/crop cycles). The label restrictions summarized here do not incorporate the changes proposed in EPA's Prometryn Interim Registration Review Decision (Docket Number EPA-HQ-OPP-2013-0032). See chapter 18 for information on how the interim registration review decision was incorporated into the Opinion.

Table 2. Prometryn Master Use Summary– Pesticide use authorized within the states of California, Idaho, Oregon, and Washington.

Use Site	Application Method[a]	Maximum Single Application Rate (lbs a.i./A)	Maximum Annual Application Rate (lbs a.i./A)	Number of Applications	Re-treatment Interval	Required Buffer to Aquatic Habitats Containing Listed Species
Carrot	G	2	8	3/crop cycle 6/year	NS[b]	None
Celeriac	C, G	2	4	2/year	NS	None
Celery	C, G	2	4	2/year	NS	None
Chinese celery	C, G	2	4	2/year	NS	None
Cilantro	G	1.6	3.2	2/year	NS	None
Cotton	G, A	2.4[c]	5.95	NS	NS	None
Dill - CA only	G	1.6	1.6	1/year	NA	None
Florence fennel	C, G	2	4	2/year	NS	None

Use Site	Application Method[a]	Maximum Single Application Rate (lbs a.i./A)	Maximum Annual Application Rate (lbs a.i./A)	Number of Applications	Re-treatment Interval	Required Buffer to Aquatic Habitats Containing Listed Species
Okra	G	1.5	1.5	2/year	NS	None
Parsley- CA only	G	2	NS	1/crop cycle 4/year[d]	NS	None
Parsley	G	0.5	1.5	3/year	NS	None
Rhubarb	G	2	2	1/year	NS	None
Sesame	G	1	1	1/year	NS	None
Seed Crops (carrot, parsley, parsnip, dill)– WA State only	G	1	2	2/year	NS	None

[a]Application Methods: C (chemigation), G (ground spray), A (aerial spray)
[b]NS (Not Specified)
[c]Maximum single application rate in California varies depending on soil type
[d]Estimate provided by EPA (Tracy Perry email 3-21-2019)

6 ACTION AREA

Action area means all areas affected directly or indirectly by the Federal action and not just the immediate area involved in the action (50 C.F.R. §402.02). For an ESA consultation on EPA's nationwide authorization of pesticides, the action area would encompass all areas directly or indirectly affected by the use of these a.i.'s throughout the entire U.S. and its territories, and would encompass all ESA-listed species and designated critical habitat under NMFS jurisdiction.

However, in this instance, as a result of the 2002 order in Washington Toxics Coalition v. EPA, EPA initiated consultation on its authorization of 37 pesticide a.i.s regarding their effects on listed Pacific salmonids under NMFS' jurisdiction and associated designated critical habitat in the states of California, Idaho, Oregon, and Washington. Given the geographic scope of the areas in which EPA is authorizing the use of these a.i.s., and anticipated chemical transport following application, the action area for purposes of this Opinion consists of the entire range and most life history stages of listed salmon and steelhead and their designated critical habitat in California, Idaho, Oregon, and Washington. The action area encompasses all freshwater, estuarine, marsh, swamps, nearshore, and offshore marine surface waters of California, Oregon, and Washington. The action area also includes freshwater surface waters in Idaho (Figure 1).

Bromoxynil and prometryn are the penultimate set of pesticides identified in the consultation schedule established in the settlement agreement and are analyzed in this Opinion. The final set which includes racemic metolachlor and 1,3-dichloropropene are scheduled for completion in December 2020. NMFS' analysis focuses only on the effects of EPA's action on listed Pacific salmonids in the above-mentioned states. It includes the effects of these pesticides on the recently listed Lower Columbia River coho salmon, Puget Sound steelhead, and Oregon Coast coho salmon. The Lower Columbia River coho salmon was listed as endangered in 2005. The Puget Sound steelhead and the Oregon Coast coho salmon were listed as threatened in 2007 and 2008, respectively. This Opinion also analyzes the effects of EPA's proposed action on recently proposed designated critical habitats for Puget Sound steelhead and Lower Columbia River coho salmon (January 14, 2013, 50 CFR Part 226).

