

WDFW

Please see attached file



State of Washington  
DEPARTMENT OF FISH AND WILDLIFE

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Shawn Ultican  
Washington State Department of Ecology  
Water Quality Program  
P.O. Box 47600  
Olympia, WA 98504-7600

Shawn,

Thank you for the opportunity to comment on the draft Aquatic and Invasive Species Control General Permit. The Washington Department of Fish and Wildlife (WDFW) believes this draft permit still requires a substantial amount of work before it adequately covers the fisheries management activities WDFW typically conducts under permit coverage and that it was premature to initiate the SEPA review.

The comments in the attached list are generally presented in chronological order as they appear in the draft permit. For each comment, WDFW cites the draft language, provides a problem statement, and offers alternative language or omissions. Comment titles that represent the areas of greatest concern to WDFW are emphasized with red font. Left unaddressed, the conflicts present in the areas of greatest concern render the permit unusable by WDFW's fish management staff. Among these comments WDFW has identified several sections with language that may be considered an overstep in Ecology's statutory authority and a significant deviation from the existing NPDES permit. Other comments reference inconsistencies in terminology and with EPA labeling of the products being used.

The WDFW is committed to working together with the Department of Ecology to create a permit that both allows the WDFW to continue its work to manage fish populations in the state while giving us clear direction on the steps required so we can help protect the waters of the state. We look forward to getting together to complete something that works for both of our agencies.

Sincerely,

Steve Caromile  
Inland Fish Program Manager

**WDFW Comments generally in order as they appear in the draft  
DOE permit (Urgent comment in red):**

**1. Permit, as written, doesn't allow use of rotenone for fish management (The permit includes new language directing WDFW in what species are allowed to be treated, new restrictions not present in prior permit iterations)**

**Current Language:**

**S1.A. (Paragraph 1, Sentence 1; Page 7):** This general permit covers management activities conducted for *non-native invasive* aquatic animals, invasive insects, and non-native invasive marine algae that result in the discharge of chemicals or control products into surface waters of the state of Washington.

**S1.A.2. (Page 8):** Freshwater projects occur in rivers, streams, lakes, ponds, brackish inland water bodies, wetlands, or wet areas and target non-native invasive freshwater animals.

**S1.A.2.a. (Page 8):** Ecology only allows freshwater projects for:

- i. Prohibited or unlisted freshwater animals as identified in WAC 220-12-090.
- ii. Freshwater animals listed on the Washington Aquatic Nuisance Species Committee “watch list” of invasive species or on the Washington Invasive Species Council (WISC) management priority list.
- iii. Freshwater animals listed by the USFWS as injurious wildlife under the Lacey Act (18 U.S.C. 42; 50 CFR 16).
- iv. Insects identified in Chapter 16-470 WAC: Quarantine-Agricultural Pests.
- v. Non-native potentially invasive freshwater animals not listed on the above lists, as determined by Ecology in consultation with WDFW, or WDNR, or WSDA, or WISC, or the ANS Committee, or applicable federal agencies such as the USFWS.

**S4.A.2. (First Sentence; Page 14):** The Permittee may apply chemicals or products under this permit only for the management of aquatic or invasive animals, invasive insects, or invasive marine algae that meet the criteria outlined in S1.A.

**S4; Table 3 (Table Caption; Page 19):** Specific Restrictions on the Application of Chemicals for Managing Non-native and Invasive Freshwater Animals

**Appendix A – Definitions (Page 69):**

**Non-native invasive:** An organism outside of its natural or historical range of distribution that tends to spread and dominate new areas. Organisms considered to be non-native were not present in Washington prior to European settlement. Many non-native organisms are not invasive or problematic.

**Problem:**

WDFW conducts rotenone treatments to remove game fish, food fish, non-native species not commonly considered invasive, and/or species native to Washington State (usually that are outside their historical distribution – but potentially could include areas with over-populated native species – e.g., similar precedent exists in the Northern Pikeminnow Program). The permit, as written, authorizes treatment only for aquatic animals that are non-native and invasive (S1.A.). No game fish, food fish, or native species qualify as target species based on S1.A.2.a. S4.A.2. says that chemicals can ONLY be applied for organisms that “...meet the criteria outlined in S1.A.” The term *Non-native Invasive* doesn’t include game fish, food fish, or native fish. The definition of *Non-native Invasive* in the glossary also specifically notes that “Many non-native organisms are not invasive or problematic.” This arguably applies to many of the game fish species which are commonly the target of rotenone treatments. Additionally the WAC cited in S1.A.2.a.i. “220-12-090” has been recodified and needs correction should this language remain in the permit. Section 1.A.2. also lists specific water type where treatments occur, however the use of terms listed in the glossary simplify the list and expand its inclusion to all waters of the state.

**Suggested Remedy(ies) (Language changes highlighted):**

**S1.A. (Paragraph 1, Sentence 1; Page 7):** This general permit covers management activities conducted **for aquatic animals**, invasive insects, and non-native invasive marine algae that result in the discharge of chemicals or control products into surface waters of the state of Washington.

