

**FACT SHEET FOR THE  
DRAFT AQUATIC PLANT AND ALGAE  
MANAGEMENT  
NPDES GENERAL PERMIT**

**OCTOBER 2020**

**WASHINGTON STATE  
DEPARTMENT OF ECOLOGY**

## EXECUTIVE SUMMARY

This fact sheet is a companion document to the National Pollutant Discharge Elimination System (NPDES) **General Permit**<sup>1</sup> for management of aquatic plants, algae and phosphorous. It explains the nature of the proposed **discharges to surface waters of the State**, the Washington State Department of Ecology's (Ecology) decisions on limiting **pollutants** in the receiving water, and the regulatory and technical basis for these decisions.

The Aquatic Plant and Algae Management General Permit (permit) regulates the use of **pesticides** and other products applied to manage aquatic **nuisance plants**, aquatic **noxious weeds**, aquatic **quarantine-listed weeds**, **algae**, and **phosphorous sequestration** in freshwaters. The permit covers activities that result in a discharge of **herbicides**, **algaecides**, **adjuvants**, **marker dyes**, **shading products**, **biological water clarifiers**, or **phosphorous sequestration products** (collectively "chemicals") into fresh waterbodies of the state of Washington. The permit also covers shoreline and roadside/ditch bank **emergent vegetation** management activities where chemicals may enter the water. Other permits may be necessary if plant and algae management is done using manual, mechanical, or biological methods.

Since the *Headwaters, Inc. v. Talent Irrigation District* Ninth Circuit Court decision, Ecology has maintained that to discharge chemicals to waters of the State, coverage under an NPDES permit is required. Ecology has issued general and **individual permits** for discharges of aquatic pesticides and other chemicals since 2002. The Sixth Circuit Court recently ruled in *National Cotton Council et al. v. The Environmental Protection Agency (EPA)* that the discharge of **pesticides** and their residues to waters of the State requires NPDES coverage. This decision means that NPDES permitting is now required for all aquatic pesticide applications throughout the United States. EPA has developed a general NPDES permit for this purpose and the EPA permit became effective April 2011. In Washington, the EPA permit will cover aquatic pesticide applications on federal lands where a federal agency is doing or decided to have the application done and Tribal Lands.

The Aquatic Plant and Algae Management permit addresses three aquatic plant and algae management scenarios and phosphorous sequestration. The noxious weed category establishes conditions for removal of aquatic noxious weeds or aquatic quarantine listed weeds within a waterbody. The nuisance plant category establishes conditions for the partial removal of aquatic nuisance plants. The **algae control** category establishes conditions for the use of algaecides. The phosphorous sequestration category establishes conditions for the use of phosphorous sequestration products.

Ecology may change the proposed terms, limits, and conditions contained in the draft permit, subsequent to written public comments it receives and testimony provided at public hearings. The draft permit does not authorize a violation of surface water quality standards or any other applicable local, state, or federal laws or regulations. Ecology may require any person seeking coverage under this permit to obtain coverage under an individual permit instead.

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<sup>1</sup> The text of the fact sheet contains bold and italicized words or phrases. These words or phrases are the first usage in this document and are defined in the Glossary, Appendix A.

Ecology will consider any person who applies chemicals to surface fresh water without coverage under this general permit (unless specifically excluded), another applicable general permit, an applicable individual permit, or a **state experimental use permit** to be operating without a discharge permit and subject to potential enforcement action.

Ecology proposes to issue this general permit so that dischargers operating under coverage of this permit will comply with the Federal Clean Water Act and with the Washington Water Pollution Act chapter 90.48.080 Revised Code of Washington (RCW). The **Permittee** must monitor (depending on the type of chemical application), notify the public, post signs at **treatment** sites, follow Washington State Fish and Wildlife (WDFW) timing windows, and provide annual treatment and monitoring reports to Ecology.

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## INTRODUCTION

This fact sheet is a companion document to the draft revised Aquatic Plant and Algae Management General Permit (permit) and provides the legal and technical basis for permit reissuance required in Washington Administrative Code (WAC) 173-226-110. Since 2001, and based on *Headwaters v. Talent Irrigation District*, subsequent court rulings, and EPA actions, the Washington State Department of Ecology (Ecology) has maintained that the discharge of pesticides to surface waters of the State requires coverage under a NPDES permit.

The current permit, which expires March 2016, has covered discharges of herbicides, algaecides, phosphorous sequestration products, marker dyes, shading products, adjuvants, and water clarification products to surface waters of the State of Washington since 2011. Ecology proposes to issue an updated permit to continue to allow the use of these products for the purpose of controlling aquatic plants and algae, eradicating aquatic noxious and quarantine listed weeds, and controlling excess phosphorous.

Ecology determined it was appropriate to issue a general permit for aquatic pesticide and phosphorous sequestration because:

- Aquatic plant and algae management and phosphorous sequestration activities have a statewide scope.
- These activities are similar at different sites.

Ecology may still require individual permits where a proposed activity requires additional guidance, or when an individual Permittee requests an individual permit and Ecology agrees to develop and issue one.

This permit helps Ecology:

- Mitigate and condition the use of chemicals in water.
- Track pesticide use rates and locations.
- Ensure that public notifications and postings occur when waters are treated.

This fact sheet explains the nature of the proposed discharges, Ecology's decisions on limiting the pollutants in the receiving water, and the regulatory and technical basis for these decisions.

WAC 173-226-130 specifies public notice of the draft permit, public hearings, comment periods, and public notice of issuance before Ecology can issue the general permit. This fact sheet, application for coverage, and draft permit are available for review and comment (see Appendix B - Public Involvement - for more detail on public notice procedures).

After the public comment period closes, Ecology will summarize and respond to substantive comments. These comments may cause Ecology to revise some of the permit language and requirements.

Ecology will **not** revise the original fact sheet after it publishes the public notice. Appendix C (Response to Comments) will summarize comments and the resultant changes to the permit.

## AQUATIC PESTICIDE LEGAL HISTORY

Many events shaped how the application of aquatic pesticides is regulated in Washington State. Beginning with the Federal Clean Water Act of 1972 (CWA), a combination of laws, EPA rules, and legal decisions form the basis for water quality policy in Washington State. A summary of these formative events is included below.

- 1972+ **Federal Clean Water Act (CWA), 33 U.S.C. §§1251 et seq. (1972, with major amendments enacted in 1977 and 1987);** The CWA delegated authority to the EPA to administer a permit program. The EPA delegated authority to Washington State to issue federal permits in certain situations.
- 1979+ **The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. §§136 et. seq. (1979),** requires any person wishing to apply pesticides to waters of the State to obtain an aquatic pesticide applicator license from the Washington State Department of Agriculture (WSDA) or operate under the supervision of an aquatic licensed pesticide applicator.
- 2001 **Headwaters, Inc. v. Talent Irrigation District, 243 F.3d 526 (9th Cir. 2001);** The Ninth Circuit Court determined that pesticide applications must be covered by a NPDES permit.
- 2002 **League of Wilderness Defenders et al. v. Forsgren, 309 F.3d 1181 (9th Cir. 2002);** The Ninth Circuit Court determined that aerial spraying directly to, and over, surface waters is a point source of pollution and must be covered by a NPDES permit.
- 2005 **Fairhurst v. Hagener, 422 F.3d 1146 (9th Cir. 2005);** The Ninth Circuit affirmed a district court’s opinion that the pesticide applied was not a “pollutant” because it left no residue and did not cause an unintended effect. Therefore, a NPDES permit was not required.
- 2006 **Northwest Aquatic Ecosystems v. Ecology, PCHB 05-101 (Feb. 15, 2006);** The Washington State Pollution Control Hearings Board concluded that coverage under a NPDES permit is required for the application of pesticides, because they are considered a pollutant because they don’t meet the criteria established by *Fairhurst v. Hagener* in 2005.
- 2006 **EPA Final Rule;** The EPA issued a federal rule addressing the application of pesticides. The rule stated that pesticides applied in accordance with the FIFRA label are not pollutants and, therefore, do not require coverage under a NPDES permit.
- 2009 **National Cotton Council, et al. v. EPA, 553 F.3d 927 (6th Cir. 2009);** The Sixth Circuit Court found that residues from applications of pesticides are considered “wastes” under the CWA and must be covered by a NPDES permit. The court also found the 2006 Federal Pesticide Rule to be invalid and gave the EPA twenty-four (24) months to develop a NPDES permit to address discharges from aquatic pesticide applications.

## REGULATIONS AFFECTING MANAGEMENT OF AQUATIC PLANTS, ALGAE, AND PHOSPHOROUS IN WASHINGTON

### RCW 90.48.445 Aquatic Noxious Weed Control - Water Quality Permits

In 1991, the Washington State Legislature directed Ecology to issue or approve water quality permits for use by federal, state, or local government agencies and licensed applicators for the purpose of using, for

aquatic noxious weed control, herbicides and surfactants registered under state or federal pesticide control laws. The legislature also specified that the issuance of these permits were subject only to compliance with federal and state pesticide label requirements, FIFRA requirements, the **Washington Pesticide Control Act**, the Washington Pesticide Application Act, and the State Environmental Policy Act (SEPA) (with some exceptions for spartina projects).

The Legislature further stated that Ecology may not use this permit authority to otherwise condition or burden weed control efforts and that permits are to be effective for five years, unless the applicant requests a shorter duration.

### **RCW 90.48.447 Aquatic Plant Management Program**

Excerpts from the notes, findings, and purpose of this 1999 statute state:

The legislature finds that the environmental, recreational, and aesthetic values of many of the state's lakes are threatened by the invasion of nuisance and noxious aquatic weeds. Once established, these nuisance and noxious aquatic weeds can colonize the shallow shorelines and other areas of lakes with dense surface vegetation mats that degrade water quality, pose a threat to swimmers, and restrict use of lakes. Algae can generate health and safety conditions dangerous to fish, wildlife, and humans. The current environmental impact statement is causing difficulty in responding to environmentally damaging weed and algae problems. Many commercially available herbicides have been demonstrated to be effective in controlling nuisance and noxious aquatic weeds and algae and do not pose a risk to the environment or public health. The purpose of this act is to allow the use of commercially available herbicides that have been approved by the environmental protection agency and the department of agriculture and subject to rigorous evaluation by the department of ecology through an environmental impact statement for the aquatic plant management program." [1999 c 255 § 1.]

## **BIOLOGICAL BACKGROUND, AQUATIC PLANTS, ALGAE, AND PHOSPHOROUS**

### **Native Aquatic Plants**

**Benefits:** Native aquatic plants and algae are essential components of healthy aquatic ecosystems. Algae form the base of the food chain and provide food to zooplankton. Zooplankton are in turn, eaten by small fish, which are eaten by larger fish that are consumed by waterfowl, eagles, and other top predators. Aquatic plants provide oxygen, food, habitat, and shelter for fish, zooplankton, waterfowl, and aquatic mammals. Young fish and amphibians use aquatic plants as cover from predatory fish and birds, making aquatic plants important nurseries for immature fish, frogs, and salamanders. Moderately productive systems will support healthy fish populations that in turn, lead to good fishing opportunities for humans. Some aquatic plants produce seeds, tubers, and vegetation that are important in the diets of waterfowl. Aquatic vegetation also supports small animals such as insects, snails, and crustaceans that provide food for other animals. Some animals use aquatic plants as nesting material or construct nests in vegetated areas. Rooted aquatic plants protect shorelines from erosion due to wave action or currents. They also help stabilize the sediment, which can increase water clarity. Aquatic plants can help remove nutrients from the water that algae may otherwise use. This can help keep the water clear. A diverse native plant community will resist or slow down the invasion of noxious weeds. Many people

enjoy the serenity and beauty of a well-balanced system with diverse shoreline and in-water vegetation that attracts wildlife.

**Detriments:** Native aquatic plants can become nuisance plants when they become dense and so numerous that they impede recreational activities such as swimming, wading, water skiing, boating, and fishing. Some lake residents fear for their or their children's safety when swimming in dense plant growth. Should a swimmer get into trouble, he or she can be difficult to locate in plant beds. When growth is dense, too many plants can harm some fisheries, causing stunted fish. Although aquatic plants are a source of oxygen, they may also contribute to low oxygen conditions when they die and decompose. Dying plants and algae blooms and the subsequent depletion of oxygen in the water may lead to fish kills, particularly in the summer and early fall. Decomposing vegetation may also produce strong unpleasant odors. Excessive growth of aquatic vegetation may impede water access, water flow, and increase localized flooding. It may lead to more rapid sedimentation and filling in of a lake as vegetation traps soil and builds up sediments, decreasing water depth. When lake vegetation creates stagnant water, it increases breeding habitat for mosquitoes, other nuisance insects, and provides habitat for snails that can harbor the parasite that causes swimmer's itch. A vegetation-choked lake may decrease property values.

### **Aquatic Noxious Weeds**

Noxious weed is a legal classification of plants based in RCW 17.10.080 and chapter 16-752 WAC, and are defined (WAC 17.10.010(1)) as: *"a plant that when established is highly destructive, competitive, or difficult to control by cultural or chemical practices."* The natural habitat ranges of most noxious weeds may be other countries, continents, or locations

within the United States. There are many pathways for noxious weed to be introduced into Washington. Some of these are the aquarium, nursery industry, internet trading, recreational boats and boat trailers, and shipping. The Washington State Noxious Weed Control Board (NWCB) designates plants to be noxious weeds. The NWCB only designates non-native plants to be noxious weeds.

Noxious weeds fall into three classes: Class A, Class B, and Class C. Class A weeds are required to be eradicated where they exist. Class B weeds are further separated into plain Class B weeds, and Class B-designate weeds which are required to be control in specific counties. Class C weeds are considered endemic (cannot be eradicated) and may be controlled wherever they exist. More information about the classes of noxious weeds, the list of designated noxious weeds, and information about the NWCB decisions, is available at <https://www.nwcb.wa.gov/>.

Because noxious weeds are often introduced without the diseases and insects that keep them in control in their new habitat, they can spread rapidly, having profound impacts on species diversity, habitat, water quality, recreation, water supply, drinking water, flood control, safety, and health. For example:

- Noxious submersed aquatic weeds affect the fishery by altering water quality and provide so many hiding places for prey fish that predator fish, like bass, form stunted populations. They also hinder anglers by tangling fishing gear and making boating difficult. Impacts to recreation from noxious aquatic weeds are significant.
- Recreational boaters are unable to move through dense noxious weed beds (e.g. fragrant water lily, Eurasian watermilfoil) without stopping every minute or so to remove plants from their propellers.

- Lifeguards consider any aquatic plant within swimming areas to be a safety hazard because they are unable to see the swimmers underwater and rescue is difficult.
- The sheer mass of noxious weeds displaces water and can cause flooding to occur by slowing water flow.
- Stagnant water produced in the mats is an excellent breeding ground for mosquitoes.

## Algae

There are many species of algae that are common in freshwater. Some of them are free floating in the water column (planktonic algae), other form mats and threads attached to surfaces in a waterbody like logs and rocks (filamentous algae). Most algae are beneficial and form the basis of the food web. Blooms of these beneficial algal species are short-lived, are not harmful to humans, pets, or wildlife.

Planktonic algae can cause cloudiness in water. In many lowland lakes in Washington, planktonic algae is responsible for the color and cloudiness of the water during the summer and fall. These algae respond to the nutrients in the water column. Large concentrations of algae are known as blooms. Planktonic algae blooms may be a nuisance, but they are not a public health risk (exception: see cyanobacteria below).

Filamentous algae are freshwater green algae that frequently form cloud-like mats attached to a substrate (like logs, rocks, or plants) in the waterbody. These algae often grow in shallow water in association with aquatic plants. Some lake residents find these filamentous mats unsightly. Algal mats may interfere with boating and swimming, but they do not produce harmful toxins. They are a nuisance rather than a public health risk.

Ecology does not allow chemical *treatment* of other types of algae, with the exception of ***harmful algae species*** (algae known to harm humans or wildlife generally through the production of toxins).

## Cyanobacteria

Cyanobacteria are several species of planktonic algae also known as *blue-green algae*. Cyanobacteria blooms may turn the water pea soup green, brownish, or even red and often look like somebody has spilled paint in the water. When cyanobacteria start decomposing, they can turn bright blue, turquoise, or white. Some cyanobacteria species produce potent liver (hepatotoxin) and nerve toxins (neurotoxin), and exposure to toxic algae has resulted in the deaths of pets (2019, Anderson Lake, most recently) and livestock in Washington as well as contributed to human illness. Cyanobacterial blooms and their decomposition also produce extremely unhealthy conditions for fish and wildlife. To protect human health, some local health districts may close lakes to contact recreation when blooms test toxic. Cyanobacteria may also produce strong noxious odors when decomposing.

## Excess Phosphorus Concentrations

Phosphorus is a nutrient necessary for plant and algae growth. Excess concentrations in phosphorus in a waterbody can be a factor in excessive plant growth, algae blooms, or cyanobacteria blooms. Excess phosphorus can be from human activities (e.g. fertilizer use, septic systems) especially where the shoreline is developed, or may be a naturally occurring phenomenon based on the local geology and hydrogeology. Phosphorus concentrations are usually managed via chemical methods to sequester excess phosphorus so that this element is not available to plants and algae for growth. Sequestering phosphorus is usually intended to manage cyanobacteria blooms, especially those in lakes where the blooms have been tested to be toxic (harmful algae blooms or HAB). A side effect of some products may be temporary clarification of the water column. However, phosphorus sequestration is not a perfect solution. If an initial treatment is successful, over time phosphorus concentrations in a waterbody will

likely rise again leading to the need for further sequestration treatments. The amount of time is waterbody specific.

## REGULATORY INFORMATION

### **LEGAL REQUIREMENTS FOR LIMITATIONS TO CONTROL POLLUTANTS IN DISCHARGES**

Section 502(11) of the CWA defines “effluent limitation” as any restriction on the quantity, rate, and concentration of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance. Effluent limitations are among the permit conditions and limitations prescribed in NPDES permits issued under Section 402(a) of the Act, 33 U.S.C. §1342(a).

#### ***Types of Effluent Limitations: Technology-Based and Water-Quality Based***

The CWA requires that discharges from existing facilities, at a minimum, meet technology-based effluent limitations reflecting, among other things, the technological capability of Permittees to control pollutants in their discharges which are economically achievable. State laws (RCWs 90.48.010, 90.52.040 and 90.54.020) require the use of “all known, available and reasonable methods of prevention, control and treatment” (AKART).

