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# WASHINGTON STATE ENDANGERED SPECIES PROTECTION PLAN for PESTICIDE USE



WASHINGTON STATE DEPARTMENT OF AGRICULTURE  
ENDANGERED SPECIES PROGRAM  
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## Acronyms

CWA.....	Clean Water Act
DPS.....	Distinct Population Segment
ESA.....	Endangered Species Act
ESPP.....	Endangered Species Protection Program (EPA)
ESU.....	Evolutionarily Significant Unit
FR.....	Federal Register
FRN.....	Federal Register Notice
FIFRA.....	Federal Insecticide, Fungicide and Rodenticide Act
GIS.....	Geographic Information System
IPM.....	Integrated Pest Management
NMFS.....	National Marine Fisheries Service
OPP.....	Office of Pesticide Programs (EPA)
Services.....	USFWS and NMFS
T/E.....	Threatened or Endangered
USFWS.....	United States Fish and Wildlife Service
WSDA.....	Washington State Department of Agriculture

## Introduction

Agriculture and Fisheries are two industries critical to the economy of Washington State. In 2004, the value of Washington's agriculture production was \$5.94 billion, calculated as the 'farm-gate' value, or the amount received at the farm level for the commodities grown. The actual retail value of Washington's agricultural production is estimated to be over \$25 billion. Fisheries, both commercial and sport, also support the overall economy of Washington State. Aquaculture, commercial and sport fishing contribute over \$1.6 billion to the Washington State economy. Further, salmon are both the cultural icon and economic centerpiece for the regions' Native American tribes.

During the past decade, seven salmonid species - members of the *Salmonidae* family such as salmon and trout - have been listed for protection under the Federal Endangered Species Act (ESA) of 1973. These seven species have been listed for protection in Washington, Oregon, California and Idaho. The National Marine Fisheries Service (NMFS) listed thirteen Evolutionary Significant Units<sup>1</sup> (ESU) for chum, coho, steelhead, chinook and sockeye salmon as threatened and/or endangered in Washington. The U.S. Fish and Wildlife Service (USFWS) listed two Distinct Populations Segments<sup>2</sup> of bull trout as threatened in Washington. NMFS and USFWS are hereafter collectively referred to as the Services.

Due to the potential impact ESA listings could have on agriculture, the Washington State Department of Agriculture (WSDA) created the Endangered Species Program in 2001. The Endangered Species Program has developed this plan to provide the best available science to the U.S. Environmental Protection Agency (EPA) and the Services for the pesticide/ESA evaluation and consultation processes.

The "Washington State Endangered Species Protection Plan for Pesticides" described in this document has three components:

- Reduce uncertainty for pesticide registration decisions in collaboration with EPA.
- Interact with the Services to provide the best available data regarding pesticide use and exposure for the development of biological opinions for salmonids.
- Provide a process for Washington stakeholders to have input into the development of mitigation measures required by EPA and the Services that

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<sup>1</sup> Evolutionary Significant Unit: a population that 1) is substantially reproductively isolated from conspecific populations, and 2) represents an important component of the evolutionary legacy of the species (FR 56, 58612, Nov. 1991).

<sup>2</sup> Distinct Population Segment: a subdivision of a vertebrate species that is treated as a species for purposes of listing under the Endangered Species Act. (FR 60, 4722-4725, Feb. 1996).

will be the least disruptive to Washington agriculture while ensuring protection of endangered species.

This Washington State plan will contribute to the protection of federally listed endangered salmonid<sup>3</sup> species from pesticide exposures by incorporating federal protection strategies or developing alternative local management plans where needed. The Washington State Initiated Plan as described in this document is submitted to EPA for approval to develop a plan for NMFS designated endangered salmonid species.

## Background

### Pesticide Use in Washington State

Washington State is split into two distinct geographic areas by the Cascade Mountains. The north-south trending Cascades divide the state into the western region, which has a marine climate characterized by cool, wet winters and warm, relatively dry summers, and the eastern region, which has a climate of cold winters and hot, dry summers. Western Washington is a mixture of large urban areas, forested areas, and smaller agricultural production areas. Eastern Washington is a mix of large agricultural production areas, forested-mountainous areas, and more isolated urban areas.

Within each of these regions are distinctly different microclimates, soil types, and topography, which result in the ability to grow over 250 agricultural commodities. Washington State ranks third nationally as a minor crop producing state.