**S1.A.2. (Page 8):** Freshwater projects occur in **all still waters and flowing waters** and target **aquatic freshwater animals**.

**S1.A.2.a. (Page 8):** Ecology only allows freshwater projects for:

- i. Prohibited or unlisted freshwater animals as identified in **WAC 220-640-030, 220-640-040, and 220-640-050**.
- ii. Freshwater animals listed on the Washington Aquatic Nuisance Species Committee “watch list” of invasive species or on the Washington Invasive Species Council (WISC) management priority list.
- iii. Freshwater animals listed by the USFWS as injurious wildlife under the Lacey Act (18 U.S.C. 42; 50 CFR 16).
- iv. Insects identified in Chapter 16-470 WAC: Quarantine-Agricultural Pests.
- v. Non-native potentially invasive freshwater animals not listed on the above lists, as determined by Ecology in consultation with WDFW, or WDNR, or WSDA, or WISC, or the ANS Committee, or applicable federal agencies such as the USFWS.
- vi. Fish species managed by WDFW.**

**S4.A.2. (First Sentence; Page 14):**

No change required if suggested remedies listed above are implemented.

**S4; Table 3 (Table Caption; Page 19):** Specific Restrictions on the Application of Chemicals for Managing **Freshwater Animals**

**Appendix A – Definitions (Page 69):**

No change needed with above remedies.

**2. Ecology overstep of statutory authority regarding which organisms or species can be managed (Preferred alternative, comments 2 and 3 address the same issue)**

**Current Language:**

**S1.A. (Paragraph 1, Sentence 1; Page 7):** This general permit covers management activities conducted for *non-native invasive* aquatic animals, invasive insects, and non-native invasive marine algae that result in the discharge of chemicals or control products into surface waters of the state of Washington.

**S1.A.1.a. (Page 7):** This permit only allows marine projects for:

- i. Animal species as identified in Washington Administrative Code (WAC) 220-12-090.
- ii. Animals or marine algae listed on the Washington Aquatic Nuisance Species Committee “watch list” of invasive species or on the Washington Invasive Species Council (WISC) management priority list.
- iii. Animals listed by the United States Fish and Wildlife Service (USFWS) as injurious wildlife under the Lacey Act (18 U.S.C. 42; 50 CFR 16).
- iv. Insects identified in Chapter 16-470 WAC: Quarantine-Agricultural Pests.
- v. Non-native potentially invasive marine animals and algae not listed on the above lists, as determined by Ecology in consultation with the Washington Department of Fish and Wildlife (WDFW), or Washington Department of Natural Resources (WDNR), or Washington State Department of Agriculture (WSDA), or WISC, or the Washington Aquatic Nuisance (ANS) Committee, or applicable federal agencies such as the USFWS.

**S1.A.2.a. (Page 8):** Ecology only allows freshwater projects for:

- i. Prohibited or unlisted freshwater animals as identified in WAC 220-12-090.
- ii. Freshwater animals listed on the Washington Aquatic Nuisance Species Committee “watch list” of invasive species or on the Washington Invasive Species Council (WISC) management priority list.
- iii. Freshwater animals listed by the USFWS as injurious wildlife under the Lacey Act (18 U.S.C. 42; 50 CFR 16).
- iv. Insects identified in Chapter 16-470 WAC: Quarantine-Agricultural Pests.

- v. Non-native potentially invasive freshwater animals not listed on the above lists, as determined by Ecology in consultation with WDFW, or WDNR, or WSDA, or WISC, or the ANS Committee, or applicable federal agencies such as the USFWS.

**S4.A.2. (Page 14).** The Permittee may apply chemicals or products under this permit only for the management of aquatic or invasive animals, invasive insects, or invasive marine algae that meet the criteria outlined in S1.A. Temporary and limited impacts on non-target organisms are acceptable only to the extent needed to control the targeted organisms.

**Problem:**

Ecology’s mandate does not include fish or wildlife management. That is the role of WDFW. Ecology’s role is to provide the sideboards for treatment. RCW 77-04-012 states “Wildlife, fish, and shellfish are the property of the state. The commission, director, and the department shall preserve, protect, perpetuate, and manage the wildlife and food fish, game fish, and shellfish in state waters and offshore waters.”. Additionally, WAC 220-101-020 states “The department of fish and wildlife is the agency to which the legislature has delegated responsibility for preserving, protecting, perpetuating, and managing fish and wildlife in the lands and waters of the state, including offshore waters”. The Department of Ecology’s jurisdiction is described in RCW 90.48.030, which states “The department shall have the jurisdiction to control and prevent the pollution of streams, lakes, rivers, ponds, inland waters, slack waters, water courses, and other surface and underground waters of the state of Washington”.