Water quality-based effluent limitations (WQBELs) are required by CWA Section 301(b)(1)(C) and, in Washington State, are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Groundwater Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the Federal human health criteria for Washington (40 CFR §131.45). The more stringent of these two limits (technology or water quality-based) must be chosen for each of the parameters of concern, and implemented through NPDES permits. [CWA sections 301(a) and (b)].

Effluent limitations in NPDES permits may be expressed as numeric or non-numeric standards. Under EPA’s regulations, non-numeric effluent limits are authorized in lieu of numeric limits, where “[n]umeric effluent limitations are infeasible.” [40 CFR §122.44(k)(3).] Courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., Best Management Practices or “BMPs”) designed to reduce the level of effluent discharges to acceptable levels:

*Natural Res. Def. Council, Inc. v. EPA, 673 F.2d 400, 403 (D.C. Cir. 1982)* (noting that "section 502(11) defines 'effluent limitation' as 'any restriction' on the amounts of pollutants discharged, not just a numerical restriction"; holding that section of CWA authorizing courts of appeals to review promulgation of "any effluent limitation or other limitation" did not confine the court's review to the EPA's establishment of numerical limitations on pollutant discharges, but instead authorized review of other limitations under the definition) (emphasis added).

In *Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C. Cir. 1977)*, the D.C. Circuit stressed that when numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels.

## **Technology-Based Effluent Limitations**

### **Types of Technology-Based Effluent Limitations**

Technology-based effluent limitations are in many cases established by EPA in regulations known as effluent limitations guidelines, or “ELGs.” EPA establishes these regulations for specific industry categories or subcategories after conducting an in-depth analysis of that industry. Where EPA has not issued effluent guidelines for an industry, EPA and State permitting authorities establish effluent limitations for NPDES permits on a case-by-case basis based on their best professional judgment. See 33 USC § 1342(a)(1); 40 CFR § 125.3(c)(2).

The CWA sets forth different standards for the effluent limitations based upon the type of pollutant or the type of Permittee involved.

The CWA establishes two levels of pollution control for existing sources. In the first stage, existing sources that discharge pollutants directly to receiving waters were initially subject to effluent limitations based on the “best practicable control technology currently available” or “BPT.” 33 USC § 1314(b)(1)(B). BPT applies to all pollutants. In the second stage, existing sources that discharge conventional pollutants are subject to effluent limitations based on the “best conventional pollutant control technology,” or “BCT.” 33 USC §1314(b)(4)(A); see also 40 CFR §401.16 (list of conventional pollutants) while existing sources that discharge toxic pollutants or “nonconventional” pollutants (i.e., pollutants that are neither “toxic” nor “conventional”) are subject to effluent limitations based on “best available technology economically achievable,” or “BAT.” 33 USC §1311(b)(2)(A); see also 40 CFR §401.15 (list of toxic pollutants).

The factors to be considered in establishing the levels of these control technologies are specified in section 304(b) of the CWA and EPA’s regulations at 40 CFR §125.3.

All NPDES permits are required to consider technology-based limitations (water quality-based effluent limitations may be more stringent). 40 CFR §122.44(a)(1) and 125.3. CWA sections 301(b)(1)(A) for (BPT); 301(b)(2)(A) for (BAT); and 301(b)(2)(E) for (BCT). Technology-based limits in this permit represent the BPT (for conventional, toxic, and non-conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic pollutants and non-conventional) levels of control for the applicable pollutants. When EPA has not promulgated effluent limitation guidelines for an industry, or if an operator is discharging a pollutant not covered by the effluent guideline, permit limitations may be based on the best professional judgment (BPJ, sometimes also referred to as “best engineering judgment”) of the permit writer. 33 USC §1342(a)(1); 40 CFR §125.3(c). See *Student Public Interest Group v. Fritzsche, Dodge & Olcott*, 759 F.2d 1131, 1134 (3d Cir. 1985); *American Petroleum Inst. v. EPA*, 787 F.2d 965, 971 (5th Cir. 1986). For this permit, most of the technology-based limits are based on BPJ decision-making because no ELG applies. However, the permit also includes technology-based limits based on FIFRA product labels, State pesticide law requirements, and mitigation measures suggested in environmental impact statement documents.

### **Authority to Include Non-Numeric Technology-Based Limits in NPDES Permits**

Under EPA’s regulations, non-numeric effluent limits are authorized in lieu of numeric limits, where “[n]umeric effluent limitations are infeasible.” 40 CFR §122.44(k)(3). As far back as 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., Best Management Practices or “BMPs”) designed to

reduce the level of effluent discharges to acceptable levels. *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C.Cir.1977).

Through the Agency's NPDES permit regulations, EPA interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 CFR §122.44(k), entitled "Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs ...)," provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) "[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges"; or (2) "[n]umeric effluent limitations are infeasible." 40 CFR §122.44(k).

In 2006, The U.S. Court of Appeals for the Sixth Circuit held that the CWA does not require the EPA to set numeric limits where such limits are infeasible. *Citizens Coal Council v. United States Environmental Protection Agency*, 447 F.3d 879, 895-96 (6th Cir. 2006). The Citizens Coal court cited *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005), stating "site-specific BMPs are effluent limitations under the CWA." "In sum, the EPA's inclusion of numeric and non-numeric limitations in the guideline for the coal remining subcategory was a reasonable exercise of its authority under the CWA."

Additionally, the Sixth Circuit cited *Natural Res. Def. Council, Inc. v. EPA*, 673 F.2d 400, 403 (D.C.Cir.1982) noting that "section 502(11) [of the CWA] defines 'effluent limitation' as 'any restriction' on the amounts of pollutants discharged, not just a numerical restriction." EPA has substantial discretion to impose non-quantitative permit requirements pursuant to Section 402(a)(1)), especially when the use of numeric limits is infeasible. See *NRDC v. EPA*, 822 F.2d 104, 122-24 (D.C. Cir. 1987) and 40 CFR §122.44(k)(3).

### **Rationale for Non-Numeric Technology-Based Effluent Limits in This Permit**

The traditional NPDES-regulated discharge is from an facility which has a liquid waste stream being continuously discharged through a pipe, or other conveyance, into a surface water. The waste stream is treated to remove some amount of pollutants prior to the discharge occurring. This is the archetypal "point-source" discharger. Aquatic pesticides, as determined in the circuit courts is also a point source discharge, but their use presents unique challenges not encountered by most other NPDES-regulated discharges. These challenges include:

- Aquatic pesticide use is a periodic/episodic discharge. Discharge may occur several times during a year, or only once every few years.
- All pesticide use is also regulated by federal and state pesticide law, via product registration, the product label, applicator licensing, biological opinions (for endangered species), and county bulletins (extra label requirements to protect endangered species).
- Pesticides, when being put to their intended use and applied to control a target pest, are not considered a waste material. It is only the excess applied during treatment and residues of the pesticide after it has completed its intended task, that are waste material (*National Cotton Council, et al. v. EPA*, 553 F.3d 927 (6th Cir. 2009), *Fairhust v. Hagener*, 422 F.3d 1146 (9th Cir. 2005), *Headwaters, Inc. v. Talent Irrigation District*, 243 F.3d 526 (9th Cir. 2001)).
- Aquatic pesticides are pollutants because they change the physical, chemical, or biological characteristics of a waterbody.

- Aquatic pesticides cannot be treated, as an industrial waste stream can, prior to being discharged. Treating a pesticide to remove the pesticide (pollutant) prior to discharge defeats the purpose of putting the pesticide in the water to control a pest organism.
- Most pesticides do not have water quality criteria set in the chapter 173-201A WAC.
- Aquatic pesticides do not have effluent limit guidelines or “ELGs” (technology-based effluent limits) published by EPA.
- Aquatic pesticides are not conventional pollutants, or toxic pollutants (exception: Acrolein) even though their intended purpose is to be toxic to a pest organism. Aquatic pesticides are non-conventional pollutants, and may be subject to BPJ effluent limits.
- Aquatic pesticides are used at different rates (dictated by the product label) depending on the target species. Adequate control of some pests require a higher rate than others. There are many product labels, and each label contains a ranges of usage rates. Determining a single number for use as a numeric effluent limits is infeasible due to the variation of products, rates, and the necessity of using different rates to ensure the target pest population is adequately controlled. Setting too low of a numeric effluent limit would prevent control of some pests that may actually be required by state law to be controlled (e.g. Class A noxious weeds). Setting too high of a numeric effluent limit may not be protective of water quality criteria and designated uses, and may potentially be in conflict with the maximum application rate set on the pesticide product label.

The situation with aquatic pesticides is that their use is a discharge of a pollutant that is not a waste material (except for excess and residues). We do not have a method by which each portion of a pesticide being used (portion that is actually functioning as intended and portion that is waste) may be distinguished. Treatment of pesticides prior to discharge is also not feasible. Doing so would defeat the purpose of using a pesticide. Removing the pollutants (e.g. chemicals) from the pesticide product would make it ineffectual and a waste of resources to use. Therefore, to limit the amount of waste material that is discharged during the use of aquatic pesticides, Ecology must rely on narrative effluent limits to restrict or condition actions leading to the discharge. This in turn reduces the amount of waste materials that are discharged.

### **Antidegradation Analysis and Antidegradation Plan**

The following narrative represents Ecology’s antidegradation analysis and antidegradation plan for the Aquatic Plant and Algae Management General Permit. The purpose of Washington’s Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington,
- Describe situations under which water quality may be lowered from its current condition,
- Apply to human activities that are likely to have an impact on the water quality of surface water,
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART), **and**
- Apply three Tiers of protection (described below) for surface waters of the State.

Tier I ensures existing designated uses are maintained and protected and applies to all waters and all sources of pollution. Tier II ensures that dischargers do not degrade waters of a higher quality than the criteria assigned unless such lowering of water quality is necessary and in the overriding public interest.

Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as “outstanding resource waters” and applies to all sources of pollution. There are currently no Tier III waterbodies in Washington.

WAC 173-201A-320(6) describes how Ecology implements Tier I and II antidegradation in general permits. All permittees covered under the general permit must comply with the provisions of Tier 1. Ecology determined that this permit does not cover discharges to Tier III waters.

*Under state law, the use of herbicides is in the public interest. “Many commercially available herbicides have been demonstrated to be effective in controlling nuisance and noxious aquatic weeds and algae and do not pose a risk to the environment or public health. The purpose of this act is to allow the use of commercially available herbicides that have been approved by the environmental protection agency [US EPA] and the [State] department of agriculture and subject to rigorous evaluation by the department of ecology through an environmental impact statement for the aquatic plant management program (RCW 90.48.447).”*

The water quality standards at WAC 173-201A-320(6) describe how Ecology should conduct an antidegradation Tier II analysis when it issues NPDES general permits. This section of the rule requires Ecology to:

- **Use the information collected, from implementation of the permit, to revise the permit or program requirements.**
  - Ecology revised the proposed permit based on written and verbal feedback from permittees, parties affected by the permit, lake residents, internal staff, and government agencies about what was working well and what was not. Ecology also maintained notes about comments and received over the life of the permit and used these for reference when developing the proposed permit. Ecology will further revise the draft permit based on a formal public comment period (45 days) and testimony received at two planned public hearings.
  - Ecology used herbicide residue monitoring information from aquatic pesticide permits and from its grant program to revise permit requirements. Permittees collected (and continue to collect) information about herbicide persistence, mobility, efficacy, and impacts to non-target plants after treatment conducted in Washington waters under Ecology's NPDES permits. Ecology has made monitoring information available at [http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/noxious/monitoring\\_data/monitoring\\_index.html](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/noxious/monitoring_data/monitoring_index.html).
  - Ecology may modify the permit if monitoring data show significant adverse impacts to water quality through the continued use of a specific pesticide or application method or if EPA fails to reregister a pesticide for aquatic use. In addition, the permit requires immediate reporting of any adverse impacts from treatment to fauna or humans. Ecology investigates these reports and determines if the treatment caused or contributed to the problem.
  - Based on permitting needs to protect salmon and amphibians from direct and indirect (sub-lethal) effects of aquatic herbicides, Ecology funded several research projects at the University of Washington (2009), (Yahnke et al., 2013) to study sub-lethal impacts on these organisms from the use of 2,4-D, diquat, fluridone, and triclopyr under Ecology's permit program. Sub-lethal impacts include interference with smoltification,

olfaction changes, and avoidance behaviors that could for example lead to increased predation. Because of data from these studies and other information, Ecology will continue to require timing windows for the application of diquat to protect juvenile salmon and not require timing for fluridone, triclopyr, glyphosate, and imazapyr.

- To meet permitting needs and to determine herbicide efficacies on the **eradication** of state-listed noxious weeds, Ecology has funded and published several research studies that include evaluating the impacts of aquatic herbicides on non-target native plant species. See <http://www.ecy.wa.gov/programs/eap/lakes/aquaticplants/index.html#annualsurvey> for an overview of the Ecology's special research projects.
- **Review and refine management and control programs in cycles not to exceed five years or the period of permit reissuance.**
  - Ecology is following a five-year reissuance cycle for the Aquatic Plant and Algae Management Permit. The current permit issued in 2016 expires in 2021. Ecology plans to reissue the Aquatic Plant and Algae Management Permit in 2021. Permit reissuance includes a public involvement process as described below.
  - Ecology spends about a year prior to permit expiration soliciting input from users and affected parties, rewriting and revising permit conditions, and reviewing relevant data before going out for public comment on the permit and accompanying documents and finalizing the proposed new version of the permit.
- **Include a plan that describes how Ecology will obtain and use information to ensure full compliance with water quality standards. Ecology must develop and document the plan in advance of permit or program approval.**
  - The information in this factsheet and in the antidegradation section of this factsheet constitute Ecology's antidegradation plan for the Aquatic Plant and Algae Management General Permit. Ecology's guidance document implementing Tier II antidegradation requirements that indicates such a plan may not be required. Ecology *Supplementary Guidance Implementing the Tier II Antidegradation Rules* dated July 18, 2005 (<http://www.ecy.wa.gov/programs/wq/swqs/antideg-tier2-guidance.pdf>) states: "A Tier II analysis is not required in association with activities regulated under a short-term modification (WAC 173-201A-410) such as what would occur with construction and maintenance activities or the periodic use of herbicides to control noxious aquatic plants."
  - None of the chemicals allowed for use in the permit are chemicals of concern or listed on the **303(d)** list of impaired water bodies as a cause of impairment. Although copper sulfate and chelated coppers are registered algaecides and herbicides (and there are water bodies on the 303(d) list for copper impairment), Ecology stopped conditionally authorizing the use of copper compounds in the APAM permit for these uses in Washington lakes and rivers in 2002. Never the less, Ecology understand that the use of chemicals in 303(d)-listed water bodies for dissolved oxygen and phosphorus has the potential to cause further impairment to these water bodies. Ecology addresses this in the proposed permit by prohibiting further impairment of any 303(d)-listed waterbody. Ecology does allow treatment in these waters, but only if the Permittee chooses an appropriate chemical and implements one or more mitigation measures. In addition, when treating waters impaired for oxygen, the Permittee must monitor dissolved

oxygen and report these results to Ecology within 30 days of the post-treatment monitoring date.

- o Because the addition of alum or calcium products for phosphorous sequestration may alter pH concentrations in the water, Ecology requires monitoring. If the pH exceeds the limits set in the permit, the applicator must stop the treatment and take immediate steps to correct the situation.
- o Ecology has updated the project planning requirement in the proposed permit. All applicants and Permittees formerly completed a Discharge Management Plan (DMP) using a template provided by Ecology. Permittees now must provide relevant information, formerly required in the DMP, as part of the NOI.

Although the antidegradation requirements for general permits state that individual actions covered under a general permit do not need to go through independent Tier II reviews, Ecology considers it important that the public have the opportunity to weigh in on whether individual actions are in the overriding public interest. The antidegradation rule establishes a refutable presumption that they do, but only through a public notice of intent to provide coverage and expected compliance with antidegradation does the general public have an opportunity to question individual actions. Thus, applicants for new coverages must publish requests for coverage in a local paper of general circulation. Further, the draft proposed permit requires that entities seeking coverage under the permit must also send the public notice for proposed permit coverage to waterfront residences and businesses within the proposed treatment area as well as within one-quarter mile along the shoreline from the edge of proposed treatment sites. Public notices must include:

- A statement that the applicant is seeking coverage under the Aquatic Plant and Algae Management General Permit.
- The name, address, and phone number of the applicant.
- The name of the waterbody proposed for treatment.
- A list of products planned for use.
- The statement: “Any person desiring to present their views to the Department of Ecology regarding this application shall do so in writing within 30 days of the last date of publication of this notice. Comments must be submitted to the Department of Ecology. Any person interested in the Department’s action on the application may notify the Department of their interest within 30 days of the last date of publication of this notice.”

When the Permittee proposes to use a chemical that persists in the water for longer than hours or days they must satisfy the requirements of WAC 173-201A-410. The permit, fact sheet, SEPA documents and NOI contribute to fulfilling the requirements of WAC 173-201A-410 for long term exceedances.

## **WATER QUALITY-BASED REQUIREMENTS**

### **Rationale for Non-Numeric Water Quality-Based Effluent Limits in This Permit**

In some instances, narrative effluent limits that are technology-based are not protective enough for some of the species or life-stages that are more sensitive to aquatic pesticide use. For example, smolting salmonids, rare plants, or nesting waterfowl. Through the development of environmental impact statements (EIS) and review of other scientific documents (e.g. journal articles and studies), sub-lethal impacts to some organisms were identified. In these instances, Ecology added conditions to the

discharge of specific active ingredients to minimize potential impacts. These conditions are not wholly technology-based as technology could not fully implement these conditions, even though Ecology includes some of them as part of AKART. These conditions are based on the necessity of going beyond just technology-based controls to protect sensitive species or life stages by implementing water quality-based limits to protect designated uses (e.g. habitat, aquatic life) in Chapter 173-201A WAC. Examples of such conditions are the requirements to follow treatment timing windows and perform rare plant surveys.