In both geographic regions, the wide diversity of crops grown is paralleled by the wide diversity in pesticides used. Because individual commodities have very specific pesticide needs, ESA mitigation measures can impact each commodity differently. Of particular concern is the potential impact to minor crops, which have limited crop protection chemicals registered for use. Eliminating the use of one of these chemicals may significantly impact crop protection.

Another component of pesticide use in Washington State is the use of integrated pest management (IPM). IPM strategies have been developed over many years, and rely upon specific combinations of crop protection chemicals to both protect beneficial organisms and minimize overall pesticide use. The removal of any one chemical can have a domino effect by disrupting the IPM strategy, and must be considered when devising mitigation measures. Figure 1 shows the agricultural production areas in Washington State.

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<sup>3</sup> In the context of this plan, “endangered” species refers to NMFS listed salmonids as Endangered, Threatened, Proposed Endangered, and Proposed Threatened.

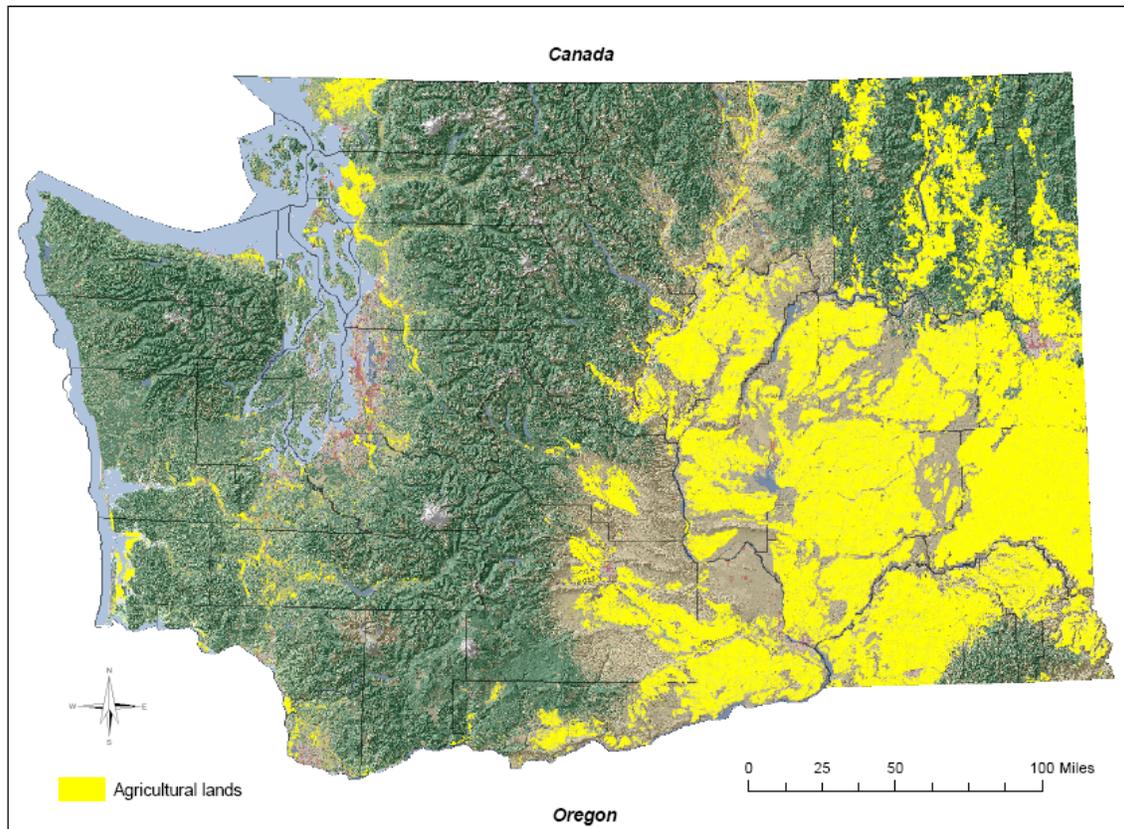


Figure 1. Agricultural production areas in Washington State shown in yellow.

Pesticide use is not limited to agricultural production areas. Homeowners as well as private and public entities also use pesticides. Because urban centers in western Washington are in close proximity to salmonid habitat, pesticide use in these areas may also be impacted by ESA mitigation measures. WSDA recognizes that urban and agricultural pesticides uses are dissimilar and will continue to effectively characterize these differences in both use and their resulting pesticide residues in the environment.