**Suggested Remedy(ies) (Language changes highlighted):**

**S1.A. (Paragraph 1, Sentence 1; Page 7):** This general permit covers management activities conducted for ~~non-native invasive~~ aquatic animals, invasive insects, and ~~non-native invasive marine algae~~ that result in the discharge of chemicals or control products into surface waters of the state of Washington.

**Delete S1.A.1.a. (Page 7):** ~~This permit only allows marine projects for:~~

- ~~i. Animal species as identified in Washington Administrative Code (WAC) 220-12-090.~~
- ~~ii. Animals or marine algae listed on the Washington Aquatic Nuisance Species Committee “watch list” of invasive species or on the Washington Invasive Species Council (WISC) management priority list.~~
- ~~iii. Animals listed by the United States Fish and Wildlife Service (USFWS) as injurious wildlife under the Lacey Act (18 U.S.C. 42; 50 CFR 16).~~
- ~~iv. Insects identified in Chapter 16-470 WAC: Quarantine Agricultural Pests.~~
- ~~v. Non-native potentially invasive marine animals and algae not listed on the above lists, as determined by Ecology in consultation with the Washington Department of Fish and Wildlife (WDFW), or Washington Department of Natural Resources (WDNR), or Washington State Department of Agriculture (WSDA), or WISC, or the Washington Aquatic Nuisance (ANS) Committee, or applicable federal agencies such as the USFWS.~~

**Delete S1.A.2.a. (Page 8):** Ecology only allows freshwater projects for:

- i. Prohibited or unlisted freshwater animals as identified in WAC 220-12-090.
- ii. Freshwater animals listed on the Washington Aquatic Nuisance Species Committee “watch list” of invasive species or on the Washington Invasive Species Council (WISC) management priority list.
- iii. Freshwater animals listed by the USFWS as injurious wildlife under the Lacey Act (18 U.S.C. 42; 50 CFR 16).
- iv. Insects identified in Chapter 16-470 WAC: Quarantine Agricultural Pests.
- v. Non-native potentially invasive freshwater animals not listed on the above lists, as determined by Ecology in consultation with WDFW, or WDNR, or WSDA, or WISC, or the ANS Committee, or applicable federal agencies such as the USFWS.

**S4.A.2. (First Sentence; Page 14).** ~~The Permittee may apply chemicals or products under this permit only for the management of aquatic or invasive animals, invasive insects, or invasive marine algae that meet the criteria outlined in S1.A.~~ Temporary and limited impacts on non-target organisms are acceptable only to the extent needed to control the targeted organisms.

### **3. VOC Monitoring methodology may not be capable of detecting discharged VOCs**

#### **Current Language:**

**S9.E. (Page 40):** For potable surface water rights: provide an alternative potable water supply for human consumption from the time of rotenone application until the treated water body is shown to be below 40 ppb rotenone (Special Condition S9.F.4).

For treatments using liquid rotenone formulations that contain volatile organic compounds (VOCs), as identified by the product Safety Data Sheet (SDS): provide an alternative potable water supply for human consumption from the time of piscicide application until the treated water body is shown to have returned to pre-treatment levels for VOC’s or VOC levels are below 0.5 ppb (Special Condition S9.F.4).

**S9.F.4.3 (Page 46):** For treatments using liquid rotenone formulations that contain volatile organic compounds (VOCs) permittees must conduct pre-treatment VOC testing to determine if VOCs are present in the water body prior to treatment (background levels of VOCs). Analytical methods used for VOC monitoring must have a lower detection limit of at least 0.5 ppb.

**Permittees are responsible for ensuring VOCs discharged to the water body from treatment** (*bold, italics, and underline all added by reviewer for emphasis*) have dissipated to background levels or dropped below 0.5 ppb before surface water withdrawal can resume. This can be done by either:

a) Permittees must demonstrate that VOC concentrations in the treated water body have returned to pre-treatment levels, or

b) Demonstrate that concentrations are below 0.5 ppb for any VOC identified by the Safety Data Sheet (SDS) or label for the liquid rotenone product used.

***Problem:***

Standard VOC sampling methods (e.g., 8260 and 8270 methods) do not detect most VOCs (e.g., N-Methylpyrrolidone) discharged during a liquid rotenone application. Any reasonable person would infer that the intent of VOC sampling requirements in the NPDES permit is to protect drinking water, as this requirement is specific to potable water rights. For most VOCs listed on the SDS for formulations of CFT Legumine and Prenfish, no test methods exist and/or no lab is accredited. Thus, it is impossible to adhere to this stipulation in the DRAFT permit. WDFW cannot demonstrate that VOCs discharged to the water have returned to background levels by using methods that cannot detect those VOCs. Although the current language in the DRAFT permit allows the ability to monitor using standard 8260/8270 methods (S9.F.4.3.a.), doing so is, at best, a check-the-box exercise, and at worst, disingenuous. Option a) in Section 9.4.3 cannot be used in good conscience. The issue is further complicated by there being some VOC's listed in liquid rotenone formulations that no lab in Washington is currently accredited (or even has a method) to test for. Despite our best intentions, WDFW cannot meet VOC testing requirements in good faith. Ecology should be able to stipulate which sampling methods are required and appropriate for submission under an NPDES permit and if the VOC's present in formulations actually require monitoring.