## ***Surface Water Quality Limitations***

### **Evaluation of Surface Water Quality-Based Effluent Limits for Numerical Criteria**

Ecology made its determination on the ecological and human health effects of the chemicals or products approved for use in the reissued permit based upon its Aquatic Plant Management Program Environmental Impact Statements and risk assessments (1980, 1992, 2001, 2002, 2004, 2012, and 2017), knowledge of aquatic plant and algae management control methods, other available risk assessment documents, scientific documents that meet credible data policy requirements such as other agency publications or scientific journal articles, and BPJ. Ecology developed conditions in this permit to assure compliance with the criteria in the State water quality standards. The conditions, which vary with the chemical, implement AKART through BMPs such as requiring a state-licensed applicator with an aquatic endorsement, requiring equipment calibration and operator training, compliance with FIFRA, mitigation for 303(d)-listed waters, setting action thresholds, protections for rare plants and critical habitats/species, and special conditions in the permit. Ecology has determined that if dischargers properly apply and handle chemicals in accordance with the terms and conditions of the general permit and FIFRA product labels, the aquatic plant and algae management activities will:

- Comply with state water quality standards.
- Maintain and protect the existing and designated use of the surface waters of the State.
- Protect human health.

New information regarding previously unknown environmental and human health risks about any of the chemicals may cause Ecology modify to the general permit.

### ***Short-Term Water Quality Modification Provisions***

The short-term water quality modification provision of the draft permit allows the authorized discharges to cause a temporary diminishment of some designated beneficial uses while it alters the waterbody to remove aquatic plants and algae. The conditions of this permit constitute the requirements of a short-term water quality modification.

A short-term exceedance only applies to short lived (hours or days) impairments, but short-term exceedances may occur periodically throughout the five-year permit term. Short-term exceedances may also extend over the five-year life span of the permit (long-term exceedance) provided the Permittee satisfies the requirements of WAC 173-201A-410. The Permittee must develop and implement an IPM plan that follows the Administrative Procedures Act (chapter 34.05 RCW) for public involvement and complete a SEPA evaluation of the activity (chapter 43.21C RCW). permit, fact sheet, SEPA documents and NOI contribute to fulfilling the requirements of WAC 173-201A-410 for long term exceedances.

Washington's Water Quality Standards include numeric health-based criteria that Ecology must consider when writing NPDES permits. Ecology has determined that the Permittee's discharge does not contain chemicals of concern based on existing data or knowledge.

### ***Groundwater Quality Limitations***

The Ground Water Quality Standards, (chapter 173-200 WAC), protect beneficial uses of ground water. Permits issued by Ecology must not allow violations of those standards. This permit does not allow the use of pesticides expected to contaminate groundwater. In the event there are additional concerns, Ecology can issue orders requiring groundwater monitoring for different pesticides under this permit.

### ***Sediment Quality Standards***

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards, Ecology may require a Permittee to evaluate the potential for the discharge to cause a violation of sediment standards (WAC 173-204-400 ). Obtain additional information about sediments at the Aquatic Lands Cleanup Unit website <http://www.ecy.wa.gov/programs/tcp/smu/sediment.html>

Ecology has determined through a review of the discharger characteristics and effluent characteristics that these discharges have no reasonable potential to violate the Sediment Management Standards.

### ***Endangered and Sensitive Species***

EPA has implemented an Endangered Species Protection Program (ESPP) to identify all pesticides that may cause adverse impacts on threatened/endangered species and to implement measures that will mitigate these impacts. When the ESPP identifies an adverse impact, it requires use restrictions to protect these species at the county level. EPA will specify these use restrictions on the product label or by distributing a county-specific Endangered Species Protection Bulletin. Bulletins are enforceable under FIFRA. General Condition G9 of the APAM permit informs the permittees that the permit does not remove any requirement to comply with all applicable federal regulations. See <http://www.epa.gov/espp/frequent-ques.htm> for more information.

The U.S. Fish and Wildlife Service and National Marine Fisheries Service are involved in EPA's processes to protect listed species and designated critical habitat in several ways: by consulting with EPA on specific endangered species concerns; by issuing Biological Opinions on certain species; or other ways, as necessary. For details on how EPA evaluates the potential risks from pesticides to listed species and consults with the Services, see their risk assessment process web page at <http://www.epa.gov/espp/litstatus/riskasses.htm>.

In the APAM permit, Ecology has imposed treatment timing restrictions on chemicals expected to have sub-lethal or habitat alteration impacts to salmon species. Timing information provides windows of opportunity when applicators may add chemicals to the water without undue impact on sensitive species. Ecology defers to WDFW's expertise about the presence of fish or other sensitive species to minimize impacts to life stages of fish and other sensitive animals. WDFW develops the timing table for Ecology. Ecology determines which chemicals may impact sensitive species. Ecology bases its determinations on research that it funded through the University of Washington as well as other existing publications.

In 2010, at Ecology's request, WDFW biologists revised and broadened the species and habitats covered under timing windows for aquatic pesticide permits to include all salmon species, steelhead, bull trout,

and any other sensitive species associated with aquatic habitats (e.g., waterfowl, amphibians, critical habitats). In some cases, timing windows limit optimal treatment times for aquatic plants. Sometimes the best times to avoid treatment to protect sensitive species may be the best times to treat for aquatic plants (i.e., herbicide treatment may not take place during the optimal treatment times for plant control).

Based upon annual reporting of pesticide use and other available information, Ecology with advice from WDFW may further restrict pesticide use to protect endangered, threatened, candidate and sensitive species such as pacific salmonids. WDFW may modify treatment timing windows during the life of the permit as new scientific information about species and critical habitats becomes available. Some lake groups have worked with WDFW to refine and revise the treatment timing windows for their lake treatments. For example, the Lake Steilacoom Improvement District was able to move their timing window from a July 15 treatment start date to a June 15 start date after they met with WDFW and reviewed fish use information from the lake and nearby water bodies with salmon runs.

For regulatory information concerning rare plants see ***Additional Requirements for Discharges to Water Bodies Where Sensitive, Threatened, or Endangered Plants are Present*** in the Special Conditions S.3.F section of the Fact Sheet.

### ***SEPA Compliance***

This is a reissuance of an existing general permit. Ecology is not proposing any changes that reduce the stringency of existing state rules for use of chemicals in and around fresh waterbodies in Washington. In such cases where change to the conditionally authorized discharges are not proposed, the permit is exempt from SEPA review based upon RCW 43.21C.0383 that states in the applicable clause: *“The following waste discharge permit actions are not subject to the requirements of RCW 43.21C.030(2)(c): (1) For existing discharges, the issuance, reissuance, or modification of a waste discharge permit that contains conditions no less stringent than federal effluent limitations and state rules; . . .”*

RCW 43.21C.030(2)(c), summarized, requires that any state agency include a SEPA review of an actions taken. The proposed permit is at least as stringent as the version of the permit which expires March 2021.

Ecology has developed and issued the following EIS documents assessing the probable significant environmental impacts from the active ingredients conditionally authorized for use in the draft APAM permit.

- 1980 EIS: ADD LINK
- 1992 SEIS: ADD LINK
- 2000 FSEIS: <https://fortress.wa.gov/ecy/publications/documents/0010040.pdf>
- 2000 FSEIS Appendix A – Sample Permit and Process (deprecated): <https://fortress.wa.gov/ecy/publications/documents/0010041.pdf>
- 2000 FSEIS Appendix B – State Laws and Regulations: <https://fortress.wa.gov/ecy/publications/documents/0010042.pdf>
- 2000 FSEIS Appendix C – 2,4-D Risk Assessment: <https://fortress.wa.gov/ecy/publications/documents/0010043.pdf>
- 2000 FSEIS Appendix D – Endothall Risk Assessment: <https://fortress.wa.gov/ecy/publications/documents/0010044.pdf>

- 2000 FSEIS Appendix E – Grass Carp, Copper, Fluridone, Glyphosate Risk Assessments: <https://fortress.wa.gov/ecy/publications/documents/0010045.pdf>
- 2001 FSEIS – Triclopyr Risk Assessment: <https://fortress.wa.gov/ecy/publications/documents/0410015.pdf>
- 2002 FSEIS – Diquat: <https://fortress.wa.gov/ecy/publications/documents/0210052.pdf>
- 2002 FSEIS Appendix A – Diquat Risk Assessment: <https://fortress.wa.gov/ecy/publications/documents/0210046.pdf>
- 2004 FSEIS – Triclopyr: <https://fortress.wa.gov/ecy/publications/documents/0410018.pdf>
- 2012 FSEIS Addendum – Penoxsulam, Imazamox, Bispyribac-Sodium, Flumioxazin, Carfentrazone-ethyl: <https://fortress.wa.gov/ecy/publications/documents/0010040addendum1.pdf>
- 2017 FSEIS – All Active Ingredient Update, Phosphorus Sequestration Product Assessment: <https://fortress.wa.gov/ecy/publications/documents/1710020.pdf>

Using the programmatic SEIS documents, associated supplements, risk assessments, and staff BPJ as guidance, Ecology conditioned the use of pesticides in the APAM permit to mitigate potential significant environmental impacts of concern noted in the environmental and human health evaluations required under the State Environmental Policy Act (SEPA). Under SEPA rules, it is not mandatory to include all mitigations or conditions identified in the SEIS or risk assessment documents in its permit. Ecology may also use BPJ or new information to determine appropriate permit conditions or mitigations. Mitigations in the permit include treatment timing windows to protect *sensitive, threatened, and endangered* fish, amphibians, and sensitive habitats and protections for rare plants.

For handling project level SEPA determinations for each permit coverage, Ecology proposes to use the information in the NOI, along with the EIS and risk assessments already developed to support this permit to make a SEPA determination. A programmatic SEPA review of the proposed action has been conducted and has been adopted (last adopted in 2019 during the APAM permit major modification). The programmatic SEPA review assesses all of the pesticides and other products allowed for use under the APAM permit and applies to all fresh waterbodies of the State.

For public entity project level SEPA review, the public entity is responsible for leading their own SEPA process and providing the SEPA determination prior to approval of coverage by Ecology.

### ***Responsibility To Comply With Other Requirements***

Ecology has established, and will enforce, limits and conditions in the APAM permit for the discharge of aquatic herbicides and algaecides registered for use by the EPA and the WSDA. Ecology has also established, and will enforce, limits and conditions in the general permit for product types named in this permit not governed by these other agencies (e.g., phosphorus sequestration products, marker dyes, microbe-based pond treatments, water clarifiers/flocculents). EPA and WSDA enforce the use, storage, and disposal requirements expressed on pesticide product labels. The permittees must comply with the pesticide product label requirements (FIFRA) and all of the conditions the APAM permit. The APAM permit does not supersede or preempt federal or state pesticide product label or application requirements or any other applicable laws and regulations.

## SPECIAL CONDITIONS

### **S1. Permit Coverage**

This permit is a reissuance of the permit that expires March 31, 2021. The proposed permit will replace the current permit.

#### **Activities Covered Under This Permit**

All entities that participate in aquatic plant or algae management or phosphorous sequestration activities that result in a discharge of pollutants to waters of the State must obtain coverage under a permit as required by the Federal Clean Water Act and Washington laws and regulations (chapters 90.48.080, 90.48.160, 90.48.260 RCW and chapter 173-201A WAC). Herbicides, algacides, phosphorous sequestration products, adjuvants, marker dyes, shading products, and water clarification products, any excess product, and product residues are pollutants, and therefore require a discharge permit before application to Washington State surface waters.

This permit regulates the use of the above products for the management of aquatic plants and algae and phosphorous sequestration. Applicants with projects targeting *submersed* and *floating-leaved* freshwater state-listed noxious weeds or quarantine-listed weeds in waterbodies must obtain coverage under the Aquatic Plant and Algae Management Permit and **may not** obtain coverage under the Aquatic Noxious Weed Permit. Permittees for these types of in-waterbody projects may also include the treatment of noxious and quarantine-listed weeds along the shoreline in their permit coverage if they wish. This eliminates the need to have coverage under two permits for chemical treatment in and along the shorelines of a single waterbody for noxious weeds. Proponents of in-waterbody noxious weed projects must obtain coverage under the Aquatic Plant and Algae Management Permit rather than the Aquatic Noxious Weed Permit because of a lawsuit settlement agreement between the Washington Toxics Coalition and the WSDA. All other types of noxious weed treatments can occur under the Noxious Weed Permit (shoreline treatments, wetland treatments and, treatments in wet areas).

Aquatic plant and algae management activities are organized into four categories: Noxious Weed Control, Native Nuisance Plant Control, Algae Control, and phosphorous sequestration. The permit has different requirements for each category.

1. The noxious weed control category allows for the control of all species listed as noxious weeds (as identified in chapter 16.750 WAC). This includes all classes of noxious weeds (Class A, Class B and B-designate, and Class C), all species listed on WSDA's quarantine list (as identified in chapter 16.752 WAC), or any non-native and potentially **invasive** aquatic plant species not listed on the above lists as determined by the State Noxious Weed Control Board, WSDA, or Ecology. **Littoral zone** limitations do not apply when controlling noxious weeds.

The Permittee may treat 100 percent of Class A or Class B noxious weeds (in areas where the State Noxious Weed Control Board has designated the Class B weeds for control) using any effective herbicide allowed in the permit. The Permittee may treat 100 percent of any submersed Class B noxious weed, 100 percent of any submersed Class C noxious weeds, or 100 percent of any quarantine-listed submersed weeds so long as the Permittee uses a **selective herbicide** allowed in the permit. Use of a selective herbicide may reduce impacts to native aquatic vegetation. The Permittee may treat 100 percent of any emergent or floating leaved noxious weed or quarantine listed weed in any given area using any effective herbicide allowed in the permit.

2. For the native nuisance plant control category, Ecology restricts direct herbicide application to a percentage of the littoral zone depending on the waterbody size. Nuisance plants are native species that may interfere with the beneficial uses of recreation and aesthetics and impact safety, but also provide food and habitat for fish and wildlife and help stabilize sediments and shorelines. By limiting the area treated, the permit strives to balance these sometimes-competing beneficial uses of a waterbody.

The littoral zone is the **vegetated** area from the edge of the water at the shore to the end of the area where plants stop growing in deeper water. Water clarity and light penetration are factors that most influence the depth of plant growth. In some waterbodies the littoral zone may be deep (plants noted at 45 feet in Lake Chelan) or shallow (plants may not grow deeper than 10-12 feet in Puget Sound lowland lakes). The actual area affected by the herbicide may vary depending on many factors that influence herbicide **dispersion** in water, but by limiting the area where the applicator can directly apply herbicides, some areas of native vegetation will remain untreated.

Dispersion is the reason why Ecology uses the term "*intentionally applied*" in the permit. Ecology can regulate the specific areas where a Permittee discharges (or intentionally applies) a chemical. Ecology cannot regulate or control the extent of dispersion because it varies depending on environmental conditions. Dispersion means that sometimes the treatment affects more area or less area than anticipated. In principle, some adjuvants can limit dispersal, in practice Ecology has found these adjuvants to be impractical and ineffective for submersed treatments. Requiring installation of barriers around treated (or untreated) areas is extremely expensive, can be dangerous, and time consuming.

Dischargers may apply herbicides up to the maximum amount of the littoral zone area allowed for treatment in the permit and as identified in the individual permit coverage application. Action thresholds identified in the NOI for each coverage govern when it is appropriate to treat a littoral zone. For some waterbodies such as Lake Washington, Ecology may issue multiple site-specific coverages (e.g. City of Bellevue, Seattle Yacht Club, Boat Street Marina) to different dischargers. In these situations, Ecology's permit manager will ensure that the cumulative amount of **treated area** allowed under multiple coverages does not exceed the maximum amount of littoral zone allowed for treatment in that waterbody.

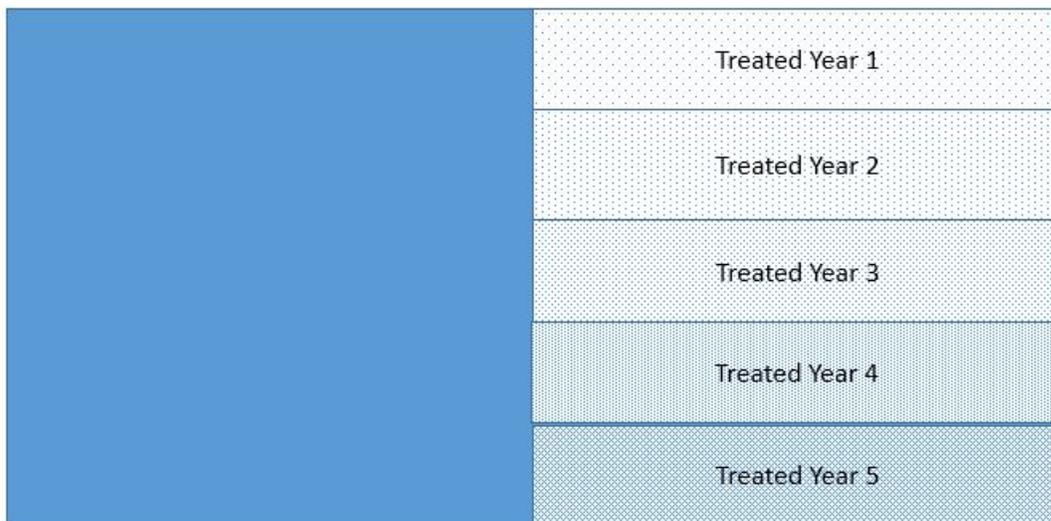
In order to maintain areas of native vegetation within a waterbody, dischargers may not change the treatment areas for native nuisance plants from year-to-year over the 5-year life of the permit. For example, if the permit and the coverage allows treatment of 50 percent of the littoral zone each year and the applicator treats 50 percent the first year of the permit, the applicator must treat the same area of the littoral zone in subsequent years (if treatment was needed as triggered by the action thresholds set in the NOI). If the applicator treated only 30 percent of the littoral zone, in subsequent years the applicator could treat that same 30 percent and an additional 20 percent of the littoral zone. However, having treated 50 percent of the littoral zone, the applicator is then limited to treating only that area for the life of the permit.