### Endangered Salmonids in Washington State

Washington's rivers, tributaries, and estuaries provide habitat for several species of salmon, steelhead, and trout. Seventy percent of Washington State's landmass provides habitat for salmonids listed for protection by NMFS under the ESA. Specifically, the Upper Columbia River spring-run Chinook and Steelhead ESUs are currently listed as endangered in Washington State. In addition, eleven other ESUs (chinook, sockeye, chum, and steelhead) are listed as threatened in various river basins and estuaries throughout the state. The location of NMFS listed threatened and endangered salmonid ESUs in Washington State is illustrated in Figure 2.

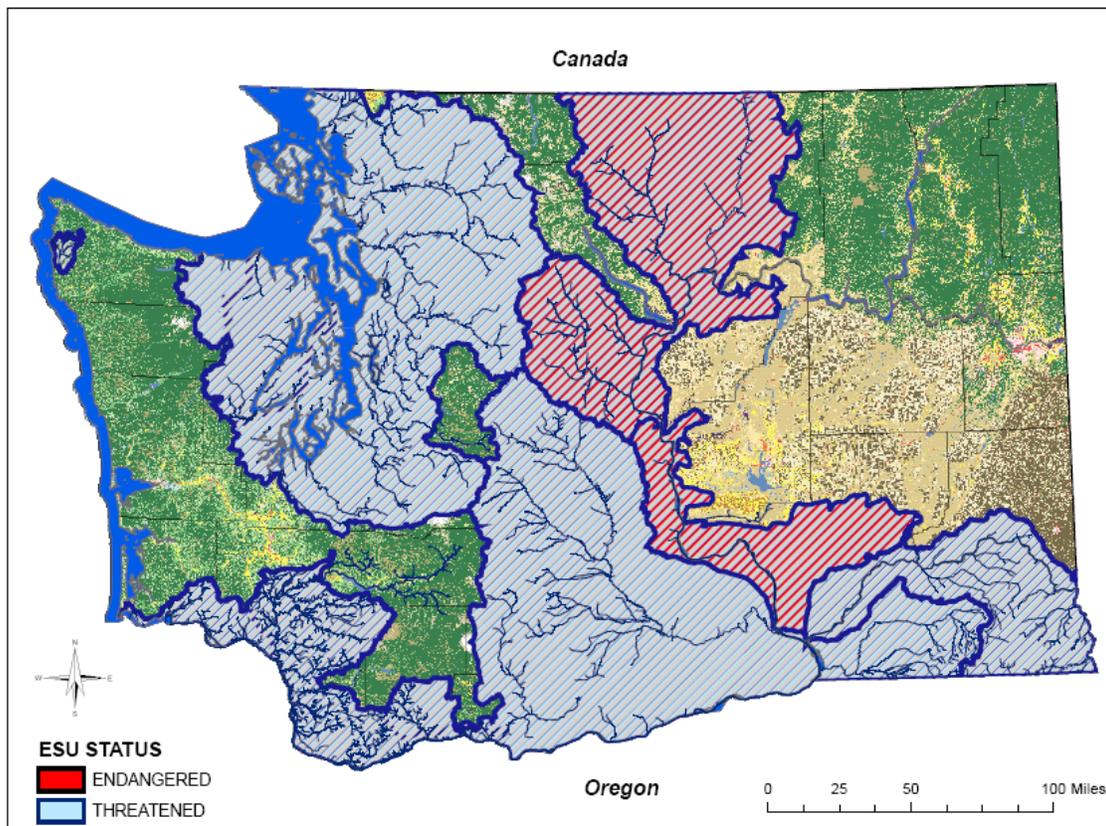


Figure 2. NMFS-designated threatened and endangered ESUs in Washington State

## Regulatory Authorities

### Federal Insecticide Fungicide and Rodenticide Act (FIFRA)

The Federal Insecticide Fungicide and Rodenticide Act gives EPA the authority to regulate the use of pesticides in the United States (*7 U.S.C. 136 et. seq.*). As a condition of registration EPA must determine whether a pesticide's use will cause "unreasonable adverse effects on the environment" (*FIFRA Sec. 3(c)(5)*). FIFRA defines "unreasonable adverse effects on the environment" to include "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide" (*FIFRA sec. 2(bb)(1)*).