***Suggested Remedy(ies) ) (Language changes highlighted):***

**Section 9.E. (Page 40):** For potable surface water rights: provide an alternative potable water supply for human consumption from the time of rotenone application until the treated water body is shown to be below 40 ppb rotenone.

For treatments using liquid rotenone formulations that contain Federally regulated volatile organic compounds (VOC's), as identified by the product Safety Data Sheet (SDS): provide an alternative potable water supply for human consumption from the time of piscicide application until the treated water body is shown to have returned to pre-treatment levels for VOC's or VOC levels are below 0.5 ppb (Special Condition S9.F.4).**S9.F.4.3 (Page 46):**

For treatments using liquid rotenone formulations that contain Federally regulated volatile organic compounds (VOCs) permittees must conduct pre-treatment VOC testing to determine if Federally regulated VOCs are present in the water body prior to treatment (background levels of VOCs). Analytical methods used for VOC monitoring must have a lower detection limit of at least 0.5 ppb. Permittees are responsible for ensuring that Federally regulated VOCs discharged to the water body from treatment have dissipated to background levels or dropped below 0.5 ppb before surface water withdrawal can resume.

This can be done by either:

~~a) Permittees must demonstrate that VOC concentrations in the treated water body have returned to pre-treatment levels, or~~

~~b) Demonstrate that concentrations are below 0.5 ppb for any VOC identified by the Safety Data Sheet (SDS) or label for the liquid rotenone product used.~~



#### 4. Any State agency or their selected contractor can apply rotenone

##### Current Language:

**S1.A. (Paragraph 2; Page 7):** The Permittee may cooperate with federal tribal, state, county, and municipal governments, and with private citizens to conduct activities under coverage of this permit. The Permittee must be the applicator and decision maker for all treatments conducted under this permit.

**S2.A. (Paragraph 1; Page 9):** Any Washington state government agency may apply for permit coverage to conduct the activities outlined in Condition S1.A of this permit. Washington State government agencies holding coverage may, in turn, contract with other state or local government entities, non-governmental organizations, or private applicators. Contractors must agree to carry out treatments in a manner that complies with the permit. Either the Permittee or contractor (per individual agreement) may carry out notification, monitoring, reporting, documentation, planning, and other administrative permit tasks.

**S4; Table 3 (Rotenone Section, Subject to Timing Windows column; Page 20).** Yes, also check with WDFW before treatment to determine critical habitat areas. (Note – this was included as it suggests that a rotenone treatment could occur in the absence of WDFW’s involvement except for consultation for treatment windows).

##### Problem:

Management of fish in Washington State (including aquatic invasive fish species and piscicide) is completely under WDFW’s purview and responsibility and not shared by other agencies. The previous Fisheries Resource Management permit was written specifically to WDFW, while this permit currently allows any State agency to secure permit coverage for rotenone application or to contract it out. WDFW has the sole authority for fish and wildlife management (including removal/eradication), and that authority should not be afforded to other agencies.

##### Suggested Remedy(ies) (Language changes highlighted):

**S1.A. (Paragraph 2; Page 7):** The Permittee may cooperate with federal tribal, state, county and municipal governments, and with private citizens to conduct activities under coverage of this permit. The Permittee must be the applicator and decision maker for all treatments conducted under this permit. **Only WDFW is permitted to be applicator and decision maker for rotenone applications.**

**S2.A. (Paragraph 1; Page 9):** **WDFW is authorized to conduct rotenone applications for Fisheries Resource Management under the terms specified herein upon permit issuance. For other applications, any** Washington state government agency may apply for permit coverage to conduct the activities outlined in Condition S1.A of this permit. **Washington State government agencies holding coverage may, in turn, contract with other state or local government entities, non-governmental organizations, or private applicators. Contractors must agree to carry out treatments in a manner that complies with the permit. Either the Permittee or contractor (per**

individual agreement) may carry out notification, monitoring, reporting, documentation, planning, and other administrative permit tasks. Only WDFW is authorized to be the applicator and decision maker for use of rotenone.

## 5. Editorial correction of appropriate language

### **Current Language:**

S3.E. (Page 14): Rare, Threatened and Endangered Animals. For treatments that must occur in areas where state or federal sensitive species is present that may be impacted by treatment, the Permittee must consult with state or federal and wildlife agencies as appropriate prior to treatment.

**Problem:** Sensitive species referenced in the paragraph is only one classification and not the only one WDFW needs to be concerned about. The subsection could be written more clearly and use terms defined in the Glossary to make it simpler.