### Example Lake with Treatment Area



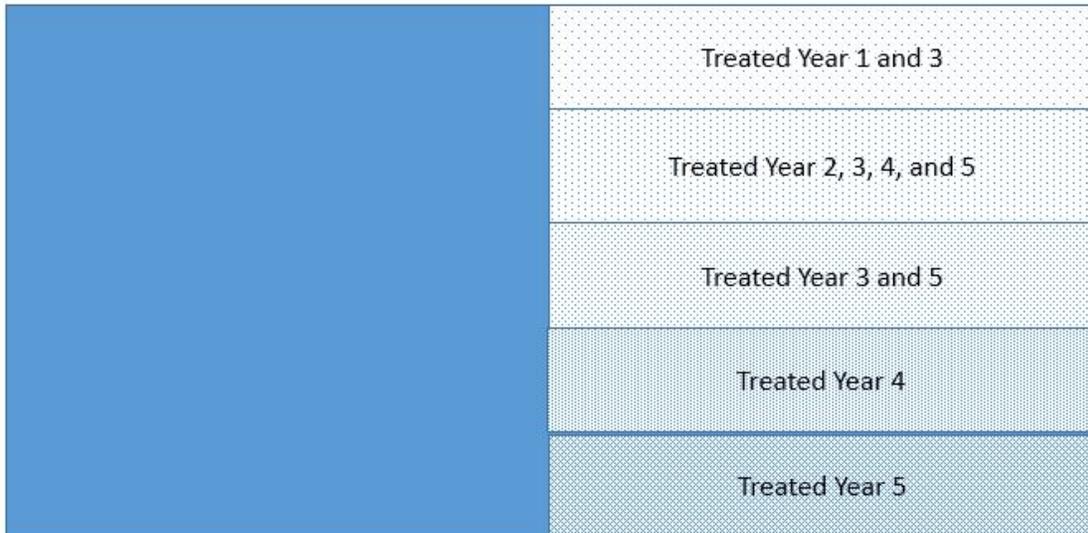
### Example Lake with Treatment Area

Treatment area broken into different treatments over 5 years and does not exceed total allowed littoral zone treatment amount



## Example Lake with Treatment Area

Treatment area broken into different treatments over 5 years and does not exceed total allowed littoral zone treatment amount.  
Some areas treated multiple times during 5 year period.



Typically, the *sponsor* selects the treatment areas in consultation with the Permittee (usually the pesticide applicator) and the Permittee submits a map to Ecology that delineates these areas. Ecology requires that the littoral zone selected for the no treatment area must extend from the shoreline to the water depth where plants stop growing (i.e., Ecology does not allow littoral areas designated for no-treatment to be in the middle of the lake). Ecology acknowledges that this may create problems in very urbanized lakes where some residents may not experience the same level of plant control in front of their homes as others do. However, treatment areas are for the sponsor and the Permittee to determine. Chemical treatment does not preclude the use of other aquatic plant management methods such as installation of bottom barriers, manual removal, harvesting, and other non-chemical options.

Ecology adopted a tiered approach to treatment in which the portion of littoral zone allowed to be treated in a lake decreases as the size of the lake increases. In smaller waterbodies, the ratio of shoreline to open water is greater and the littoral zone provides potentially less critical habitat than in larger waterbodies where aquatic vegetation helps provide important structure to the water. Ecology also considered that many of the smaller lakes that traditionally rely on herbicide application to maintain beneficial uses are 100 percent developed and many are private lakes with no *public access*. Designating areas to leave untreated may pose a greater hardship in these situations. Larger lakes often have wetlands, undeveloped areas, parks, or islands that form natural refuge areas that can be “set aside” from the residential treated areas. Smaller lakes are often artificial waterbodies created in residential neighborhoods, and may not have these sorts of natural areas.

Ecology used BPJ in establishing the amount of littoral zone allowed for treatment in these tiered categories. Ecology originally established these percentages after discussion with wetland, wildlife,

and fisheries biologists. Estimates in the scientific literature about how much littoral vegetation should remain for habitat range from zero to 100 percent. It varies depending for which species the waterbody is managed (e.g. warm water fish, waterfowl, or trout). By adopting a tiered approach, Ecology tried to balance the need for aquatic vegetation as animal food, habitat, and reproduction with the needs of the waterbody residents for safety, navigation, recreation, and aesthetics. Ecology understands that some dispersion of herbicides will occur; particularly herbicides placed directly into the water to control submersed vegetation. Because of dispersion, in some instances, the actual area affected by the herbicide will be greater than the area of direct herbicide application. In other instances, the actual area affected may be less than the area of direct herbicide application (because of dilution). Note that this permit does not authorize trespass onto **private property**.

Ecology allows individual residents (that are not part of a larger effort) to treat an area in front of their water-front property 50 feet in width along the shoreline or 25 feet either side of their dock for nuisance plant control. The treated area may extend from the shore to the edge of the littoral zone where plants stop growing in deeper water. However, if an existing coverage exists for that waterbody and that coverage includes the entire percentage of littoral zone allowed for treatment, then Ecology will not issue additional coverage for that waterbody. If the holder of the original coverage has not treated the entire littoral zone allowed for in the permit and agrees to relinquish some of their permit coverage, then Ecology may be able to accommodate other requests for coverage for that waterbody.

Ecology has different requirements for roadside and ditch bank plant control. Ecology allows state and local agencies to treat 100 percent of plants within the right of way of roads to allow for driver safety, fire control, and to protect road surfaces from root damage where a discharge will occur. Ecology allows state and local agencies to treat 100 percent within the right of way of ditch banks where a discharge will occur to allow access and to protect infrastructure. Ecology allows state and local agencies to treat 100 percent of plants on **levees and dikes** where a discharge will occur in order to allow for activities required by the U.S. Army Corps such as dike and levee maintenance. On privately owned lots, the discharger may apply herbicide to no more than 40 percent of the native vegetation.

The Permittee may intentionally apply algaecides to filamentous algae so long as the treated areas do not exceed the maximum amount of littoral zone allowed for treatment of native nuisance plants.

3. Algae control means applying algaecides to remove or suppress the growth of algae. Many types of algae exist in freshwater systems. Most **phytoplankton** plays an important role in the food web and has negligible impact on the **recreational use** of a waterbody. Ecology does not allow algaecide application to manage these kinds of algae. Their blooms are typically short-lived, harmless to humans, and beneficial to the ecosystem. However, filamentous algae and cyanobacteria have the potential to interfere with beneficial uses in a waterbody and the permit allows treatment of these types of algae. Filamentous algae can form unsightly mats within the water column that interfere with swimming, boating, fishing, and aesthetics and is covered under native nuisance plant control above. Cyanobacteria blooms can result in lake closures if they produce toxins. This can have severe impacts to beneficial uses, particularly recreation. Cyanobacteria toxins can be a health risk to humans, pets, livestock, fish, and wildlife. Human illness has been associated with cyanobacteria blooms in Washington waters and pets have died from ingesting these toxins. A few other species of algae that are not cyanobacteria or filamentous green algae may also harm humans or fish and

wildlife (e.g. *Prymnesium parvum* - golden algae). Ecology allows chemical treatment of these species under the permit.

The permit allows for whole or partial lake treatments when managers identify potentially toxic or environmentally harmful algae species in the water column.

4. Phosphorous sequestration: The plant nutrient phosphorous generally limits the growth of algae in Washington lakes. The more phosphorous in a waterbody, typically the more algae is present. Phosphorous comes from external sources to the waterbody such as stormwater, septic systems, fertilizers, agricultural practices, etc., but phosphorous may also be found in the lake sediments and is cycled within the waterbody as it is used and released by plants and algae. Sediments can release phosphorous into the water under certain environmental conditions. When lake managers determine that sediments are a source of phosphorous, they may decide to apply chemicals to inhibit phosphorous release from sediments (phosphorous sequestration).

Because phosphorous sequestration products are not registered pesticides, EPA and WSDA do not regulate their use unless pesticidal claims are made (in which case the product would need to be registered with EPA and WSDA) and dischargers of phosphorous sequestration chemicals do not need to be licensed applicators. Traditional phosphorous sequestration chemicals include aluminate sulfate or sodium aluminate (alum), calcium hydroxide/oxide, or iron compounds. These chemicals form a precipitate in the water called a floc. As the floc settles through the water column, it removes phosphorous and particulate matter, including algae, from the water. The floc forms a layer on the sediment that changes the oxidation state of the sediment thereby limiting phosphorous release. Algae blooms typically decline in the waterbody after phosphorous sequestration treatment because the treatment reduces the phosphorous levels that fuel algae growth. Because water clarity improves, plant growth often increases in the waterbody. Phosphorous sequestration treatments may provide relief from algal blooms for many years or may be short-lived depending on the amount of external phosphorous sources, the chemical used and environmental conditions of the waterbody. The permit allows whole lake or partial treatments for phosphorous management projects. It also allows continuous injection. Injection precipitates phosphorous in the water column by applying low doses of phosphorous sequestration chemicals on a continuous or intermittent basis.

### ***Geographic Area Covered***

The permit applies to the application of chemicals for aquatic plant and algae management and phosphorous sequestration to surface freshwaters anywhere in the state of Washington where Ecology has authority. Surface waters include lakes, rivers, ponds, streams, inland waters, wetlands, brackish waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington (RCW 90.48.020, WAC 173-201A-020 and WAC 173-226-030). Ecology does not have jurisdiction over federal or tribal lands. Aquatic plants and algae have the potential to occur in or near virtually any freshwater or semi-aquatic site in Washington State. These sites include but are not limited to riparian areas, wetlands, marshes, rivers, year-round and seasonal streams, lakes, ponds, and wet pastures.

### ***Activities That May Not Need Coverage Under This Permit***

Ecology considers some limited treatments to have very low potential for environmental impact. Requiring permit coverage from these dischargers would be a burden with little environmental value for both Ecology and the dischargers. However, should the dischargers wish to have permit coverage as a

risk management tool for the project, as long as the parties meet the requirements to be permittees and obtain permit coverage, Ecology could still issue permit coverage under the APA permit.

Ecology has determined not to issue APAM permit coverage for the following types of projects:

- Facilities regulated under another NPDES discharge permit (such as industrial or municipal stormwater permits, or an individual permit where aquatic plant management is necessary to maintain retention pond function), the permit allows chemical treatment, and there is no discharge to natural surface waters during treatment or within two weeks of treatment.
- Constructed water bodies that do not have a discharge to other natural surface waters during treatment and for two weeks after treatment, and that have at least one of the following characteristics:
  - A surface area of five acres or less,
  - Owned by a single party and does not have any public access, or
  - Is a farm pond.

The limited nature of this condition is due to two concerns. First, carefully considering which waterbodies do not create environmental benefit from being permitted. Second, determining based on BPJ, when there is a higher possibility of the public being unintentionally exposed to chemicals. Where a treatment is permitting, shoreline signage is required so that the public is informed of the chemical use and can make an informed decision as to whether to avoid the area or not. In an excluded treatment, signage is not required, so areas where there is limited public access such as fenced stormwater ponds, or ponds on private property where public access is trespassing, have a much lower possibility of unintentional public exposure.

- Seasonally dry land surfaces such as wetlands, reservoir drawdown, seasonal stream beds where the land surface is dry at the time of treatment and for at least two weeks following treatment.
- Research projects regulated under a State Experimental Use Permit.

Ecology believes that a two-week no discharge time provides sufficient time to prevent possible discharge to surface waters when outflow begins after treatment. Ecology believes that if dischargers met these conditions, the treatment poses no potential to violate the Water Quality Standards for Surface Waters of the State of Washington (chapter 173-201A WAC).

## ***S2. Application For Coverage***

### ***Who May Obtain Permit Coverage***

A definition of “Permittee” is not provided in chapter 90.48 RCW, chapters 173-216, 173-220, or 173-226 WAC, nor is one provided in 40 CFR 122 (EPA NPDES Permit Program) or State NPDES Permit Programs. Based upon the usage of Permittee in federal and Washington State law, Ecology takes the term “Permittee” to mean “the person or entity that discharges or controls the discharge of pollutants to waters of the State (surface or ground) and holds permit coverage allowing that specific discharge.”

For the Aquatic Plant and Algae Management Permit, Ecology has established that the Permittee is the discharger (the **licensed pesticide applicator** in most instances) or any state or local government entity that contracts with or has licensed applicators on staff.

Ecology requires applicators to obtain separate coverages for each waterbody; except for instances where a single sponsor has legal authority over waterbodies with a surface hydraulic connection or a community where a single sponsor has legal authority over several waterbodies, (an example may be a community with several, small constructed lakes). Generally, each coverage will have a single sponsor. In waterbodies with multiple sponsors or individual coverages, the commercial applicator must obtain separate coverages for each location within the larger waterbody (e.g. Lake Washington and associated waterways). For example in Lake Washington a commercial applicator may hold a coverage to treat a marina in the ship canal, another coverage for a second marina in the ship canal, a third coverage for a marina in Portage Bay, and another coverage for a yacht club (four separate coverages with four separate sponsors but all on the same waterbody).

For application of certain phosphorous sequestration and biological water clarification products (those with no FIFRA registration because they are not registered pesticides), the discharger does not have to be a licensed applicator, but must be the person that most closely meets the definition of an applicator. In those instances, the Permittee may be a discharger, but not a licensed applicator, but must also have a sponsor for the project.

Any state or local government entity may obtain coverage and become a Permittee for waterbodies under its legal jurisdiction. Government entities do not need sponsors. Government Permittees must ensure that Ecology's permit manager has an up-to-date list of its licensed applicators working under its permit coverage. The applicators may be on-staff or commercial applicators working under contract. Ecology allows government entities to obtain a single coverage that includes multiple waterbodies so long as the waterbodies are under its legal jurisdiction.

### ***How to Apply for Coverage***

Permittees that plan to continue coverage under the revised permit must submit a renewal application to Ecology to continue their coverage at least 180 days before the current permit expires. Ecology will consider any Permittee that does not reapply as a **new applicant**.

New applicants must submit a complete application for permit coverage a minimum of 38 days before applying pesticides that result in discharge to waters of the State. An important part of the permit application is a map of the proposed treatment area which is where the discharge to waters of the State will actually occur. When coverage is issued, it is issued for the area on the map. Expansion of this area is a permit modification that requires public notice and comment.

The new applicant must submit a **permit application (Notice of Intent or NOI)** to Ecology. An official who has signature authority (WAC 173-226-200) for the entity applying for permit coverage must sign all documents. Ecology must receive the complete application for permit coverage on or before the second publication date of the public notice the permit applicant posted in a newspaper of general circulation (WAC 173-226-130). Ecology considers a newspaper of general circulation as a major newspaper publication for a region.

New applicants must also send or deliver through other method such as handbill the public notice to all potentially affected waterfront residents within a quarter mile of any proposed treatment area.

When the applicator is the Permittee, the sponsor's signatory (an individual homeowner if it is an individual treatment), or a person with the authority to administer the treatment (i.e. representative of the entity that hired the applicator for the treatment such as a president of an association) must also sign and date the application for coverage. The sponsor's signatory must certify to Ecology that he or she represents an entity that has the legal authority to administer common areas of the waterbody or locations within the waterbody for the purpose of aquatic plant and algae management. Legal entities with that authority may include Lake Management Districts formed under chapter 36.61 RCW, Special Purpose Districts formed under Title 57 RCW, Homeowners Associations formed under chapter 64.38 RCW, and groups operating under the provisions of chapter 90.24 RCW. There may also be other entities with the legal authority to manage common areas in public or private waterbodies.

Requiring the sponsor to be a legal entity with the authority to oversee aquatic plant and algae management or phosphorous sequestration helps ensure that affected property owners can participate in any waterbody management decision. It may also mean that each property owner may be assessed a portion of the costs of any management decision, spreading the financial burden of aquatic plant and algae management to all waterfront owners and in some cases possibly watershed residents.

Before issuing coverage, Ecology requires the consent of any municipality or community if the treatment affects potable water use on waterbodies with **municipal or community drinking water intakes**. Ecology defines municipality or community drinking water intakes as serving large groups of individuals (e.g. cities). This requirement ensures that the community or municipality concurs with chemical treatment of their potable water supply.

When Ecology receives the new applicant's complete application before public notice it can review the application and communicate necessary changes on application documents. Communication (prior to publishing public notice) about document changes can save the applicant (and sponsor) money by identifying any necessary changes before the applicant publishes and sends out the public notice.

The public has the opportunity to comment on the permit application and the proposed coverage during the 30 days after publication of the second public notice (public comment period). Ecology will consider comments about the applicability of the permit to the proposed activity received during this period. If Ecology receives no substantive comments, it may issue permit coverage on the 38<sup>th</sup> day (at the earliest) following receipt of a complete application. The public has the right to appeal coverage decisions.

#### ***How to Terminate Permit Coverage***

Ecology plans to issue the permit for a period of five years, starting on the effective date of the permit (WAC 173-226-330). Coverage will last from the date coverage is issued to the Permittee to the date of permit expiration, which will be up to five years, unless the Permittee terminates coverage by submitting a notice of termination (NOT). Permit fees will continue to be assessed until coverage is cancelled.

### ***S3. Discharge Limits***

#### ***Prohibited Discharges***

RCW 90.48.080 states that "it shall be unlawful for any person to throw, drain, run, or otherwise discharge into any of the waters of this state, or to cause, permit or suffer to be thrown, run, drained, allowed to seep, or otherwise discharged into such waters any organic or inorganic matter that shall cause or tend to cause pollution of such waters according to the determination of the department." Ecology prohibits treatment that causes oxygen depletion to the point of stress or lethality to aquatic

biota from plant die-off, unintended impacts to water quality or biota, or the mortality of aquatic vertebrates.

**A. Compliance with Standards**

See also the section "Technology-Based Water Quality Protection Requirements" for a discussion about AKART.

**B. Temporary Exceedance of Water Quality Standards**

In 2006, Ecology updated the Water Quality Standards for Surface Waters of the State of Washington (chapter 173-201A WAC). The standards allow a temporary exceedance of water quality standards for up to five years (the term of a general permit) provided the Permittee has followed certain guidelines.

The permit, fact sheet, SEPA documents and NOI contribute to fulfilling the requirements of WAC 173-201A-410 for long term exceedances.

WAC 173-201A-410(2) requires that for Ecology to extend the exceedance for up to five years, and not limit it to hours or days, the Permittee must develop and implement an IPM plan. The Permittee must develop the plan following the Administrative Procedures Act for public involvement (chapter 34.05 RCW) and must complete a State Environmental Policy Act (chapter 43.21C RCW and chapter 197-11 WAC) review of the proposed activity. Permittees who do not meet these requirements must ensure that the short-term exceedance of water quality standards is limited to only hours or days.

**C. Pesticide Product Label and Chemical Applicator License Requirements**

Only Washington-licensed applicators with an aquatic endorsement or applicators under direct supervision of a licensed applicator may apply pesticides to water. FIFRA does not regulate all chemicals (e.g., nutrient inactivation chemicals) covered in the permit. The person that most closely meets the definition of an applicator can legally apply these non-FIFRA-labeled chemicals. However, regardless of who discharges the chemical, the permit requires that all applicators use appropriate application methods, have training in application techniques, and that trained personnel calibrate the application equipment.