### Endangered Species Act (ESA)

Concurrent with FIFRA, Section 7 of the ESA (*16 U.S.C. 1536 seq.*) imposes obligations on all federal agencies whose actions may adversely impact threatened and endangered species or the critical habitat upon which they rely. Specifically, *Section 7(a)(2)* directs all federal agencies, in consultation with, and with the

assistance of the Secretaries of the Interior and Commerce (delegated to the Services), to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of habitat of such species that has been designated as critical habitat (*16 U.S.C. 1536(a)(2)*). To comply with this requirement, each agency is required to use the “best scientific and commercial data available” (*16 U.S.C. 1536(a)(2)*).

EPA must ensure that its actions are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their designated critical habitat. Therefore, EPA's challenge is to carry out its responsibilities to implement FIFRA, which is based on risk/benefit analysis, in a way that ensures compliance with the requirements of the ESA.

#### ESA Implementation under FIFRA

On November 2, 2005, EPA published a Federal Register Notice (FRN), “Endangered Species Protection Program Field Implementation” (*Vol. 70, Num. 211, Pg. 66392-66402*). In this notice, EPA stated its goal for the Endangered Species Protection Program (ESPP) is to carry out responsibilities under FIFRA in compliance with the ESA, while at the same time not placing an unnecessary burden on agriculture and other pesticide users. EPA plans to carry out its responsibilities under *Section 7(a)(2)* of the ESA by addressing listed species concerns within the context of the pesticide registration, re-registration, and registration review processes. Further, EPA stated, if as a result of EPA's review of a pesticide, or as a result of consultation with the Services, geographically specific use limitations are necessary to ensure a pesticide registration complies with the ESA and FIFRA, those use limitations will be relayed to pesticide users through Endangered Species Protection Bulletins (Bulletins) referenced on the labels of affected pesticide products.

In addition, EPA acknowledged that Local, State and Tribal circumstances may influence the effectiveness of different approaches to listed species protection. States and Tribes may develop and propose State Initiated Plans (SIP) for their specific involvement in protecting listed species beyond the involvement outlined in the Field Implementation FRN. For example, such a plan could include varying provisions for how use limitations are articulated in a Bulletin; actual development of maps for inclusion in Bulletins; provisions for specific information a State or Tribe may provide to EPA to consider during its risk assessment process (for example, specific information regarding geographic location of certain crop types); or could recommend specific approaches that EPA could use to protect listed species in a specific area.

If States or Tribes submit plans to EPA, EPA will review the plan as well as determine whether the Services need to be consulted on the contents of the plan

before EPA adopts it. After the necessary reviews EPA will approve or disapprove the plan and notify the State or Tribe.

### State Initiated Plan

WSDA serves the people of Washington State by supporting the agricultural community and promoting consumer and environmental protection. After evaluating the regulatory authorities under which WSDA operates as the state lead agency for pesticide regulation, WSDA determined that its mandate to support agriculture and protect the environment would be best served by developing a state initiated plan for endangered species protection.

Key to developing this plan was an evaluation of the process EPA uses to make registration decisions for pesticides. Instead of developing a stand-alone plan that would operate independent of current pesticide registration processes, WSDA has worked with stakeholders, EPA, NMFS, USFWS and Washington State University to incorporate current efforts into a process that complements EPA's risk assessment paradigm for pesticide registration. Components of the plan include pesticide use profiles, crop mapping information, and surface water monitoring data for pesticides which aid in reducing uncertainty in the pesticide risk assessment process, thus allowing risk managers to make sound science-based decisions.

## Washington State Initiated Plan for Endangered Species Protection

The Washington State plan for endangered species protection is designed to complement the EPA's ESPP. To provide context for WSDA's input, a brief description of EPA's risk assessment process precedes the plan description.

An outline of the current pesticide/ESA consultation process and WSDA's plan for involvement is presented in Figure 3.

### Risk Assessment and Pesticide Registration

Pesticide risk assessments are tools used to evaluate available data on the use, environmental fate, transport and effects of a pesticide. If data are unavailable, the lack of knowledge is expressed as uncertainty. Inherent to the risk assessment process, when there is uncertainty regarding the potential effect of a pesticide; it is assumed that an adverse effect will occur until data indicate otherwise. This scenario is especially relevant when the risk assessment is for an endangered species since the ESA requires a risk manager to err on the side of protecting the species. Factors that can specifically affect risk assessment determinations for pesticides are: application timing, interval, pounds applied, area treated, and application method. In lieu of information to the contrary, EPA must assume the maximum value for all conditions mentioned.