### **Suggested Remedy(ies) (Language changes highlighted):**

S3.E. (Page 14): Sensitive, Threatened, or Endangered Species. For treatments that must occur in areas where state and/or federal sensitive, threated, or endangered species are present that may be impact by treatment, the Permittee must consult with the appropriate state and/or federal agency prior to treatment.

## 6. Experimental Use Permits also cover uses of registered pesticides not allowed by the product label

### **Current Language:**

S4.C.1. Experimental Use Permits (Page 15): Permittees may apply other chemicals not listed in this permit on a limited basis in the context of a research and development effort under the jurisdictions of the Environmental Protection Agency (EPA) and WSDA through the issuance of a federal Experimental Use Permit (40 CFR 172).

**Problem:** EUPs also cover uses of existing registered pesticides not allowed by the product label (e.g., application of rotenone in saltwater). This subsection needs to clearly and concisely describe how Permittees can utilize EUPs. Also, Permittees (according to the WSDA website; <https://agr.wa.gov/departments/pesticides-and-fertilizers/pesticides/washington-state-experimental-use-permit>) need to obtain both a federal (1<sup>st</sup> step) and state EUPs.

### **Suggested Remedy(ies) (Language changes highlighted):**

**S4.C.1. Experimental Use Permits (Page 15):** Permittees may apply chemicals or products either not registered in Washington State or registered but in a manner currently not allowed by the Product Label for experiment purposes with an approved federal and state *Experimental Use Permit (EUP)*.

## 7. Deactivation Zone definition is inconsistent throughout the permit

### Current Language:

**S4; Table 3 (Rotenone; Treatment Limitations column; 7th bullet; Page 20):** Unless the outlet is being treated for invasive species, in water bodies with flowing outlets, rotenone must be deactivated to eliminate downstream impacts. Below the deactivation zone (distance the water travels in 20 minutes), the rotenone must be totally neutralized using potassium permanganate. Residual potassium permanganate, not to exceed 1 mg/L past the deactivation zone.

### **Appendix A – Definitions (Page 67).**

**Deactivation zone:** The downstream waters where potassium permanganate has been applied but has not yet fully deactivated the rotenone, due to the lag time normally associated with deactivation. The distance that water can be expected to travel in 30 minutes. Since the deactivation zone may contain toxic levels of rotenone and potassium permanganate, some fish mortalities may occur in this zone.

### Problem:

Deactivation zone is inconsistently defined throughout the DRAFT permit. Deactivation zone distance is 30 minutes travel time, per the 2018 AFS Rotenone SOP manual.

### Suggested Remedy(ies) (Language changes highlighted):

**S4; Table 3 (Treatment Limitations column, 7th bullet; Page 20):** Unless the outlet is being treated for invasive species, in water bodies with flowing outlets, rotenone must be deactivated to eliminate downstream impacts. Below the deactivation zone (distance the water travels in 30 minutes), the rotenone must be totally neutralized using potassium permanganate. Residual potassium permanganate, not to exceed 1 mg/L past the deactivation zone.

### **Appendix A – Definitions (Page 67).**

No Change.

## 8. Written permission required to conduct rotenone treatments in waterbodies with municipal or community drinking water intakes

### Current Language:

**S5.B.3.g. (Page 25):** If the product label has potable water use restrictions and the treatment occurs in waterbodies with municipal or community drinking water intakes, the Permittee must

notify the party responsible for the public water supply at least one week before and obtain written consent from the municipality or community prior to treatment.

**Problem:**

Section 16.1.I.B, page 158 of the 2018 AFS Rotenone SOP Manual- Notification Requirements for DRINKING WATER states:

For applications >40 ppb or 0.04 ppm rotenone in waters with drinking water intakes or with hydrologic connections to wells, at 7 to 14 days prior to application, the Certified Applicator or designee under his/her direct supervision must **provide notification** to the party responsible for the public water supply or to individual private water users against the consumption of treated water until one or more of the following occurs...

In addition, the 2015 Fisheries Resource General Management NPDES permit AND the 2015 AIS NPDES permit only required advance notification of potable surface water users and require the supply of an alternative water source on request prior to rotenone application. These actions ensure safe drinking water for surface water users for the duration that rotenone is present above established EPA levels.

Additional written permission as required by Ecology adds an additional layer of complexity and potential avenue for opposition to treatment but does not afford additional protections for drinking water.

If removal of this section is not possible, written permission needs to be limited only to those surface water withdrawals serving an incorporated area governed by an official body bound by procedure and presumably objective standards or a large group of private individuals. The section must not require written permission under an undefined term (e.g., “community”) that may be interpreted to apply to a small number of obstruction-minded individuals (e.g., a “community” of 2-3 people that could withhold permission and subjectively block an application that benefited other landowners on the lake and thousands of users).