**D. Impaired Water Bodies**

Ecology periodically reviews water quality data to determine if water bodies meet criteria. Section 303(d) of the CWA requires that waters not meeting criteria undergo an evaluation of the cause and amount of the contaminant. Ecology publishes Total Maximum Daily Load (TMDL) reports, which may establish limits on the amounts of pollutants contributors may discharge.

Chemical applications to water bodies listed on the 303(d) list have additional limits and conditions imposed upon them. Parameters of concern identified in this permit include phosphorus and dissolved oxygen.

Dissolved Oxygen: Water bodies listed on the 303(d) list as impaired for dissolved oxygen have either year-round problems, or seasonally low dissolved oxygen levels. Low dissolved oxygen in a waterbody can adversely affect fish and other animal populations. Use of fast-acting contact herbicides, which primarily cause quick breakdown and subsequent decomposition of aquatic vegetation (chemical mowing) have the greatest potential to lower dissolved oxygen concentrations within a waterbody. The goal of contact herbicide treatment is to rapidly, but temporarily remove plants from specific areas for recreation purposes. Massive dieback of

vegetation can occur in treated areas. Bacterial decomposition of the treated vegetation may deplete available oxygen in the water, creating low oxygen conditions. To help prevent low dissolved oxygen conditions, contact herbicide labels restrict the amount of area treated at any one time and specify retreatment intervals.

**Phosphorus:** The 303(d) water bodies listed for phosphorus are of concern after chemical treatment because decomposing plants can release phosphorus sequestered in tissue into the water in a form available for algae and plant growth. Available phosphorus, especially in warm, sunny summer months can trigger algae or cyanobacteria blooms. Algae blooms may also lead to low oxygen conditions in the waterbody as blooms die and decay.

**Mitigation Measures:** The permit identifies and requires mitigation measures that can help prevent further impairment of 303(d)-listed waters for dissolved oxygen and phosphorus after chemical treatment. Mitigations include treating in the spring or fall if appropriate for the plant species, selecting a systemic herbicide instead of a contact herbicide, limiting amount of the area treated at any time, removing plants after treatment before they start decomposing, maintaining some healthy populations of aquatic plants in the waterbody, and aeration. Below is a discussion about mitigation measures.

**Treatment Timing:** By treating early in the season, water temperatures are cooler and retain more oxygen, lessening chances of low oxygen conditions developing after treatment. Plants are just breaking dormancy or germinating. There is less biomass available to decompose to deplete available oxygen or to release phosphorus into the water. Sometimes fall treatments can be effective because plants translocate the chemicals to their root systems. Fall treatment also means cooler water temperatures and less chance of low oxygen conditions developing. Water temperature helps determine the maximum amount of oxygen that water can hold. Cooler water holds more oxygen (the solubility of oxygen at 0 degrees Centigrade is about twice its solubility at 30 degrees Centigrade). Many plants die back in fall (senesce) for the winter, so they were already releasing nutrients into the water through senescence.

**Chemical Choice:** Contact herbicides can cause rapid die back of plants, quickly releasing nutrients into the water. This nutrient pulse may trigger algae blooms. Systemic herbicides are slower acting. The plants gradually die back over weeks rather than days and this slower die back gradually releases nutrients to the water at lower concentrations. This prolongs the decomposition process so you do not get oxygen sags. Data collected after Washington State herbicide treatments show that dissolved oxygen levels typically remain acceptably high after treatment with systemic herbicides.

**Limiting the Area Treated:** Restricting the area treated at any one time reduces the amount of affected biomass and this limits the amount of nutrients released and the oxygen demand through the decomposition process. A lake treatment may consist of different areas treated over several weeks or months. Because Ecology requires dissolved oxygen monitoring after treatment in impaired water bodies, monitoring can provide immediate feedback about the adequacy of mitigation measures in maintaining acceptable oxygen concentrations in the treated areas and waterbody. This feedback can help Ecology assist Permittees in selecting the most effective mitigation measures to ensure that no further water quality impairment occurs in 303(d) listed water bodies.

Removal of Plants Following Chemical Treatment: Permittees may choose to use a mechanical harvester or manual methods to remove biomass of decaying or affected plants from the water column after treatment. Removing plants may help reduce nutrient release and help prevent low oxygen conditions from developing.

Maintaining Aquatic Plants: Healthy aquatic plant populations can help ameliorate algae blooms by removing nutrients from the water column that may otherwise be used by algae.

Aeration: In water bodies with aeration systems, aerating the water can help increase oxygen conditions in the water column after chemical treatments.

**E. Identified Wetlands**

The Ecology Wetland Program uses WAC 173-22.030(19) to define wetlands and WAC197-11-768 to define mitigation as guidance for any projects that affect wetlands (RCW 90.58). Lacustrine or lake-associated wetlands extend from the shoreward boundary of the waterbody to a depth of 6.6 feet below low water or to the maximum extent of non-persistent emergents, if these grow deeper than 6.6 feet. The Water Quality Standards allow for the protection of the beneficial uses of swimming, boating, navigation, fishing, and aesthetics as well as habitat. The permit allows the partial removal of native aquatic vegetation in lake littoral areas using chemicals. Allowing treatment of native vegetation to protect the recreational uses of a waterbody as well as retaining native vegetation to protect the habitat uses of a waterbody is a balancing act between sometimes-conflicting needs. Through its permitting program, Ecology strives to achieve a balance between these needs.

Sometimes recreational activities and navigation occur in identified high quality emergent wetlands. Ecology allows limited treatment within these wetlands to allow for safe navigation or recreation (e.g., swimming corridors or boat channels). However, Permittees must make every effort to minimize their treatment footprint in these wetlands. For noxious weed eradication projects, Ecology requires that the Permittee use application techniques and select herbicides that minimize impacts to native species, although understanding that noxious weed treatments may need to be more extensive than treatments for nuisance plants.

**F. Additional Requirements for Discharges to Waterbodies where Sensitive, Threatened, of Endangered Plants are Present**

Currently, no state law protects sensitive, threatened, or endangered plant species (rare plants) in Washington. However, many federal and state land management agencies have policies that provide protection for rare plants. In 1982, the state legislature recognized the need for a systematic and objective approach to protect those features of natural ecosystems most at risk and created the Natural Heritage Program within the Department of Natural Resources to assume this task (RCW 79.70.060). In addition, local jurisdictions may provide protection for rare species and high quality ecosystems through ordinances, regulations, and permitting requirements.

In the case of *Trotland et al. v. Ecology and Tahuyeh Lake Community Club* (1997), the Pollution Control Hearings Board (PCHB) found in favor of Ecology's issuance of an administrative order to protect rare peat bogs. The order provided a 100-foot buffer between treated areas and the peat bogs as recommended by an Ecology wetland biologist. The PCHB decision stated, "within this additional condition, the proposed treatment is designed to achieve and maintain the water

quality of the lake with respect to recreational opportunities without posing any significant adverse impact on the environment.”

In the case of *Allied Aquatics v. Ecology* PCHB NO. 01-102 (2001), the PCHB found that Ecology had the right to require a survey by a botanist to survey for rare plant species prior to herbicide use on Elbow Lake to protect a rare plant. The PCHB concluded that Ecology appropriately included conditions in the administrative order requiring an approved botanist survey of the treatment area.

Ecology’s permit manager has access to the Natural Heritage Program’s database of the locations of rare plants. Before issuing permit coverage, the permit manager checks this database to determine if botanists have reported any rare plants in the waterbody or along its shorelines. The NOI also requests this information from the applicant/Permittee/sponsor. If a rare plant occurs where the applicant proposes an eradication project, the permit manager or other Ecology staff consult with Natural Heritage Program staff to determine the best strategy to protect the rare plants, while allowing treatment of the noxious species. Allowing treatment may require the permit manager to condition the permit coverage (with an administrative order) to protect the rare plant.

If a rare plant occurs in a waterbody where the applicant proposes a control project, Ecology requires a plant survey by a botanist that has no financial or other interest in the outcome of the survey. It is the responsibility of the applicant/Permittee to see that this survey is accomplished. The applicant/Permittee must submit the survey results to the Ecology permit manager. If the rare plant and the treatment areas coincide, the Permittee must implement one or more mitigation measures, as outlined in the permit, to protect the rare plant population. Ecology may require additional measures to ensure the viability of rare plant populations.

#### **G. Treatment Limitations**

Ecology requires the Permittee to avoid treatments that restrict public water use during high use holidays (e.g. Memorial Day, Independence Day, and Labor Day). Permittees must minimize treatments that restrict public water use on weekends (WAC 174173-201A-410). Water use restrictions occurring during those times will disproportionately affect public use of the waters.

Tables 2, 3, and 4 identify restrictions, advisories, and treatment limitations on chemicals. Ecology imposed recreational and/or swimming restrictions/advisories on some chemicals to protect human health. Any restrictions required by Ecology are in addition to any FIFRA label conditions. A restriction is more stringent than an advisory. An advisory recommends that people not recreate in the treated area, but it is their choice to comply. A restriction means no swimming or contact recreation for a specific time after chemical application. A restriction or advisory requires public notification via sign posting (see S.6. Posting and Notification Requirements).

Tables 2-4 contain additional requires specific to each chemical. These conditions are drawn from the EIS documents as mitigation for the potential significant environmental impacts identified.

The permit has three categories: eradication, control, and ***phosphorus sequestration***. There are different permit requirements for each category.

The eradication category allows for the eradication of all species listed as noxious weeds (as identified in chapter 16.750 WAC). This includes all classes of noxious weeds (Class A, Class B and B-designate, and Class C), all species listed on WSDA's quarantine list (as identified in chapter 16.752 WAC), or any non-native and potentially *invasive* aquatic plant species not listed on the above lists as determined by the State Noxious Weed Control Board, WSDA, or Ecology. Eradication means the complete and permanent removal of these species from the entire waterbody or shoreline. As such, *littoral zone* limitations do not apply when the goal is eradication. The Permittee may treat 100 percent of noxious weeds or quarantine-listed weeds using any effective herbicide allowed in the permit. Ecology understands that eradication projects may take many years to accomplish depending on the plant species. Project proponents may also opt for a phased approach to an eradication project (e.g., managers often phase fragrant water lily eradication projects over several years to allow recolonization of the area by native plant species). However, one should not use the goal of eradication as a pretext for unlimited treatment of a waterbody, especially where native plants are removed too.

The control category is divided into an *aquatic plant control* section and an *algae control* section. Each section has different requirements. Ecology further divided the aquatic plant control section into a section for aquatic noxious weed control and a section for aquatic nuisance plant control.

1. *Aquatic plant control* means the partial removal of aquatic plants within a waterbody or along a shoreline to allow for the protection of beneficial uses of the waterbody. The goal of the permit is to allow the removal of some vegetation for recreation and other beneficial uses, while allowing some native vegetation to remain for habitat.

*Aquatic noxious weed control* takes place on lakes where there is no coordinated effort to eradicate a noxious species and the species is only being partially managed in the waterbody. That may happen because the species is too widespread and eradication is not feasible, or no entity has stepped forward to coordinate eradication efforts. Even when the goal is not eradication, the Permittee may treat 100 percent of Class A or Class B noxious weeds (in areas where the State Noxious Weed Control Board has designated the Class B weeds for control) using any effective herbicide allowed in the permit. The Permittee may treat 100 percent of any submersed Class B noxious weed, 100 percent of any submersed Class C noxious weeds, or 100 percent of any quarantine-listed submersed weeds **so long as the Permittee uses a selective herbicide allowed in the permit**. The Permittee may treat 100 percent of any emergent or floating leaved noxious weed or quarantine listed weed in any given area using any effective herbicide allowed in the permit. Littoral zone limitations do not apply when treating noxious weeds or quarantine-listed weeds. These species are non-native and invasive and even partial removal via a control project is desirable, even if not all noxious weeds are removed from the waterbody.

For aquatic nuisance plant control, Ecology restricts direct herbicide application to a percentage of the littoral zone depending on the waterbody size. Nuisance plants are native species and while they may interfere with the beneficial uses of recreation and aesthetics and impact safety, they also provide food and habitat for fish and wildlife and help stabilize sediments and shorelines. By limiting the area treated, the permit strives to balance these sometimes-competing beneficial uses of a waterbody.

The littoral zone is the **vegetated** area from the edge of the water at the shore to the end of the area where plants stop growing in deeper water. Water clarity and light penetration are factors that most influence the depth of plant growth. In some lakes the littoral zone may be deep (plants noted at 45 feet in Lake Chelan) or shallow (plants may not grow deeper than 10-12 feet in Puget Sound lowland lakes). The actual area affected by the herbicide may vary depending on many factors that influence herbicide **dispersion** in water, but by limiting the area where the applicator can directly apply herbicides, some areas of native vegetation will remain untreated.

Dispersion is the reason why Ecology uses the term "*intentionally applied*" in the permit. Ecology can *regulate* the exact areas where a Permittee discharges (or intentionally applies) a chemical. Ecology cannot regulate or control the extent of dispersion because it varies depending on environmental conditions. Dispersion means that sometimes the treatment affects more area or less area than anticipated. In principle, some adjuvants can limit dispersal, in practice; Ecology has found these adjuvants to be impractical and ineffective for submersed treatments. Requiring installation of barriers around treated (or untreated areas) is extremely expensive and time consuming.

Dischargers may apply herbicides up to the maximum amount of the littoral zone area allowed for treatment in the permit **and** as identified in the individual permit coverage application. Action thresholds, identified in the NOI for each coverage, govern when it is appropriate to treat a littoral zone. For some water bodies such as Lake Washington, Ecology may issue multiple site-specific coverages (e.g., city of Bellevue, Seattle Yacht Club, Boat Street Marina, etc.) to different dischargers. In these situations, Ecology's permit manager will ensure that the cumulative amount of **treated area** allowed under multiple coverages does not exceed the maximum amount of littoral zone allowed for treatment in that waterbody.

In order to maintain areas of native vegetation within a waterbody, dischargers may not change the treatment areas for native nuisance plants from year to year over the life of the permit. For example, if the permit and the coverage allows treatment of 50 percent of the littoral zone each year and the applicator treats 50 percent the first year of the permit, the applicator must treat the same area of the littoral zone in subsequent years (if treatment was needed as triggered by the action thresholds set in the NOI). If the applicator treated only 30 percent of the littoral zone, in subsequent years the applicator could treat that same 30 percent and an additional 20 percent of the littoral zone. However, having treated 50 percent of the littoral zone, the applicator is then limited to treating only that area for the life of the permit.

Typically, the **sponsor** selects the treatment areas in consultation with the Permittee and the Permittee submits a map to Ecology that delineates these areas. Ecology requires that the littoral zone selected for the no treatment area must extend from the shoreline to the water depth where plants stop growing (i.e., Ecology does not want littoral areas designated for no-treatment to be in the middle of the lake). Ecology acknowledges that this may create problems in very urbanized lakes where some residents may not experience the same level of control of plants in front of their homes as others may do. However, treatment areas are for the sponsor and the Permittee to determine. Chemical treatment does not preclude the use of other aquatic plant management methods such as installation of bottom barriers, manual removal, harvesting, and other non-chemical options. A discharge management plan for a lake may include several plant management options that can meet the needs of all waterbody residents.

Ecology adopted a tiered approach to treatment in which the portion of littoral zone allowed to be treated in a lake decreases as the size of the lake increases. In smaller water bodies, the ratio of shoreline to open water is greater and the littoral zone provides potentially less critical habitat than in larger water bodies where aquatic vegetation helps provide important structure to the water. Ecology also considered that many of the smaller lakes that traditionally rely on herbicide application to maintain beneficial uses are 100 percent developed and many are private lakes rather than **public access** lakes. Designating areas to leave untreated may pose a greater hardship in these situations. Larger lakes often have wetlands, undeveloped areas, parks, or islands that form natural refuge areas that can be “set aside” from the residential treated areas. Smaller lakes are often artificial water bodies created in residential neighborhoods, and may not have these sorts of natural areas.

Ecology used BPJ in establishing the amount of littoral zone allowed for treatment in these tiered categories. Ecology originally established these percentages after discussion with wetland, wildlife, and fisheries biologists. Estimates in the scientific literature about how much littoral vegetation should remain for habitat range from zero to 100 percent. It varies depending for which species the waterbody is managed (e.g., warm water fish, waterfowl, trout, etc.). By adopting a tiered approach, Ecology tried to balance the need for aquatic vegetation as food and refuge for fish, waterfowl, aquatic mammals, amphibians, and invertebrates with the needs of the waterbody residents for safety, navigation, recreation, and aesthetics. Ecology understands that some dispersion of herbicides will occur; particularly herbicides placed directly into the water to control submersed vegetation. Because of dispersion, in some instances, the actual area affected by the herbicide will be greater than the area of direct herbicide application. In other instances, the actual area affected may be less than the area of direct herbicide application (because of dilution). Note that this permit does not authorize trespass onto **private property**.

Ecology allows individual residents (that are not part of a lake-wide effort) to treat an area in front of their lake-front property 20 feet in width along the shoreline or ten feet either side of their dock for nuisance plant control. The treated area may extend from the shore to the edge of the littoral zone where plants stop growing in deeper water. However, if an existing coverage exists for that waterbody and that coverage includes the entire percentage of littoral zone allowed for treatment, then Ecology will not issue additional coverage for that waterbody. If the holder of the original coverage has not treated the entire littoral zone allowed for in the permit and agrees to relinquish some of their permit coverage, then Ecology may be able to accommodate other requests for coverage for that waterbody.

Ecology has different requirements for roadside and ditch bank plant control. Ecology allows state and local agencies to treat 100 percent of plants within the right of way of roads to allow for driver safety, fire control, and to protect road surfaces from root damage. Ecology allows state and local agencies to treat 100 percent within the right of way of ditch banks to allow access and to protect infrastructure. On privately owned lots, the discharger may apply herbicide to no more than 40 percent of the native vegetation.

2. Algae control means applying algaecides to remove or suppress the growth of algae. Many types of algae exist in freshwater systems. Most **phytoplankton** plays an important role in the food web and has negligible impact on the **recreational use** of a waterbody. Ecology does not allow algaecide application to manage these kinds of algae. Their blooms are typically short-lived,

harmless to humans, and beneficial to the ecosystem. However, filamentous algae and cyanobacteria have the potential to interfere with beneficial uses in a waterbody and the permit allows treatment of these types of algae. Filamentous algae can form unsightly mats within the water column that interfere with swimming, boating, fishing, and aesthetics. Cyanobacterial blooms can result in lake closures if they produce toxins. This can have severe impacts to beneficial uses, particularly recreation. Cyanobacterial toxins can be a health risk to humans, pets, livestock, fish, and wildlife. Human illness has been associated with cyanobacterial blooms in Washington waters and pets have died from contact with these toxins. A few other species of algae that are not cyanobacteria or filamentous green algae may also harm humans or fish and wildlife (e.g., *Prymnesium parvum* - golden algae). Ecology allows chemical treatment of these species under the permit.

