

**Fact Sheet Addendum  
For the  
Aquatic Plant and Algae Management National Pollutant Discharge Elimination System  
(NPDES) and  
State Waste Discharge General Permit**

**Permit Modification**

**State of Washington  
Department of Ecology  
Olympia, Washington 98504-7600**

**February 1, 2012**

## PERMIT MODIFICATION

The Washington State Department of Ecology (Ecology) is modifying the Aquatic Plant and Algae Management General Permit (permit). The permit is a joint National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit. Ecology issued the permit February 2011. It will expire March 18, 2016. This addendum supplements the September 1, 2010 Fact Sheet available at:

[http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/aquatic\\_plants/permitdocs/apamgpfs090110.pdf](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/aquatic_plants/permitdocs/apamgpfs090110.pdf).

The permit covers the discharge of products used to control aquatic plants and algae in Washington lakes. The permit also allows treatment of emergent plants along roadsides and ditch banks. Control products include aquatic herbicides, algaecides, biological clarification products, aquatic dyes, adjuvants, and nutrient inactivation products such as alum.

### Summary of permit modifications

#### S4. THE APPLICATION OF PRODUCTS

Ecology added four new Environmental Protection Agency (EPA) reduced-risk herbicides to the permit.

S4.B.4.c. - added bispyribac-sodium.

S4.B.4.d. - added carfentrazone-ethyl.

S4.B.4.h - added flumioxazin.

S4.B.4.m - added penoxsulam.

S4.B.5. - Ecology modified Table 2 in S4.B.5. by adding new adjuvants AquaSurf™, DestinyHC™, and SuperbHC™ and removing Fast Break™ and Intensify™.

S4.D.7. - Ecology modified Table 3 in S4.D.7. to include the new herbicides. There are no restrictions/advisories, treatment limitation, or other specific restrictions for any new herbicide. There are no fish timing restrictions for bispyribac-sodium and penoxsulam. Flumioxazin and carfentrazone are subject to timing for salmon, steelhead, and bull trout.

#### S5. NOTIFICATION, INSPECTION, AND POSTING REQUIREMENTS

S5.E.1. - Ecology added the following sentence to S5.E.1. - For continuous injection treatments for nutrient inactivation projects, the Permittee does not need to post the lake.

#### APPENDIX E – POSTING TEMPLATES

Ecology added sign posting templates for bispyribac-sodium, carfentrazone-ethyl, flumioxazin, and penoxsulam. The signal word for each herbicide is caution.

Ecology added a sign template for nutrient inactivation products

## **Rationale for adding new herbicides**

Ecology added four new active ingredients, penoxsulam, bispyribac-sodium, carfentrazone – ethyl, and flumioxazin, all EPA reduced risk pesticides, to the Aquatic Plant and Algae Management permit. Ecology added these herbicides to the permit because they are EPA reduced -risk aquatic herbicides and Ecology evaluated these herbicides through an Environmental Impact Statement (EIS) and determined that they were acceptable for use in Washington waters. Ecology did not add these herbicides to the permit when it was reissued in February 2011, because it had not completed the EIS process. Adding new herbicides provides potential new tools to help manage invasive and nuisance aquatic vegetation. Along with adding the new herbicides and any treatment limitations, Ecology added sign templates for posting when an applicator applies these products.

Ecology issued the final EIS for the new herbicides in January 2012 - *Environmental Impact Statement for Penoxsulam, Imazamox, Bispyribac-sodium, flumioxazin, and Carfentrazone-ethyl - Addendum to the Final Supplemental Environmental Impact Statement for Freshwater Aquatic Plant Management*. The EIS is an addendum to an existing Supplemental EIS for Aquatic Plant Management. Detailed information about the four herbicides being added to the Aquatic Plant and Algae Management General Permit is found at: [http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/noxious/docs/eis100511.pdf](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/noxious/docs/eis100511.pdf).

## **Herbicide Overview**

Penoxsulam and bispyribac-sodium are systemic herbicides that work by inhibiting a biochemical pathway specific to plants. Both herbicides are acetolactate synthase (ALS) inhibitor herbicides. ALS is a plant enzyme that regulates the production of essential amino acids in plants (valine, leucine, and isoleucine). ALS inhibitors slowly starve plants of these amino acids and kill the plant by halting DNA synthesis. Animals do not use these same biochemical pathways as plants. Both herbicides are slow-acting and systemic with the herbicide being absorbed via leaves, shoots, and roots. Toxicity information about each herbicide is found in the EIS. Given the low toxicity of these herbicides to fish, Ecology did not impose fish timing treatment windows for their use.

Flumioxazin and carfentrazone-ethyl are contact herbicides. Both herbicides are light-dependent peroxidizing herbicides that block chlorophyll synthesis. This results in a buildup of phototoxic porphyrins in plant tissues. Porphyrins accumulate in susceptible plants causing photosensitization, which leads to membrane peroxidation. The peroxidation of membrane lipids leads to irreversible damage of membrane function and structure. Susceptible plants turn necrotic and die shortly after exposure to sunlight. Injury symptoms may occur within one day after treatment. Both of these herbicides are very short-lived in the environment. Ecology imposed fish timing windows to protect salmon, steelhead, and bull trout for these two contact herbicides. Ecology based this decision on EPA levels of concern for endangered freshwater fish. EPA determined that the acute and chronic level of concern for endangered fish inhabiting shallow waters is exceeded. Ecology mitigates impacts to threatened and endangered animal species and

Washington State Department of Fish and Wildlife (WDFW) priority species by requiring applicators to comply with timing windows. These windows either do not allow herbicide treatment or allow treatment at times when the herbicide will not affect the priority species or its food and habitat. As a mitigation measure to protect Washington's priority animals, Ecology will require the applicators to follow WDFW timing windows for flumioxazin and carfentrazone-ethyl treatments.

### **Rationale for Adding/Removing Adjuvants**

The Washington State Department of Agriculture (WSDA) has specific criteria including toxicity testing to approve adjuvants for aquatic use. Ecology relies on WSDA to provide it with a list of aquatic-approved adjuvants. The adjuvants AquaSurf™, DestinyHC™, and SuperbHC™ met WSDA criteria for aquatic use and Ecology added them to the permit. The adjuvant Intensify™ is no longer registered for distribution in Washington. Therefore, WSDA removed it from the list of approved adjuvants. The manufacturer changed the formulation of the adjuvant Fast Break™ and did not submit aquatic toxicity tests for the new formulation. Therefore, WSDA removed it from the list of approved aquatic adjuvants.

### **Rationale for Not Requiring Posting for Continuous Nutrient Inactivation Injection**

A few lakes rely on a continuous injection system to apply low levels of nutrient inactivation products like alum to strip phosphorus from the water to reduce algae blooms. Ecology determined that in these situations with low chemical concentrations, it was not necessary to post the lake. However, for traditional nutrient inactivation projects where the applicator applies nutrient inactivation products over a period of hours or days, Ecology added a sign template for these projects.