**Suggested Remedy(ies) (Language changes highlighted):**

*Preferred:*

**Remove S5.B.3.g. (Page 25).**

*Alternative:*

**Section 5.3.g (Page 25).** No change.

**Appendix A – Definitions.**

**Community:** Of or serving a 25 or more residences.

**Municipal:** Of or serving an incorporated body as defined by RCW 35.01.

## 9. Sensitive species are defined but no list or is guidance given regarding how to find out which species are listed as sensitive

### Current Language:

S3.E. (Page 14): For treatments that must occur in areas where a state or federal *sensitive species* is present that may be impacted by treatment, the Permittee must consult with state or federal fish and wildlife agencies as appropriate prior to treatment.

### Problem:

Although *Sensitive Species* is defined in Appendix A, no list or link is provided for Permittees to identify them.

### Suggested Remedy(ies) (Language changes highlighted):

S3.E (Page 14): For treatments that must occur in areas where a state or federal sensitive species is present that may be impacted by treatment, the Permittee must consult with state or federal fish and wildlife agencies as appropriate prior to treatment. The list of state sensitive species is presented in WAC 232-12-011.

## 10. Refences to “commission” and “department” needs to be clarified

### Current Language:

S4.A.7. (Page 15): The Permittee must ensure the treatment as described in the permit application complies with RCW 77.15.120 and 77.15.130 and does not cause a take of a state endangered or protected fish or wildlife unless take has been authorized by a rule of the commission, a permit issued by the department, or a permit issued pursuant to the federal endangered species act. The list of state endangered wildlife species is presented in WAC 232-12-014. The list of protected (“threatened” and “sensitive”) species is presented in WAC 232-12-011.

### Problem:

Although “commission” and “department” are referenced, they are not specifically identified. It should be clear that this language refers to the Washington Fish and Wildlife Commission and the Washington Department of Fish and Wildlife.

### Suggested Remedy(ies) (Language changes highlighted):

S4.A.7. (Page 15). The Permittee must ensure the treatment as described in the permit application complies with RCW 77.15.120 and 77.15.130 and does not cause a take of a state endangered or protected fish or wildlife unless take has been authorized by a rule of the Washington Fish and Wildlife commission, a permit issued by WDFW, or a permit issued pursuant to the federal endangered species act. The list of state endangered wildlife species is presented in WAC 232-12-014. The list of protected (“threatened” and “sensitive”) species is presented in WAC 232-12-011.

## 11. Additional chemicals are authorized, but none are listed

### **Current Language:**

**S4.B. (Page 15):** Ecology identifies specific restrictions on the use of each chemical or product in Tables 2 and 3 below. Not all chemicals can be used in both marine and freshwaters. Additional chemicals are authorized for specific treatments, as described in the following Special Conditions:

- a) Aquatic Invasive Species Control, Special Condition S8.A
- b) Fisheries Resource Management, Special Condition S9.B
- c) Invasive Insect Eradication, Special Condition S10.B

### **Problem:**

No additional chemicals are listed in S9.B.

### **Suggested Remedy(ies) (Language changes highlighted):**

**S4.B. (Chemicals and Products Authorized for Use under this Permit; Page 15):** Ecology identifies specific restrictions on the use of each chemical or product in Tables 2 and 3 below. Not all chemicals can be used in both marine and freshwaters. Additional chemicals are authorized for specific treatments, as described in the following Special Conditions:

- a) Aquatic Invasive Species Control, Special Condition S8.A
- ~~b) Fisheries Resource Management, Special Condition S9.B~~
- b) Invasive Insect Eradication, Special Condition S10.B

## 12. Timing listed in S4, Table 3 does not apply to stream rotenone treatments.

### **Current Language:**

**S4; Table 3 – Rotenone Section; Treatment Limitations column; 6<sup>th</sup> Bullet (Page 20):** Except for emergencies or in situations where invasive species may move out of water body if treatment is delayed, limit treatment to periods of low water, usually September or October, unless the water body has a closed basin.

### **Problem:**

Water temperature is key in determining treatment timing. Efficacy of rotenone is directly related to temperature and decreases dramatically below 5°C. Stream treatments in eastern Washington streams generally occur in August to ensure effective removal of target species. \

### **Suggested Remedy(ies) (Language changes highlighted):**

**S4; Table 3 – Rotenone Section; Treatment Limitations column (Page 20):**

*Preferred:*

Delete 6<sup>th</sup> Bullet

*Alternative:*

Except for emergencies or in situations where invasive species may move out of water body if treatment is delayed, **for still water**, limit treatment to periods of low water, **usually September or October**, unless the water body has a closed basin.

### **13. Deactivation by dilution is not allowed for lake outflow in the DRAFT permit.**

#### **Current Language:**

**S4; Table 3 – Rotenone Section; Treatment Limitations column; 7<sup>th</sup> Bullet (Page 20):**

Unless the outlet is being treated for invasive species, in water bodies with flowing outlets, rotenone must be deactivated to eliminate downstream impacts. Below the deactivation zone (distance the water travels in 20 minutes), the rotenone must be totally neutralized using potassium permanganate. Residual potassium permanganate, not to exceed 1 mg/L past the deactivation zone.