The permit allows for whole or partial lake treatments when managers identify potentially toxic or environmentally harmful algae species in the water column. Ecology limits treatment of filamentous algae to the maximum amount of littoral area allowed for treatment as specified in the permit and according to the amount of littoral area treatment requested in the individual permit coverage application.

3. Phosphorus sequestration: The plant nutrient phosphorus generally limits the growth of algae in Washington lakes. The more phosphorus in a waterbody, typically the more algae is present. Phosphorus comes from external sources to the waterbody such as stormwater, septic systems, fertilizers, agricultural practices, etc. (external loading), but phosphorus may also be found in the lake sediments. Sediments can release phosphorus into the water under certain environmental conditions (process called internal loading). When lake managers determine that sediments are a source of phosphorus, they may decide to apply chemicals to inhibit phosphorus release from sediments (nutrient inactivation).

Because nutrient inactivation products are not registered pesticides, EPA and WSDA do not regulate their use and dischargers of nutrient inactivation chemicals do not need to be licensed applicators. Traditional nutrient inactivation chemicals include aluminate sulfate or sodium aluminate (alum), calcium hydroxide/oxide, or iron compounds. These chemicals form a precipitate in the water called a floc. As the floc settles through the water column, it removes phosphorus and particulate matter, including algae, from the water. The floc forms a layer on the sediment that changes the oxidation state of the sediment thereby limiting phosphorus release. Algae blooms typically decline in the waterbody after nutrient inactivation treatment because the treatment reduces the phosphorus levels that fuel algae growth. Because water clarity improves, plant growth often increases in the waterbody. Nutrient inactivation treatments may provide relief from algal blooms for many years or may be short-lived depending on the amount and the chemical used and environmental conditions of the waterbody. The permit allows whole lake or partial treatments for nutrient management projects. It also allows continuous injections. Injection precipitates phosphorus in the water column by applying low doses of nutrient inactivation chemicals on a continuous or intermittent basis.

## **S4. The Application Of Products**

### ***Prohibited Discharges***

RCW 90.48.080 states that “it shall be unlawful for any person to throw, drain, run, or otherwise discharge into any of the waters of this state, or to cause, permit or suffer to be thrown, run, drained, allowed to seep, or otherwise discharged into such waters any organic or inorganic matter that shall

cause or tend to cause pollution of such waters according to the determination of the department.” Ecology prohibits treatment that causes oxygen depletion to the point of stress or lethality to aquatic biota from plant die-off, unintended impacts to water quality or biota, or the mortality of aquatic vertebrates.

### ***Authorized Discharges***

This permit allows the use of the chemicals identified in the permit. Ecology authorizes these discharges in accordance with WAC 173-201A-410 and chapter 90.48 RCW. EPA regulates most of these chemicals under FIFRA, but some products covered in the permit are not pesticides (e.g. alum). FIFRA only regulates pesticides.

The Permittee must comply with pesticide label requirements (when using a FIFRA-labeled product) and all applicable permit conditions. **Coverage under this general permit does not supersede or preempt federal or state label requirements or any other applicable laws and regulations.** It is the responsibility of the Permittee to determine if there are other applicable requirements pertaining to this activity and to comply with these requirements. The permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights.

The Permittee must comply with any specific restrictions or limitations on the use of each chemical allowed in the permit (see Tables 3-5).

**Active Ingredients:** The permit allows for and conditions the use of nineteen (19) federally registered ***active ingredients***.

The active ingredients have undergone review by Ecology prior to approval (see <https://fortress.wa.gov/ecy/publications/SummaryPages/1710020.html>). Ecology has mitigated possible risks by conditioning the use of the active ingredients under the general permit. Ecology determined that, if used according to the EPA label and in compliance with the conditions of this general permit, these active ingredients would not violate water quality standards. By approving active ingredients rather than trademarked products, Ecology will not need to conduct additional review for each new brand released onto the market.

**Adjuvants:** The permit provides for the use of specific adjuvants listed in Table 2. Applicators use adjuvants to increase the effectiveness of a pesticide (e.g. extenders, penetrants, spreaders, stickers, surfactants) or to modify the characteristics of a tank mix (e.g. acidifiers, defoaming agents, drift control agents).

WSDA registers all adjuvants prior to distribution in Washington State. WSDA only registers adjuvants for aquatic use if the registrant can demonstrate that the proposed use will not adversely affect desirable aquatic species. WSDA requires data on aquatic acute toxicity of the adjuvant to fish and aquatic invertebrates (WAC 16-228-1400(3)(e)).

An adjuvant must meet the following criteria before WSDA will register it for aquatic use in Washington; the adjuvant or adjuvant formulation must:

- Meet all requirements for the registration of a food/feed use spray adjuvant in Washington.
- Be either slightly toxic or practically non-toxic to freshwater fish.
- Be moderately toxic, slightly toxic, or practically non-toxic to aquatic invertebrates.

- Contain less than 10 percent alkylphenol ethoxylates (including alkylphenol ethoxylate phosphate esters).
- Not contain any alkyl amine ethoxylates (including tallow amine ethoxylates).

WSDA may register spray adjuvants for aquatic use that do not meet one or more of the above criteria if the registrant provides data which demonstrates that the proposed use will not adversely affect desirable aquatic species, or limits aquatic use to non-fish-bearing waters only. These criteria do not apply to adjuvants permitted for use under an experimental use permit issued by WSDA.

**Barley Straw:** This permit does not condition the use of barley straw. The state legislature does not require a state waste discharge permit for these activities so long as the applicator follows the provisions below (RCW 90.48.310); the applicator must:

- Apply barley straw at a rate of up to 225 pounds per acre of surface water.
- Loosely pack the straw in nylon or mesh bags and must not use whole bales or tightly packed bales.
- Place the straw bags where control is desired, such as around docks and swim areas and around inlets to aid in aeration or mixing.
- Stake or anchor the bags in place.
- Place the straw in early spring, prior to the growth of algae, and must remove the bags four to six months after placement (not leave them in the water over the winter).

**Other Products:** The permit allows for and conditions the use of the phosphorous sequestration products: aluminum sulfate, sodium aluminate (alum), lanthanum-bentonite clay, elemental iron, and calcium hydroxide/oxide. The permit also makes provision for experimental treatments using phosphorous sequestration products not included in the permit if the applicant receives Ecology approval for a plan that must also undergo public review.

The permit allows the use of marker dyes, shading products, and biological water clarification products. Applicators use marker dyes to distinguish treated areas from untreated areas when applying herbicide to manage emergent vegetation or floating leaved vegetation (e.g. water lilies). Marker dyes help keep applicators from over applying herbicides. Marker dyes do not have any herbicidal activity by themselves and EPA does not label them as pesticides.

Shading products contain dyes that reduce plant and algae growth by limiting the amount of light that can penetrate the water. Biological water clarification products include microbial products which manufacturers' claim may reduce bottom muck and enhance water quality. EPA does not register most shading products or biological water clarification products. Applicators typically use the products in small ponds that do not drain to natural waters.

### ***Experimental Use***

Experimental use is important for the development of new methods of waterbody management, new treatment technologies, products, or chemicals. The APAM permit includes this provision for experimental use in order to facilitate research and development that may lead to more effective treatment methods with less environmental impact than current chemicals and technologies. Because research involves untested chemicals, Ecology requires that the proposed discharge be put through a public process before deciding whether to conditionally authorize an experimental use. The public

process is necessary for authorizing discharges that are not explicitly called out as authorized under this APAM permit. It would not be possible for Ecology to include all potential experimental use chemicals in the APAM permit by name because new chemicals are being developed all the time. State and federal law require a public process prior to a new discharge being conditionally authorized.

To encourage well developed research projects that include scientific rigor that will help determine if Ecology should consider adding a new chemical to the APAM permit, Ecology updated the experimental use portions of the APAM permit based on staff experience and BPJ. Experience with experimental use plans required by the permit indicated that previous requirements did not result in data that meets Ecology credible data policy requirements. The updated requirements in the APAM permit are intended to push plans to be more rigorous so that Ecology may rely more heavily on them in the future when considering if the experimental chemical is appropriate for inclusion for general use in the APAM permit. It is also our hope that by including more rigorous requirements, that other government entities would be able to evaluate the data for their own purposes as well for waterbody management.

### **General Application Restrictions**

#### **A. Treatment Timing Windows**

At Ecology's request, WDFW developed timing windows to protect salmon, steelhead, bull trout, and other sensitive species and habitats (including amphibians and nesting waterfowl) from the effects of aquatic pesticide application. Aquatic application impacts may include disturbance of nesting areas, loss of food and habitat through removal of aquatic plants, or sub-lethal impacts to sensitive species from the chemicals. There are times when chemical applications have little to no impact on sensitive species or when no sensitive species are present in a waterbody. WDFW timing windows identify these periods for specific water bodies. In some water bodies with critical habitat or nesting areas, WDFW provided very limited treatment windows. WDFW may allow treatment outside of these times if the Permittee coordinates their treatment times and sites with the area habitat biologist as noted in the WDFW timing table for specific sites.

This version of the permit requires all permittees to check the WDFW timing windows for their permitted waterbody before planning treatments. This change was made to reduce confusion regarding which waterbodies and chemicals are subject to timing windows, and to help prevent treatments from occurring outside of waterbody-specific timing windows. Permittees may find timing windows and additional information on the new mapping tool developed by WDFW (<https://wdfw.maps.arcgis.com/apps/MapSeries/index.html?appid=34533b2dd4f84932b5fd1a46e494bde6>).

#### **B. Modified Timing Window Requests**

Permittees may ask to apply pesticides outside of the established treatment timing window through a timing window modification request. This may be requested due to the necessity of treating a specific plant early for greater efficacy, or for other reasons. When Ecology receives a modification request, we begin a consultation process with WDFW. As the State wildlife and habitat management agency, WDFW staff have the expertise to determine when a sensitive species or life-stage may be present in a waterbody. The decision to approve, conditionally approve, or deny a modified timing window will be made by Ecology in consultation with WDFW, and the approval process and any appeals will be managed by Ecology.

New to this version of the APAM permit, and based on repeated conversations with many WDFW staff, Ecology is asking permittees to provide a justification for why they need a modification from

the established treatment timing window and to provide any information they have that supports the Permittee's request. This information will be used by WDFW as they develop their advice regarding Ecology's approval of the modification to the treatment timing window.

This version of the permit also removes the requirement for permittees to send timing window modification requests to WDFW Habitat Biologists in addition to Ecology. However, the removal of this requirement does not remove WDFW from the decision-making process of approving updated timing windows. At the request of WDFW, Ecology will receive all timing window modification requests and forward them to WDFW biologists to provide advice to Ecology. WDFW will then make their recommendation based on the information available at the time of request. Similar arrangements already exist between WDFW and DNR to approve forestry practices, so this type of approval flow has been established. This approach has led to greater consistency, as agency staff can contact each other directly to seek assistance. Making Ecology the single point of contact for permittees seeking a timing window modification will streamline communications and improve Ecology's ability to control and maintain records of permit activities.

Because a treatment timing window modification is a change in permit coverage conditions and impacts public access to treated water bodies, Ecology determined that it should go through the same processes as other permit coverage modifications. This includes public notice and a comment period. The public comment process will only go forward if WDFW approves or conditionally approves a treatment timing window modification request. If public comments show that there would be reasons to deny a treatment timing window modification request, Ecology and WDFW may revoke approval.

Modified treatment timing windows are good for one calendar year. Modified treatment timing windows must go through the approval process and modification of coverage process annually, and if no new request is received and approved the treatment timing window will default back to the timing window provided by WDFW on their timing window maps.

### **C. *Providing Replacement Water***

Due to possible health concerns, the Washington Department of Health does not recommend that lake residents drink lake water, although some residents may do so. Some of the herbicides allowed for use in the permit have potable water use restrictions. Ecology requires the Permittee to notify any persons drinking the lake water about pending herbicide treatments that would affect their potable water supply (see the Business and Residential Notification Template). The affected party may request an alternative water supply from the permittees and the permittees must supply water to people drinking the water when it is their sole source of water or when they hold a legal water right or legal water right claim for that purpose. Persons with legal water rights or claims for irrigation or livestock watering may also request an alternate water supply from the Permittee. On some lakes, water users have been provided with bottled water, use of a neighbor's well, or even had a water truck stationed on their property for several days after treatment. Although the Permittee is legally obligated to provide an alternate water supply when requested, sometimes the Permittee's sponsor assumes the responsibility of supplying water to the affected parties, if that is acceptable to the affected party or parties. Persons with affected water use can request that the Permittee give them more notice of pending treatments than the Business and Residential Notice so they can better prepare for an alternative water supply during that time.

Ecology based the drinking water restrictions on herbicide residue data collected after actual treatments. Treatment limitations help mitigate adverse impacts from chemical treatments and Ecology based these limits on the best scientific information available and its BPJ.

#### **D. Algae Treatments**

Previous versions of the APAM permit included the narrative condition that permittees may not take any actions that cause lethal or sub lethal drops in dissolved oxygen. However, there have been repeated incidents reported to Ecology of fish kills which occurred following large-scale algae treatments. Although we cannot be certain that low dissolved oxygen from algae die-off is the only cause of these fish kills, the timing of these events indicates that algaecide treatments are a likely contributing factor.

Following discussions with WDFW and best professional judgement, Ecology determined that the best way to prevent low dissolved oxygen events following algaecide treatments is to require permittees to monitor dissolved oxygen levels before and after treatments to detect measureable changes. Washington State water quality criteria states that anthropogenic activities may not cause a measureable decrease in dissolved oxygen in Waters of the State. A measureable decrease in dissolved oxygen is defined in WAC 173-201A-320 as 0.2 mg/L.

For most lakes in Washington, there is insufficient data to determine the average dissolved oxygen level. Additionally, dissolved oxygen levels may vary based on season, time of day, weather conditions, and other factors. By requiring at minimum one pre-treatment dissolved oxygen measurement at the same time of day as the planned algaecide treatment, the Permittee will be able to develop a baseline from which to determine whether an algaecide treatment measurably decreased dissolved oxygen in the waterbody. Ideally, a permittee will take multiple pre-treatment samples in the days preceding an algaecide treatment to develop an average dissolved oxygen level for the waterbody. This would reduce the chances of unusual conditions creating a lower or higher dissolved oxygen baseline than is typical for that waterbody. To best determine a difference in ambient dissolved oxygen conditions, it is preferable to monitor in the morning when levels are expected to be at the lowest concentration.

Ecology understands that adding additional monitoring requirements may cause planning conflicts for permittees wishing to treat large algae blooms. For this reason, we have provided two alternative methods of mitigating sudden drops in dissolved oxygen due to large algaecide treatments. Phosphorous sequestration treatments inhibit algae growth, and are less likely to result in a large amount of rotting algae all at once. Similarly, using phased treatments of one third of the lake area per week limits the area of a low dissolved oxygen zone and allows fish and other organisms to find refuge in untreated areas of the lake.

#### **E. Experimental Use**

Experimental use is important for the development of new methods of waterbody management, new treatment technologies, products, or chemicals. The APAM permit includes this provision for experimental use in order to facilitate research and development that may lead to more effective treatment methods with less environmental impact than current chemicals and technologies. Because research involves untested chemicals, Ecology requires that the proposed discharge be put through a public process before deciding whether to conditionally authorize an experimental use. The public process is necessary for authorizing discharges that are not

explicitly called out as authorized under this APAM permit. It would not be possible for Ecology to include all potential experimental use chemicals in the APAM permit by name because new chemicals are being developed all the time. State and federal law require a public process prior to a new discharge being conditionally authorized.

To encourage well developed research projects that include scientific rigor that will help determine if Ecology should consider adding a new chemical to the APAM permit, Ecology updated the experimental use portions of the APAM permit based on staff experience and BPJ. Experience with experimental use plans required by the permit indicated that previous requirements did not result in data that meets Ecology credible data policy requirements. The updated requirements in the APAM permit are intended to push plans to be more rigorous so that Ecology may rely more heavily on them in the future when considering if the experimental chemical is appropriate for inclusion for general use in the APAM permit. It is also our hope that by including more rigorous requirements, that other government entities would be able to evaluate the data for their own purposes as well for waterbody management.

## ***S5. Notification, Inspection, and Posting Requirements***

The posting and notification requirements in the proposed permit are similar to the requirements for posting and notification in the previous Aquatic Plant and Algae Management Permit, the Noxious Weed Control NPDES Permit, and (prior to the NPDES permitting program), notification requirements in aquatic pesticide administrative orders. Other aquatic pesticide NPDES permits issued by Ecology require various levels of public notification. Ecology considered environmental justice and input from interested parties and Permittees when developing posting and notification requirements. In some cases, Ecology based the public notification requirements on FIFRA label requirements. In all other cases, Ecology based the requirements on its BPJ and the public's right-to-know.

The intent of notification is to make people aware of those activities taking place that have the possibility of affecting them. Community members have the right to know about possible chemical exposure so they can make informed decisions about limiting their exposure. Notification allows them to make those choices. The following discussion provides the rationale for the various types of notification and posting requirements in the permit:

### ***Ecology Notification Requirements***

Ecology requires Permittees to notify Ecology, by email, of pending treatments by 8:00 a.m. on Monday morning of each treatment week. The purpose of this notification is to provide Ecology with advance notice about what lakes may be treated, what chemicals may be used, the targeted plants or algae, and a location where the Permittee expects to start treatment. Notification gives Ecology staff up-to-date information so they can more knowledgably answer inquiries or concerns about treatments or so they can make unscheduled site inspections. On the same notification form, Permittees must also submit information about which treatments took place during the prior week, including the amount (pounds or gallons) of product used for each permit coverage area. This information is helpful to Ecology staff that may need to answer questions from the public about specific lake treatments.

Ecology recognizes that Permittee schedules are subject to change depending on conditions such as rain, wind, stage of plant growth, product delivery schedules, and even traffic. Sometimes unforeseen events occur that necessitate rescheduling treatment at the last minute. The proposed permit allows

Permittees to provide less pre-treatment notice **occasionally** to Ecology so long as Ecology staff receives at least two days' notice before any treatment.