WSDA is proposing a process that will provide EPA with Washington State specific information that will allow EPA to consider assessment scenarios that reflect current exposures based on typical use.

For example, a pesticide is under consideration for re-registration and is applied to grapes for control of a fungal disease. EPA evaluates the label, data from the Census of Agriculture, and determines the fungicide is applied to 23,000 acres of grapes in Yakima County, at a frequency of four times a year, at one-week spray intervals, with a maximum application rate of three pounds per acre and determines there is a potential adverse effect to spawning salmonids in the Yakima River. However, the actual use is on 20% of the total 23,000 acres of grapes using only two applications at 1.5 pounds per acre in June and July. The first scenario results in an estimate of 276,000 lbs. applied during spawning season. The second scenario results in an estimate of 13,800 lbs. applied and specifies the application time relative to when spawning actually occurs.

WSDA's data will provide EPA and NMFS with chemical-specific use information for Washington State that will allow for more accurate assessments to be conducted.

# PESTICIDE/ESA CONSULTATION PROCESS

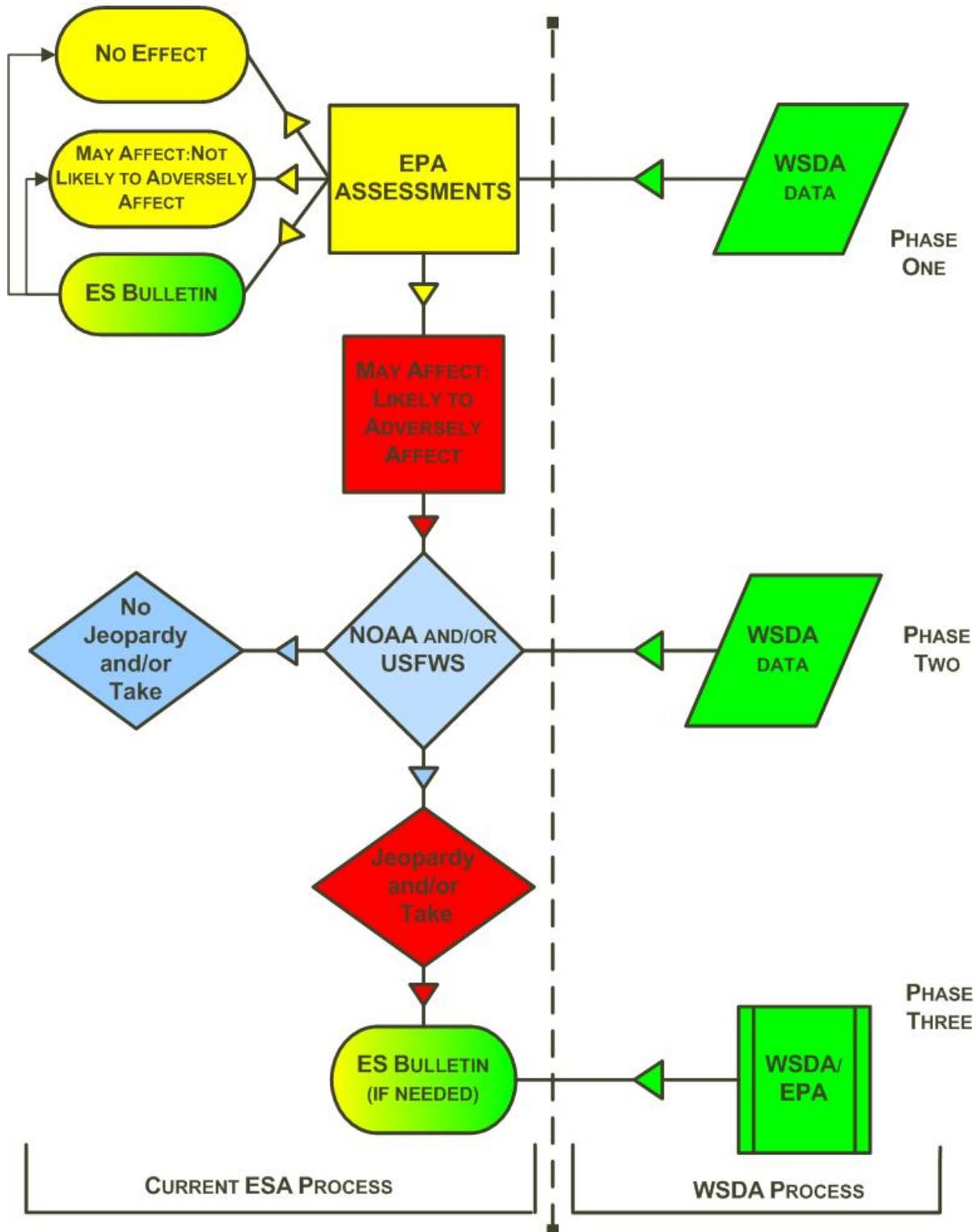


Figure 3. Current and proposed pesticide consultation process

## WSDA Plan Components

The following sections describe in detail each component of the Washington State Endangered Species Protection Plan for Pesticide Use and how it relates to the EPA risk assessment process, the Services development of Biological Opinions, and Bulletins.

The Washington State plan can be divided into three phases.

- Phase 1 facilitates the exchange of data and information between WSDA and EPA regarding pesticides that EPA is evaluating for ESA compliance.
- Phase 2 provides a mechanism for WSDA and NMFS to exchange information about pesticides in the consultation process.
- Phase 3, if needed, consists of WSDA and EPA collaboratively developing Bulletins to provide geographic specific use limitations to pesticide applicators in Washington State.

### Phase 1: WSDA/EPA Collaboration

During Phase 1, EPA will provide WSDA with the list of pesticides undergoing EPA's ecological risk assessments and/or ESA effects determination and their relevant timelines. This collaboration can occur on an annual, quarterly, or in certain cases, on an as-needed basis, provided that EPA supplies this information with sufficient time for WSDA to develop data packages. WSDA's data packages will include:

- List of crops grown in each ESU with estimated county-level and/or watershed acreage for each crop;
- Geographic information system (GIS)-based maps that depict the location of crops where the pesticide is applied in each ESU;
- Pesticide use summaries including major usage estimates by commodity, and rates, methods, and timing for applications;
- Historical and salmonid-specific surface water monitoring data complete with pesticide-specific maps and tables listing detection locations, concentrations and date of sampling; and,
- GIS-based maps showing designated salmonid habitat.