EPA's consultation with NMFS remains incomplete until it analyzes the effects of its authorization of pesticide product labels with these two compounds for all remaining threatened and endangered species under NMFS' jurisdiction. EPA must ensure its action does not jeopardize the continued existence or result in the destruction or adverse modification of critical habitat for other listed species and designated critical habitat under NMFS' jurisdiction throughout the U.S. and its territories.

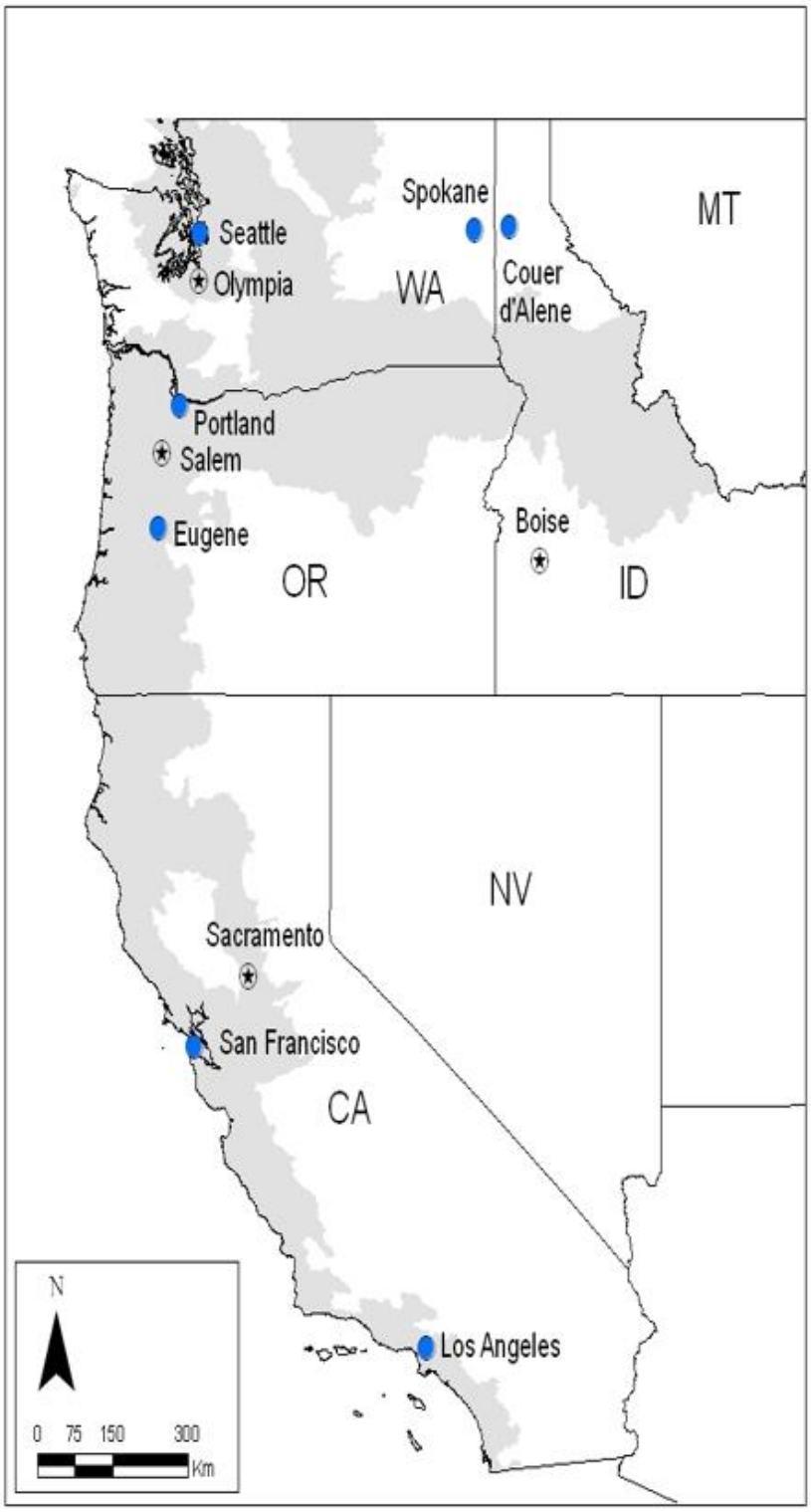

Figure 1. Map showing extent of inland action area with the range of all ESU and DPS boundaries for ESA listed salmonids highlighted in gray.