**S9.B.2.e. (Page 39):** Use of potassium permanganate to deactivate piscicide treated waters is required for the following situations.

- i. When a treated lake has an outlet to an untreated waterbody, the outflow water must be deactivated.
- ii. When treating rivers and streams the water downstream of the intended treatment area must be deactivated, unless a) where non-treated waters within the Treatment Area can serve to dilute treated water to a calculated level < 2 ppb rotenone: or b) where the treatment area ends in a location where the stream goes dry.

#### **Problem:**

Deactivation by dilution is allowed without restriction to flowing water by the 2018 AFS Rotenone SOP Manual and is allowed by this permit for flowing water in Section 9.2.e.ii. Deactivation by dilution is appropriate for lake outflow as well, and should be permitted.

#### **Suggested Remedy(ies) (Language changes highlighted):**

**Section 4; Table 3 – Rotenone Section, 7<sup>th</sup> Bullet (Page 20):** Unless the outlet is being treated for invasive species, in water bodies with flowing outlets, rotenone must be deactivated to eliminate downstream impacts **except where outflow can be diluted to < 2 ppb by the receiving water**. Below the deactivation zone (distance the water travels in **30** minutes), the rotenone must be totally neutralized using potassium permanganate. Residual potassium permanganate, not to exceed 1 mg/L past the deactivation zone.

**Section 9.B.e (Page 39):** Use of potassium permanganate to deactivate piscicide treated waters is required for the following situations.

- i. When a treated lake has an outlet to an untreated waterbody, the outflow water must be deactivated, unless a) where non-treated waters within the Treatment Area can serve to dilute treated water to a calculated level < 2 ppb rotenone: or b) where the treatment area ends in a location where the stream goes dry.
- ii. When treating rivers and streams the water downstream of the intended treatment area must be deactivated, unless a) where non-treated waters within the Treatment Area can serve to dilute treated water to a calculated level < 2 ppb rotenone: or b) where the treatment area ends in a location where the stream goes dry.

#### **14. S5.A.2 appears to refer to the deactivation zone but uses undefined terminology.**

**Current Language:**

**S5.A.2. (Page 23):** Any non-targeted organisms exhibiting stress or dying outside of a treatment or neutralization area.

**Problem:**

The term “neutralization area” is not defined. It needs to be defined or changed to a defined term.

**Suggested Remedy(ies) (Language changes highlighted):**

**S5.A.2. (Page 23):** Any non-targeted organisms exhibiting stress or dying outside of a treatment or deactivation zone.

#### **15. S9.B is redundant with S3.D.**

**Current Language:**

**S3.D. (Page 13):** The Permittee and its pesticide applicators must comply with the Product Label when using pesticides. Permit requirements do not reduce the requirements on the Product Label.

The Permittee must ensure that:

1. A pesticide applicator with the appropriate WSDA license has direct supervision responsibilities for the use of pesticides during treatment.
2. All applicators, including those under the direct supervision of an applicator, have current training in the use of the equipment used for treatment and that they use approved treatment techniques.



3. Appropriately trained personnel calibrate the equipment used for treatment.

**S9.B. (Page 38):** The Permittee must comply with all the requirements of the Product Label. Permit requirements do not reduce the requirements on the Product Label.

**S9.B.1 (Page 38):** The Permittee must ensure that:

- a) The application or direct supervision of the application of piscicide and potassium permanganate is performed by an aquatic licensed pesticide applicator.
- b) All pesticide applicators must have current training in the use of equipment necessary to apply piscicides correctly.
- c) Appropriately trained personnel service and/or calibrate the application equipment prior to each application.

**Problem:**

S9.B. is effectively identical to S3.D. and these requirements do not need to be restated.

**Suggested Remedy(ies) (Language changes highlighted):**

Delete S9.B. and S9B.1.

## **16. Measuring organic demand in still water is unnecessary unless deactivation is required.**

**Current Language:**

**S9.F.2.; Table 5 (Page 42):** Organic demand is included as a parameter to be measured for still water treatments.

**Problem:**

Organic demand was included in the same table in the 2015 Fisheries Resource Management permit but included a footnote stating that measuring organic demand was only required if deactivation was necessary. Measuring organic demand is not part of standard operating procedure for still water treatments where no deactivation will occur and is not required by the 2018 AFS Rotenone SOP Manual or the Label.

**Suggested Remedy(ies) (Language changes highlighted):**

**S9.F.2.; Table 5 (Page 42):** Insert footnote to make measurement of organic demand necessary ONLY if deactivation is required. Suggested footnote text: WDFW need monitor only when potassium permanganate is used to deactivate the treatment.