WSDA will submit data packages to EPA with sufficient time for review, validation and incorporation into the ESA assessment. As feasible, WSDA will provide additional data, validation, or related services requested by EPA upon receipt of the data.

EPA's assessment will determine whether consultation with the Services is necessary or not. If consultation is required, WSDA will work with NMFS in the next phase of the plan.

## Phase 2: WSDA/NMFS Collaboration

If EPA determines that a pesticide requires consultation, they will submit a consultation initiation request to NMFS. The request typically includes the effects determination for a specific pesticide. NMFS then evaluates the EPA effects determination and determines whether or not use of the specific pesticide will result in jeopardy and/or take of endangered salmonids or adverse modification of their critical habitat.

As part of the consultation process, EPA will provide NMFS with the data package developed during the effects determination phase. WSDA will assist NMFS in characterizing the regional and local use and distribution of pesticides in Washington State by providing additional or refined GIS maps and/or other data as needed to evaluate the pesticide in question. WSDA is confident that the information it has developed for EPA's effects determinations will also be useful to NMFS as they evaluate whether the action results in a jeopardy call or not.

The WSDA data will assist NMFS' scientists in developing biological opinions for Washington State by providing site-specific pesticide use data as well as pesticide occurrences in salmonid habitat. WSDA has been collaborating with NMFS in this capacity since 1999 and is confident that WSDA's data and expertise will be a valuable asset to the process. NMFS' determination of jeopardy and/or take will then direct the final step in the consultation process.

## Phase 3: Endangered Species Protection Bulletin Development

WSDA recognizes ESA implementation may require restrictions or modifications to pesticide use that may impact Washington agriculture. If mitigation measures are necessary, WSDA intends to work with stakeholders to propose practical, protective mitigation measures that will both address ESA issues and minimize economic hardship.

Bulletins will be developed in cases where EPA and/or the Services determine that additional restrictions are warranted for the continued use of a particular pesticide. Bulletins will be referenced on the pesticide label and the applicator will be required to follow the bulletin. Bulletins provide county-level maps depicting the affected areas, a brief description of the endangered species requiring protection, and specific use restrictions in the affected areas.

WSDA proposes to develop Washington's Bulletins in collaboration with EPA. It is WSDA's intent to work with pesticide users, Washington State University research

and extension agents, crop consultants, and other interested parties to develop ESA mitigation measures that not only reduce pesticide transport to salmonid habitat but also remain practical for implementation.