Permittees must immediately notify Ecology if a spill occurs or if they observe or learn about any adverse environmental or human health reaction that potentially happened because of treatment.

### ***Inspection Coordination Requirements***

Ecology may schedule inspections with any Permittee to ensure that the Permittee is correctly following all permit provisions. If Ecology arranges for an inspection, the Permittee cannot treat until Ecology's inspector is on site unless the inspector does not arrive within 30 minutes of the scheduled inspection time. Ecology may also conduct unscheduled inspections at any time. Having a weekly advance schedule facilitates Ecology's ability to perform unscheduled inspections.

### ***Business and Residential Notification***

Permittees must deliver a notice (by mail, newsletters, or handbills) to all waterfront residences and businesses within one-quarter mile in each direction along the shoreline or across the water from proposed treatment areas. Businesses and residents must receive the notice at least 10 days in advance and at most 42 days before the first treatment of the season. Permittees do not have to notify residences and businesses that are not on the waterfront (upland of the waterbody). If the notice explains the **application schedule** for the entire treatment season and there is no deviation from that schedule, Ecology requires no further notice for the rest of the treatment season (unless a resident or business specifically requests further notification about project treatment dates). The notice must specifically identify the application schedule for the season (i.e., cannot just reference "any period between June 15 and October 1"). The schedule must provide definite two-week windows that provide residents and businesses a time interval of when treatment may actually occur during the season.

The purpose of business and residential notification is to alert lake residents and businesses that treatment will occur on the waterbody for that season. This gives people time to contact the Permittee, the sponsor, or Ecology for further information. They may choose to schedule social or business events on dates that do not coincide with possible treatment dates. The notice also advises water users to contact the Permittee if they need an alternative water supply during and after treatment.

Permittees must send (email) a copy of the Business and Residential Notice to Ecology no later than one business day of sending/delivering the notice to businesses and residences. Receiving the Business and Residential Notice informs Ecology that the Permittee has distributed the notice, that treatment is imminent, and notifies Ecology staff that they may receive inquiries about the proposed treatment. The reissued permit also requires the Permittee to email the notice to the Department of Natural Resources (DNR) (except for treatment of privately owned lakes with no public access). DNR requested advance notice of treatment on Washington lakes and the two agencies mutually agreed that receiving the Business and Residential Notice fulfills this request. Although lake ownership issues are complex, in many cases DNR owns the lakebed.

Ecology requires the Permittee to use a template for the Business and Residential Notice. The reissued permit allows the Permittee to add additional information about the project to this template should they so desire. Additional project information does not include advertising for other company services.

On waterbodies with a history of cyanobacteria blooms, the Permittee may explain in the Business and Residential Notice that cyanobacteria treatment may occasionally occur outside of the scheduled times with no additional notice depending on waterbody bloom conditions. Ecology advises treating

cyanobacteria blooms when cell numbers are low, but starting to increase. Ecology does not favor treating when cell numbers are high and the bloom is producing toxin. Treating a toxic bloom can break open the cells, releasing toxins into the water. This may increase the risk of human and animal illness. Cyanobacteria populations can increase rapidly and not having to delay treatment for ten days while notification occurs may mean being able to treat a bloom before it becomes toxic and widespread and not being able to treat it at all. Sometimes local health districts may close lakes to all contact recreation when blooms become toxic. Lake closures can be far more disruptive to lake users than an unscheduled treatment for algae control. Toxic algae blooms can result in lake closures for weeks or even months.

### ***Shoreline Recreational Facilities Notification Requirements***

***Shoreline recreational facilities*** can include children's camps, resorts, marinas and other recreational facilities located on the shoreline. Ecology requires the Permittee to provide notice to the facility manager when the treatment will occur in or within 400 feet of a facility's swimming area or recreational area. This notification gives the facility manager direct notice of proposed pesticide application. Ecology requires this notice in addition to the business and residential notice to ensure that the facility manager, who may be located at a different address from the property owner, receives notice of proposed pesticide applications. Shoreline recreational facility notification is not required when direct notification to the shoreline recreational facility was provided to the same physical address through the business and residential notice.

### ***Shoreline Posting Requirements***

#### ***Notifying the public of a hazard to reduce risk of exposure to the hazard***

State agencies like Ecology hold public resources (e.g. water, wildlife) in trust for all members of the public. This means that in order for an individual to use a public resource for private purposes, they must get authorization from the agency that manages the resource for the public. For example, using a waterbody as a receptacle for a waste discharge is a purpose that a private entity is using a waterbody for (the entity disposing of their waste materials). Therefore, the discharge must be conditionally authorized by the managing state agency (in this case, Ecology). Conditional authorization means that if an entity (e.g. individual, business, municipality) signs a contract (permit) and follows requirements in the permit, then they are authorized to carry out the activity within set constraints that have gone through public process.

#### ***Ecology authority around managing waterbodies, mediating disputes, and requiring permittees to provide education to others around the proposed treatment area.***

Because each individual is responsible for their personal safety, Ecology includes public notification requirements in the permit. These are sign postings around treated areas to inform area users that treatment has occurred. Signs provide water use restriction information intended to inform users of treatment and allow each individual to make the decision about whether they want to enter the treated area. Ecology includes these signs to encourage users to remain out of the area for a period of time (depending on the type of treatment). However, Ecology cannot exercise enforcement on users who choose not to follow the suggestions on the signs. Therefore, we resort to requiring notification so that users may make a more informed decision about using the area after treatment and the risks of use.

Conversations with water users and others over past permit cycles have encouraged Ecology to improve how information is presented on the notification signs. Signs required as part of previous permit cycles are text based. At the top is a warning statement using the standard Caution, Warning, Danger signal

words (depending on active ingredient) followed by text. This works for those who choose or are able to read the signs, however, based on personal discussions with other staff and members of the public, this likely misses a percentage (possibly a large percentage, we only have anecdotal evidence) of water users. In addition, facilitating understanding of notification signs by those for who English is not their primary language (incorporating elements of environmental justice, ADA, and public health protection) is important for allowing all users to make informed decisions about their personal risk management.

## ***S6. Monitoring Requirements***

Sampling and analytical methods used to meet the monitoring requirements specified in this permit must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136 (or as applicable in 40 CFR subchapters N [Parts 400–471] or O [Parts 501-503]) unless otherwise specified in this permit. Ecology may only specify alternative methods for parameters without limits and for those parameters without an EPA approved test method in 40 CFR Part 136.

All samples must be analyzed by a laboratory registered or accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 173-50 WAC.

RCW 90.48.260 gives Ecology the authority to establish inspection, monitoring, entry, and reporting requirements. WAC 173-220-210 gives Ecology the authority to require monitoring of the treated waters to determine the effects of discharges on surface waters of the State. Permittees with coverage under the permit must record the amount of pesticides they use at each site and report the pounds used of each active ingredient applied and the acreage treated to Ecology in an annual report.

### ***Noxious Weed Control and Native Nuisance Plant Control Projects***

Permittees must monitor dissolved oxygen concentrations before and after treatments occurring in waterbodies on the 303(d) list for low dissolved oxygen when using contact herbicides. The Permittee must select a location within the center of a treated area and at the edge of a treated area and monitor at the approximate **same time of day**. Typically, contact herbicides rapidly remove plants from the water column. Decomposing vegetation removes oxygen from the water and this may cause lowered dissolved oxygen levels. Monitoring provides Ecology with information about the impacts of using contact herbicides in waterbodies that are impaired for oxygen. It also makes the Permittee more aware of the effects of its treatment on water quality. The permit does not allow further impairment of a 303(d)-listed waterbody and monitoring demonstrates either that the treatment has little effect on oxygen or that it affects oxygen levels. If treatment impairs oxygen levels, the Permittee will need to alter its treatment regime in that waterbody. Data from this monitoring will also further inform Ecology about the impacts of treatment in impaired waterbodies.

### ***Application of Phosphorous Sequestration Products***

The proposed permit requires Permittees to monitor when they apply phosphorous sequestration products (aluminum sulfate or sodium aluminate (alum) or calcium hydroxide/carbon dioxide). The addition of alum lowers the pH of the receiving waters. The addition of calcium hydroxide raises the pH of receiving waters. Therefore, it is Ecology's BPJ that Permittees must monitor pH prior to and during treatment.

## ***S7. Reporting and Recordkeeping***

Section S7 of the permit contains specific conditions based on Ecology's authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-226-090).

### ***Annual Treatment/Monitoring Reports***

Permittees meet part of their reporting requirements through annual treatment reporting. Permittees must submit their annual treatment report by December 31 of each year. The annual report summarizes the amount of each chemical (gallons or pounds of each product) used during the course of each treatment season per coverage. Reporting allows Ecology to track how much pesticide Permittees use in Washington for a specific use. Annual reporting also allows Ecology to determine if aquatic pesticide use in Washington lakes is increasing or decreasing and summarizes the results of herbicides residue monitoring, and efficacy monitoring.

### ***Records Retention***

Ecology based this permit condition on its authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-226-090). Applicators must keep all records and documents required by this permit for five years. If there is any unresolved litigation regarding the discharge of pollutants by the Permittee, they must extend the period of record retention through the course of the litigation (WAC 173-226-090).

## ***S8. Spill Prevention and Control***

### ***Reporting Permit Violations***

WAC 173-226-080(1)(d) states that a discharge of any pollutant more frequently or at a level in excess of that authorized is a permit violation. Ecology requires that if a Permittee violates permit conditions, it must take steps to stop the activity, minimize any violations, and report those violations to Ecology. For pesticide applications authorized in the Permit, applicators must report violations to the Aquatic Pesticide Permit Manager and the Regional Spills Hotline (ERTS Hotline) within 24 hours. This allows Ecology to determine if more action is necessary to mitigate the permit violation.

WAC 173-226-070 allows Ecology to place permit conditions to prevent or control pollutant discharges from plant site run off, spillage or leaks, sludge or waste disposal, or materials handling or storage. It also allows Ecology to require the use of BMPs that includes schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of the waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The Permittee must be prepared to mitigate for any potential spills and, in the event of a spill, perform the necessary cleanup, and notify the appropriate Ecology regional office (see RCW 90.48.080, and WAC 173-226-070).

## ***S9. Mitigation for Protection of Sensitive, Threatened, or Endangered Plants: Aquatic Plant Control Projects***

Due to potential impacts on rare plant species when herbicides are used in a waterbody, Ecology requires specific mitigation measures when it determines that a rare plant is present in a waterbody or

grows along the shoreline of a lake due to be treated for nuisance plants. Ecology requires the Permittee to conduct a detailed plant survey of the waterbody and shoreline. The Permittee must hire a botanist that has no financial or other stake in the outcome of the survey. This ensures no bias on the part of the surveyor and that they have aquatic plant identification skills. Ecology requires the survey no earlier than three months before treatment so long as the surveyor can identify the rare plant species during this time. Ecology requires an annual survey for submersed rare species, but a survey once every five years suffices for rare emergent shoreline species.

To provide adequate time for data review, the permittee must submit the survey data to Ecology no later than thirty days before treatment. The permittee may begin treatment earlier than thirty days after data submission if they receive Ecology approval before the 30 days has elapsed **and** if the earlier treatment time does not conflict with WDFW treatment timing windows. To prevent treatments which may negatively impact rare or endangered plants, permittees may **not** begin treatment until they receive Ecology approval, even if the planned treatment day has passed.

The permit requires that the Permittee apply buffers (when applicable) and select one or more of the mitigation measures outlined in the permit to protect the rare plant. The mitigation measures differ depending on the growth form of the rare plant and the growth form of the targeted nuisance plants. Ecology may require the Permittee to monitor the vitality of the rare plant population to ensure that treatment does not affect their viability. The Permittee must keep records for the life of the permit detailing which mitigation(s) measures they chose.

## ***S10. Appendices***

### ***General Conditions***

Ecology bases the General Conditions on state and federal law and regulations.

### ***Duty To Reapply***

All NPDES permits require the Permittee to reapply for coverage 180 days prior to the expiration date of the general permit in accordance with 40 CFR 122.21 (d), 40 CFR 122.41(b), and WAC 173-226-220(2).

### ***Permit Issuance Procedures***

#### ***Permit Modifications***

Ecology may modify this permit to impose new or modified numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters. Ecology would base any modifications on new information obtained from sources such as inspections, effluent monitoring, or Ecology-approved engineering reports. Ecology may also modify this permit because of new or amended state or federal regulations.

#### ***Recommendation for Permit Issuance***

The general permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. Ecology proposes to issue this general permit for five (5) years.

## Bibliography

Documents prepared after June 12, 2014 also identify information sources by the following 11 categories:

1. Peer review is overseen by an independent third party.
2. Review is by staff internal to Department of Ecology.
3. Review is by persons that are external to and selected by the Department of Ecology.
4. Documented open public review process that is not limited to invited organizations or individuals.
5. Federal and state statutes.
6. Court and hearings board decisions.
7. Federal and state administrative rules and regulations.
8. Policy and regulatory documents adopted by local governments.
9. Data from primary research, monitoring activities, or other sources, but that has not been incorporated as part of documents reviewed under other processes.
10. Records of best professional judgment of Department of Ecology employees or other individuals.
11. Sources of information that do not fit into one of the other categories listed.

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Determination of Significance and Adoption of Existing Environmental Documents and Addendum: [http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/aquatic\\_plants/aquatic\\_plant\\_permit\\_index.html](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/aquatic_plants/aquatic_plant_permit_index.html). [4]

U.S. Environmental Protection Agency (EPA). 2011. NPDES Pesticide General Permit Fact Sheet (pg7): [http://water.epa.gov/polwaste/npdes/pesticides/upload/pgp\\_final\\_factsheet.pdf](http://water.epa.gov/polwaste/npdes/pesticides/upload/pgp_final_factsheet.pdf). [11]

University of Washington. Dr. Christian Grue et. al. 2009. Assessing the Hazards Aquatic Herbicides Pose to Salmonids within Lowland Lakes in Washington State. Unpublished data. [9, 11]

Washington Fish and Wildlife Timing Table. [http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/aquatic\\_plants/permitdocs/wdfwtiming.pdf](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/aquatic_plants/permitdocs/wdfwtiming.pdf). [11]

Washington Toxics Coalition Settlement Agreement: <http://www.watoxics.org/news/pressroom/press-releases/pr-2005-07-12>. [11]

Yahnke, A., Grue, C., Hayes, M., Troiano, A. 2013. EFFECTS OF THE HERBICIDE IMAZAPYR ON JUVENILE OREGON SPOTTED FROGS. *Environmental Toxicology and Chemistry*. Vol. 32, No. 1, pp. 228–235. [1]

## **Court Cases**

Headwaters et al., v. Talent Irrigation District. U.S. Ct. of Appeals for the Ninth Cir. Ct. Case No. 99-35373, D.C. No.CV-98-06004-ALA. March 12, 2001.

Cases not available online at [www.ca9.uscourts.gov](http://www.ca9.uscourts.gov) before 2005. [6]

Fairhurst v. Hagener, Director, Montana Department of Fish, Wildlife & Parks. U.S. Ct. of Appeals for the Ninth Cir. Ct. Case No. 04-35366, D.C. No.CV-03-00067-SEH OPINION. September 8, 2005.  
<http://www.ca9.uscourts.gov/datastore/opinions/2005/09/07/0435366.pdf>. [6]

League of Wilderness Defenders et al., v. Harv Forsgren, Regional Forester, Pacific Northwest Region United States Forest Service. U.S. Ct. of Appeals for the Ninth Cir. Ct. Case No. 01-35729, D.C No.CV-00-01383-RE OPINION. November 4, 2002.

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The National Cotton Council of America et al., v. United States Environmental Protection Agency. U. S. Ct. of Appeals for the Sixth Cir. Ct. Case Nos. 06-4630;07-3180/3181/3182/3183/3184/3185/3186/3187/3191/3236. January 7, 2009.  
<http://www.ca6.uscourts.gov/opinions.pdf/09a0004p-06.pdf>. [6]

State Department of Ecology v Northwest Aquatic Ecosystems, et al., Thurston County Superior Court, Washington, Case No. 07-2-01447-8, November 26, 2008.

[http://www.ecy.wa.gov/programs/wq/pesticides/permit\\_documents/112608Order.pdf](http://www.ecy.wa.gov/programs/wq/pesticides/permit_documents/112608Order.pdf). [6]

Pollution Control Hearings Board (PCHB): Case Numbers.06-011, 06-020, 06-023. 2006. [6]

Pollution Control Hearings Board (PCHB): Case Number 01-102. 2001. [6]

Pollution Control Hearings Board (PCHB): Case Number 01-10 Order on Summary Judgment, Children's Camps. [6]

## **Federal Publications**

40 CFR 171.4: Standards for certification of commercial applicators. [7]

40 CFR 122.3: Exclusions. [7]

40 CFR 122.21: Application for a permit. [7]

40 CFR 122.41: Conditions applicable to all permits. [7]

40 CFR 125.3: Technology-based treatment requirements in permits. [7]

40 CFR 131.36: Toxics criteria for those states not complying with Clean Water Act section 303(c)(2)(B). [7]

40 CFR 122: EPA Administered Permit Programs: the National Pollutant Discharge Elimination System. [7]

40 CFR 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants. [7]

40 CFR 403.3: Definitions. [7]

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA): <http://www.epa.gov/agriculture/lfra.html>. [7]

Federal Water Pollution Control Act. 33 USC 1251 et seq.: <http://www2.epa.gov/laws-regulations/summary-clean-water-act>. [7]

Food Quality Protection Act: <http://www.epa.gov/pesticides/regulating/laws/fqpa/>. [7]

National Toxics Rule: <http://water.epa.gov/lawsregs/rulesregs/ntr/>. [7]

## ***Revised Code Washington (RCW)***

Chapter 15.58 RCW: Washington Pesticide Control Act [7]

Chapter 17.10 RCW: Noxious Weeds — Control Boards [7]

Chapter 17.21 RCW: Washington Pesticide Application Act [7]

Chapter 34.05 RCW: Administrative Procedure Act [7]

Chapter 36.61 RCW: Lake and Beach Management Districts [7]

Chapter 43.21C RCW: State Environmental Policy [7]

Chapter 57 RCW: Water-Sewer Districts [7]

Chapter 64.38 RCW: Homeowners' Association [7]

Chapter 79.70 RCW: Natural Area Preserves [7]

Chapter 90.24 RCW: Regulation of Outflow of Lakes [7]

Chapter 90.48 RCW: Water Pollution Control [7]

Chapter 90.52 RCW: Pollution Disclosure Act of 1971 [7]

Chapter 90.54 RCW: Water Resources Act of 1971 [7]

Chapter 90.58 RCW: Shoreline Management Act of 1971 [7]

## ***Washington Administrative Code (WAC)***

Chapter 16-228 WAC: General Pesticide Rules [5]

Chapter 16-233 WAC: Worker Protection Standards [5]

Chapter 16-750 WAC: State Noxious Weed List and Schedule of Monetary Penalties [5]

Chapter 16-752 WAC: Noxious Weed Seed and Plant Quarantine [5]

Chapter 173-22 WAC: Adoption of Designations of Shorelands and Wetlands Associated With Shorelines of the State [5]

Chapter 173-50 WAC: Accreditation of Environmental Laboratories [5]

Chapter 173-200 WAC: Water Quality Standards for Groundwaters of the State of Washington [5]  
Chapter 173-201A WAC: Water Quality Standards for Surface Waters of the State of Washington [5]  
Chapter 173-204 WAC: Sediment Management Standards [5]  
Chapter 173-220 WAC: National Pollutant Discharge Elimination System Permit Program [5]  
Chapter 173-226 WAC: Waste Discharge General Permit Program [5]  
Chapter 197-11 WAC: SEPA Rules [5]  
Chapter 371-08 WAC: Pollution Control Hearings Board – Practice and Procedure [5]

## APPENDIX A: GLOSSARY

**All definitions listed below are for use in the context of this permit only.**

*303(d)*: Section 303(d) of the federal Clean Water Act requires states to develop a list of polluted waterbodies every two years. For each of those waterbodies, the law requires states to develop Total Maximum Daily Loads (TMDLs). A TMDL is the amount of pollutant loading that can occur in a given waterbody (river, marine water, wetland, stream, or lake) and still meet water quality standards.

*Action threshold*: Densities or numbers of pest populations that trigger control actions or other measurable criteria (e.g. number and species of algae cells, densities of aquatic plants). Action thresholds help determine the need for control actions and the proper timing of such actions.

*Adjuvant*: An additive, such as a surfactant, that enhances the effectiveness of the primary chemical (active ingredient).

*Advisory*: Information required to be posted on all public signs advising people not to recreate in the treated area for a number of hours after treatment. An advisory is a recommendation rather than a restriction.

*Algae*: Primitive, chiefly aquatic, one-celled, or multicellular plant-like organisms that lack true stems, roots, and leaves but usually contain chlorophyll.

*Algaecide*: A chemical compound that kills or reduces the growth of algae or cyanobacteria.

*Algae control*: Applying algaecides to kill or suppress the growth of cyanobacteria, filamentous algae, or any algal species that have the potential to affect human or environmental health.

*All known, available, and reasonable methods of control, prevention, and treatment" (AKART)*: A technology-based approach to limiting pollutants from discharges. Described in chapters 90.48 and 90.54 RCW and chapters 173-201A, 173-204, 173-216 and 173-220 WAC.

*Application schedule*: The proposed treatment date(s) for a specific waterbody or specific area within a waterbody during one treatment season.

*Applicator:* The person that discharges the chemical to a waterbody. Applicators are required to be licensed to apply registered pesticides. Some chemicals such as alum are not registered or used as pesticides and therefore the applicator does not, by state law, have to be licensed.

*Aquatic plant control:* The partial removal of aquatic plants within a waterbody or along a shoreline to allow for the protection of beneficial uses of the waterbody.

*Beneficial uses:* See WAC 173-201A-200.

*Biological water clarifiers:* Microbial or bacterial products sold for the purpose of water clarification, removal of organic materials from sediment, and reduction of nutrients (as claimed by manufacturers).

*Botanist:* A scientist that specializes in the study and identification of plants, or an individual with education and experience in the identification of plant species.

*Children's camps:* A site located along a waterbody that provides water contact recreation and other activities for children particularly during the summer months and includes day camps as well as residential camps.

*Constructed waterbody:* A man-made waterbody created in an area that was not part of a previously existing watercourse, such as a pond, stream, wetland, etc.

*Contact herbicide:* An herbicide that typically affects only the part of the plant that the herbicide is applied to. Contact herbicides often act as chemical mowers, leaving roots available for re-growth. Contact herbicides are fast-acting, but tend to result in only temporary removal of the targeted plants.

*Cyanobacteria:* A group of usually unicellular photosynthetic organisms without a well-defined nucleus; sometimes called "blue-green algae" although they are not actually algae. Some genera of cyanobacteria produce potent liver or nerve toxins.

*Detention and retention ponds:* Man-made waterbodies specifically constructed to manage stormwater. Detention ponds are generally dry until a significant storm event. Retention (wet) ponds are designed to have a permanent pool of water and gradually release stormwater through an outlet.

*Discharge:* The addition of any pollutant to a water of the state.

*Dispersion:* The movement of a chemical in the water.

*Emergent vegetation:* Aquatic plants that generally have their roots in the water, but the rest of the plant is above water (e.g. cattails, bulrush).

*Eradication:* The permanent removal of all non-native, invasive aquatic plants of one or more species within a waterbody or along a shoreline.

*Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA):* A set of EPA regulations that establishes uniform pesticide product labeling, use restrictions, and review of new pesticides.

*Filamentous algae:* Typically green algae species that grow in long strings or form cloud-like mats in water. Filamentous algae do not produce toxins.

*General Permit:* A permit that covers multiple discharges of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

*Herbicide:* Any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any weed or other higher plant (see chapter 17.21.020 RCW).

*Individual permit:* A discharge permit specific to a single point source or facility.

*Integrated Pest Management Plan:* An ecologically based strategy for pest control that incorporates monitoring, biological, physical, and chemical controls in order to manage pests with the least possible hazard to humans, environment, and property. IPM considers all available control actions, including no action. Pesticide use is only one control action.

*Invasive:* Tending to spread and then dominate the area by out competing other plants. Some non-native species can become invasive when introduced outside of their native range. Some native plants can be invasive too (e.g. cattails).

*Licensed pesticide applicator:* Any individual who is licensed as a commercial pesticide applicator, commercial pesticide operator, public operator, private-commercial applicator, demonstration and research applicator, or certified private applicator, or any other individual who is certified by the director of WSDA to use or supervise the use of any pesticide which is classified by the EPA as a restricted use pesticide or by the state as restricted to use by certified applicators only.

*Littoral zone:* The vegetated area from the waterbody's edge to the maximum water depth where plant growth occurs. The littoral zone varies between waterbodies depending on bathymetry, water clarity, and water quality.

*Marker dyes:* Colorants that are sprayed onto the targeted weed along with the herbicide. Marker dyes allow better targeting of herbicide sprays since treated and untreated areas are more clearly seen by the applicator.

*Municipal or community drinking water intake:* A drinking water intake that supplies water to a city or town.

*New applicants:* An applicator or government entity that proposes to discharge pesticide into waters of the State, but does not already have coverage under the Aquatic Plant and Algae Management Permit for the proposed treatment site.

*Non-native:* A plant living outside of its natural or historical range of distribution. Plants considered to be non-native were not present in Washington prior to European settlement. Most non-native plants are not considered to be noxious weeds.

*Notice of Intent (NOI):* An application to obtain coverage under an NPDES permit.

*Noxious weed:* A legal term defined in chapter 17.10 RCW that means a non-native plant that when established is highly destructive, competitive, or difficult to control by cultural or chemical practices. The Washington State Noxious Weed Control Board maintains a legal list of noxious weeds (see chapter 16.750 WAC for the current list of noxious weeds).

*Nuisance plants:* Any plants not classified as a noxious weed that are at a density and location to substantially interfere with or eliminate some beneficial use. Typically for a waterbody, these beneficial uses include activities such as boating, swimming, fishing, or waterskiing.

*Occasionally:* No more than a few times per treatment season and only for unforeseen events (e.g. disruption with product deliveries or severe adverse weather conditions).

*Permittee:* The licensed applicator or government entities that have obtained coverage under the permit. For phosphorous sequestration projects, the Permittee may be the discharger that most closely resembles a licensed applicator.

*Pesticide*: WAC 15.58.030 (31) "Pesticide" means, but is not limited to:

- a) Any substance or mixture of substances intended to prevent, destroy, control, repel, or mitigate any insect, rodent, snail, slug, fungus, weed, and any other form of plant or animal life or virus, except virus on or in a living person or other animal which is normally considered to be a pest or which the director may declare to be a pest;
- b) Any substance or mixture of substances intended to be used as a plant regulator, defoliant or desiccant; and
- c) Any spray adjuvant.

*Phosphorous sequestration*: The use of chemical precipitants to bind soluble reactive phosphorous into an insoluble form that is unavailable to aquatic organisms, to clarify the water column, and to reduce the release of phosphorous from sediments. Phosphorous sequestration is typically used to prevent algae blooms by inhibiting phosphorous release from sediments.

*Phytoplankton*: Photosynthetic plant-like plankton, mainly unicellular algae.

*Pollutant*: Means any substance discharged that would alter the chemical, physical, thermal, biological, or radiological integrity of the waters of the State or would be likely to create and nuisance or renders such waters harmful, detrimental, or injurious to the public health, safety, or welfare, or to any legitimate beneficial use, or to any animal life, either terrestrial or aquatic. Pollutants include, but are not limited to the following: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, pH, temperature, total suspended solids, turbidity, color, biological oxygen demand, total dissolved solids, toxicity, odor, and industrial, municipal, and agricultural waste.

*Private property*: Any property owned by a single person or multiple persons or business that provides no public access to a waterbody.

*Public access*: Identified legal passage to any of the public waters of the State, assuring that members of the public have access to and use of public waters for recreational purposes. Public access areas include public- or community-provided swimming beaches, picnic areas, docks, marinas, and boat launches at state or local parks and private resorts.

*Quarantine-listed weeds*: Plants listed on the WSDA Quarantine list as identified in chapter 16.750 WAC.

*Recreational use:* Water skiing, boating, boat access, swimming, fishing, and other such water-related activities.

*Same time of day:* The same two-hour time window for pre- and post-treatment monitoring on any given day (applies to pH and dissolved oxygen monitoring).

*Selective herbicide:* An herbicide that kills or affects specific plant species, sparing other less-susceptible species. Selectivity occurs through different types of toxic action or by the manner in which the material is used (its formulation, dosage, timing, placement, etc.).

*Sensitive, threatened, or endangered plants:*

**Sensitive:** Any species that is vulnerable or declining and could become endangered or threatened in the state without active management or removal of threats.

**Threatened:** Any species likely to become endangered in Washington within the foreseeable future if factors contributing to its population decline or habitat degradation or loss continue.

**Endangered:** Any species in danger of becoming extinct or extirpated from Washington within the foreseeable future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.

*Shading products:* These compounds are usually non-toxic dyes and are designed to reduce the amount of light penetrating the surface of a waterbody, thereby reducing plant and algae growth.

*Shoreline Recreational Facilities:* Means facilities located along a waterbody that provide water contact activities as part of an organized camp (e.g. children's camp through YMCA or other organization) and facilities where water contact activities are expected such as marinas, resorts, parks or other facilities actively managed for water contact recreation.

*Sponsor:* A private or public entity or a private individual with a vested or financial interest in the treatment. A sponsor is an individual or an entity that has the legal authority to administer common areas of the waterbody or locations within the waterbody for the purposes of aquatic plant and algae management. Typically the sponsor contracts with a licensed applicator to apply pesticides for aquatic plant or algae management. Legal entities with this authority include Lake Management Districts formed under chapter 36.61 RCW, Special Purpose Districts formed under Title 57 RCW, Homeowners Associations formed under chapter 64.38 RCW, and groups operating under the provisions of chapter 90.24 RCW. There may be other entities with the legal authority to manage common areas in public or private waterbodies. For treatment on individual lots, the sponsor must have the legal authority to contract for aquatic plant and algae management within the lot boundaries.

*State experimental use permit:* A permit issued by WSDA allowing use of pesticides that are not registered, or for experiments involving uses not allowed by the pesticide label. Aquatic applications are limited to one acre or less in size.

*Surface waters of the State:* All waters defined as “waters of the United States” in 40 CFR 122.2 within the geographic boundaries of the state of Washington. All waters defined in RCW 90.48.020. This includes lakes, rivers, ponds, streams, inland waters, and all other fresh or brackish surface waters and water courses within the jurisdiction of the state of Washington. Also includes drainages to surface waters.

*Swimming restriction:* Information required to be posted on all public signs stating that no swimming must occur in the treatment area for a number of hours after treatment.

*Systemic herbicide:* A chemical that moves (translocates) throughout the plant and kills both the roots and the top part of the plant. Systemic herbicides are generally slower-acting than contact herbicides, but tend to result in permanent removal of the targeted plants.

*Treatment:* The application of an aquatic herbicide, algaecide, or control product to the water or directly to vegetation to control vegetation, algae, or remove or inactivate phosphorous.

*Treated area:* The area where pesticide is applied and the concentration of the pesticide is sufficient to cause the intended effect on aquatic plants or algae.

*Upland farm pond:* Private farm ponds created from upland sites that did not incorporate natural waterbodies (WAC 173-201A-260(3)(f)).

*Washington Pesticide Control Act:* Chapter 15.58 RCW.

*Water right:* A water right is a legal authorization to use a predefined quantity of public water for a designated use. The purpose must qualify as a beneficial use such as irrigation, domestic water supply, etc. Any use of surface water which began after the state water code was enacted in 1917 requires a water-right permit or certificate.

*Water right claim:* A water right claim is statement of beneficial use of water that began prior to 1917 for surface water. Claims remain valid until such time that adjudication occurs, whereby the validity of the claim must be proven before a court of law. During adjudication, claimants are required to prove

that water has been in constant beneficial use prior to 1917 for surface water. Five or more consecutive years of non-use may invalidate a claim.

*Wetland:* Any area inundated with water sometime during the growing season, and identified as a wetland by a local, state, or federal agency.

**In the absence of other definitions set forth herein, the definitions set forth in 40 CFR Part 403.3 or in chapter 90.48 RCW apply.**

## APPENDIX B: PUBLIC INVOLVEMENT INFORMATION

**All comments about the proposed permit must be received or postmarked by 11:59 p.m. on December 7, 2020, to be considered.**

Ecology has tentatively determined to issue the Aquatic Plant and Algae Management General Permit for aquatic plant and algae management activities as identified in Special Condition S1. Permit Coverage.

Ecology will publish a Public Notice of Draft (PNOD) on October 21, 2020 in the Washington State Register. The PNOD informs the public that the draft permit and fact sheet are available for review and comment.

Ecology will also email the notice to those identified as interested parties.

Copies of the draft general permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the Ecology offices listed below, may be obtained from Ecology's website, or by contacting Ecology by mail, phone, fax, or email.

Permit website:

[http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/aquatic\\_plants/aquatic\\_plant\\_permit\\_index.html](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/aquatic_plants/aquatic_plant_permit_index.html)

Ecology Headquarters Building Address:

300 Desmond Drive  
Lacey, WA 98503

### Contact Ecology

Department of Ecology

Danielle Edelman

Water Quality Program

Email: [danielle.edelman@ecy.wa.gov](mailto:danielle.edelman@ecy.wa.gov)

Attn: Aquatic Plant & Algae Permit Writer

Phone: 360-407-7118

P.O. Box 47600

Olympia, WA 98504-7600

### Submitting Written and Oral Comments

Ecology will accept written comments on the draft Aquatic Plant and Algae Management General Permit, Fact Sheet, application (Notice of Intent) and SEPA determination. Ecology will also accept oral comments at the public hearings on December 2, 2020 starting at 10:00 a.m. and December 3, 2020 starting at 5:30 p.m., which will be held as webinars. Comments should reference specific text when possible.

Comments may address the following:

- Technical issues
- Accuracy and completeness of information
- Adequacy of environmental protection and permit conditions
- Any other concern that would result from the issuance of this permit

**Ecology prefers comments be submitted through the comment form on the permit webpage:**

[http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/aquatic\\_plants/aquatic\\_plant\\_permit\\_index.html](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/aquatic_plants/aquatic_plant_permit_index.html)

Ecology must receive written comments (via comment form, email or postmarked December 7) no later than 11:59 p.m. on December 7, 2020.

Submit email comments to: [danielle.edelman@ecy.wa.gov](mailto:danielle.edelman@ecy.wa.gov)

Submit written, hard copy comments to:

Danielle Edelman  
Department of Ecology  
P.O. Box 47600  
Olympia, WA 98504-7600

You may also provide oral comments by testifying at the public hearing.

### **Public Hearing and Workshop**

Ecology will hold public hearings and workshops on the draft general permit webinars. The hearings provide an opportunity for people to give formal oral testimony and comments on the draft permit. The workshops held immediately prior to the public hearings will explain the special conditions of the Aquatic Plant and Algae Management General Permit.

### **Hearings and Workshops**

#### **Wednesday, December 2, 2020 – 10:00 AM**

Webinar\*

Join the webinar at

<https://watech.webex.com/watech/onstage/g.php?MTID=eaa418543dbbcfd043993bec41b5be2d1>

#### **Thursday, December 3, 2020 – 5:30 PM**

Webinar\*

Join the webinar at

<https://watech.webex.com/watech/onstage/g.php?MTID=eb8480911442440992374c97fe6415313>

\*The workshops and hearings offered via webinar allow individuals to view the presentation and provide testimony via computer or mobile device. Ecology will not be offering in-person hearings due to safety concerns regarding COVID-19.

### **Issuing the Final Permit**

Ecology will issue the final permit after it receives and considers all public comments. Ecology expects to issue the new general permit in spring of 2021. It will be effective one month after the issuance date.

For further information, contact Permit Writer, Danielle Edelman, at Ecology, by phone at (360) 407-7118, by email at [danielle.edelman@ecy.wa.gov](mailto:danielle.edelman@ecy.wa.gov), or by writing to Ecology at the Olympia address listed above.

## APPENDIX C: RESPONSE TO COMMENTS

Look for the Response to Comments document on the permit web page.

[http://www.ecy.wa.gov/programs/wq/pesticides/final\\_pesticide\\_permits/aquatic\\_plants/aquatic\\_plant\\_permit\\_index.html](http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/aquatic_plants/aquatic_plant_permit_index.html)