WSDA is also aware that in certain cases Bulletins and/or mitigation measures may be developed in conjunction with the effects determination package to drive a decision of “Not likely to Adversely Affect or No Effect.” Whether the mitigation measures are developed up-front in the initial phase of the process at EPA or at the end of the process, WSDA is willing and interested in collaborating in developing those measures.

## Assurances

EPA and the Services have emphasized that state plans for protecting endangered species must be as protective as the federal plan. WSDA proposes to use two components of its Endangered Species Program (Program) to provide assurances to EPA that the SIP will be effective. First, WSDA will utilize its outreach services to keep parties informed regarding all aspects of the Program. Outreach services include; the Program’s website to provide access to Bulletins and other related information ([agr.wa.gov/PestFert/EnvResources/EndangSpecies.htm](http://agr.wa.gov/PestFert/EnvResources/EndangSpecies.htm)), our newsletter ([agr.wa.gov/PestFert/EnvResources/ESANews.htm](http://agr.wa.gov/PestFert/EnvResources/ESANews.htm)) to notify interested parties when new information and/or Bulletins are available, and our educational outreach program which provides participation and presentation services at meetings to interested parties. Second, WSDA proposes to use its salmonid-specific surface water-monitoring program to adaptively manage the Bulletin program in Washington. This adaptive management will provide feedback to EPA to evaluate the effectiveness of Bulletins.

The surface water monitoring program is designed to augment the EPA pesticide registration process, which evaluates the fate, transport and effects of a given pesticide. In particular, the surface water monitoring allows the EPA risk assessor to compare and contrast the estimated environmental concentrations of a pesticide calculated from models with data collected in actual use areas. Typically, surface water monitoring data is not collected on an ongoing basis near use areas and seldom has been targeted at the habitat of a specific species. Thus, conclusions or assumptions are drawn from data collected in other geographic areas or from monitoring data that may not reflect current use conditions. WSDA’s salmonid-specific pesticide monitoring program collects weekly samples in various agricultural and urban watersheds during the pesticide application season (March-October) in designated salmonid habitat. Monitoring began in 2003 and is ongoing. This program provides timely monitoring data that tracks concentrations of pesticides over time in waters utilized by salmonids. For more information about WSDA’s surface water monitoring program, please see [agr.wa.gov/PestFert/EnvResources/SWM/default.htm](http://agr.wa.gov/PestFert/EnvResources/SWM/default.htm).

The second goal for the surface water monitoring data is to evaluate pesticide concentrations over time so the efficacy of mitigation measures can be assessed. Monitoring data will be a key element in assessing whether or not specified mitigation actually reduces pesticide concentrations in surface water. In lieu of demonstrating the efficacy of mitigation, the Services would need to err on the side of the listed species and thus potentially recommend the ban of certain uses. WSDA considers banning a pesticide use as an option of last resort. The Agency believes that by working with affected commodity groups mitigation measures can be developed that reduce potential exposures to salmonids while maintaining the use of crop protection chemicals vital for agricultural production in Washington State. WSDA's surface water monitoring data will be an essential element used to adaptively manage the Bulletin program to ensure any necessary mitigation measures are effective

## Summary

As the state lead agency for regulating the use and distribution of pesticides in Washington State, WSDA has the regulatory authority to formally request EPA to recognize the Washington State Plan as a federally recognized State-Initiated Plan as allowed by EPA's ESPP.

Further, for the past three years, WSDA has provided state-specific pesticide use summaries for EPA's ESPP. WSDA has worked effectively with EPA and NMFS, and believes that formalizing this plan will only strengthen those relationships.

WSDA's plan, which includes the following components, will provide both protection for endangered species and a voice for Washington agriculture in a very technical and complex process:

- Reduce uncertainty for pesticide registration decisions in collaboration with EPA.
- Interact with the Services to provide the best available data regarding pesticide use and exposure for the development of biological opinions for salmonids.
- Provide a process for Washington stakeholders to have input into the development of mitigation measures required by EPA and the Services that will be the least disruptive to Washington agriculture while ensuring protection of endangered species.

The Washington State plan will contribute to the protection of federally listed salmonid endangered species from pesticide exposures. The Washington State Initiated Plan as described in this document is submitted to EPA for approval to develop a plan for NMFS designated endangered salmonid species.