## 17. Monitoring sample type is not consistently defined for the same parameters in Tables 5-9.

### Current Language:

**S9.F.2.; Tables 5-9 (Pages 42-44):** Organic Demand is listed as a “measured” sample in Tables 5 and 7, but as a “grab” sample in Table 8. Dissolved oxygen is listed as a “grab” sample in Tables 5, 6, 8, and 9, but as a “measured” sample in Table 7.

### Problem:

Monitoring “Type” listed for organic demand and dissolved oxygen is inconsistent between tables (Grab vs. Measured).

### Suggested Remedy(ies) (Language changes highlighted):

**S9.F.2.; Tables 5-9 (Page 42-44):** Standardize monitoring sample type throughout all tables for each parameter.

## 18. Record retention requirements are inconsistent.

### Current Language:

**S6.B.4 (Page 28):** Maintain calibration records for at least three years.

**S7.D.1 (Page 32):** The Permittee must retain all permit records and monitoring information for a minimum of five (5) years. The monitoring information must include all calibration and maintenance records...

### Problem:

Different sections require different retention schedules for the same records.

### Suggested Remedy(ies) (Language changes highlighted):

**S6.B.4:** Maintain calibration records for at least **five** years.

**S7.D.1:** No Change.

## 19. Signal word “Danger” only used for powdered rotenone

### Current Language:

**S4. First paragraph and third sentence below 4.f. (page 26):** When the discharge is for rotenone include the signal word “Danger”.

### Problem:

The signal word “DANGER” is only in reference to the powdered formulation of rotenone. Liquid rotenone formulations have the signal word “CAUTION”.

**Suggested Remedy(ies) (Language changes highlighted):**

**S4. First paragraph and third sentence below 4.f. (page 26):** When the discharge is for the powdered formulation rotenone include the signal word “Danger”.

## **20. Report due dates require clarification**

**Current Language:**

**S7.A.1.a. (page 31):** The Permittee must submit its annual treatment report by February 1 of each year.

**Problem:**

The language in this section refers to both the monitoring reports and treatment reports interchanging and leaves room for error in interpreting intent. Additionally, if a treatment did not occur the Permittee must notify the Department of Ecology, however submission of a report for a treatment that did not occur is inconsistent with reporting requirements.

**Suggested Remedy(ies) (Language changes highlighted):**

**S7.A.1. Annual Reports (Page 31):**

1. The annual treatment report and monitoring report must be submitted electronically as separate documents as described in S7.C below.
  - a. The Permittee must submit its annual post-treatment report by February 1 of the year following the treatment. ~~The Permittee must submit and annual monitoring report whether or not treatment occurred in the previous year.~~ The annual post-treatment report must include:
    - i. Permit number
    - ii. Permittee name
    - iii. Treatment dates
    - iv. Maps or description of the location(s) treated (water bodies treated and the treatment location within the water body)
    - v. Active ingredient(s) applied
    - vi. Product name and quantity (i.e., pounds or gallons) applied to each location
2. Annual Monitoring Reports
  - a. The Permittee must submit its annual monitoring report by February 1 of the year following treatment.

## **21. Permit for boat launch signage could be interpreted to apply to waterbodies that are not being treated**

### **Current Language:**

**S5.B.6.a (Page 27):** The Permittee must post signs at all open boat launches within one mile of the treatment area. Boat launches also include sites commonly used as put-ins and take-outs for small, non-trailerred watercraft.

### **Problem:**

Current language does not limit signing to the waterbody being treated. There is no need to sign boat launches of a lake/stream not being treated that are within proximity listed (1 mile) to the treatment.

### **Suggested Remedy(ies) (Language changes highlighted):**

**S5.B.6.a (Page 27):** The Permittee must post signs at all open boat launches **on the treated waterbody** within one mile of the treatment area. Boat launches also include sites commonly used as put-ins and take-outs for small, non-trailerred watercraft.

## **22. Signage requirements for Public Property are unclear and are listed in multiple locations within S5.**

### **Current Language:**

**S5.B.5 (Page 26): Posting Publicly-Owned Property:** Public access areas include public or community-provided swimming beaches, picnic areas, docks, marinas, at state or local parks and private resorts.

**S5.B.5.a (Page 26):** The Permittee must post two foot by three foot signs at public entrances to public access areas or pathways that allow reasonable direct access to the water body and that are within 400 feet of the treatment area. These must be constructed of durable weather-resistant material. The Permittee must attach a weather resistant map detailing the treatment sites for each chemical or product used. The map must identify the location(s) of the treatment site(s), identify addresses or parcels that represent the start and end points of the treatment area, or provide GPS coordinates that represent the corners of the treatment area or identify a whole waterbody treatment and mark the reader's location. In the event that the Permittee uses more than one chemical or product, each treatment area and the chemical/product used must be marked on the map.

**S5.B.5.b (Page 27):** The Permittee must post signs so that at least one is clearly readable from all points of normal public access to the shoreline or stream bank within 400 feet of the treatment area.

**S5.B.5.c (Page 27):** Signs posted along public shorelines must be a minimum of eight and one half (8 ½) by eleven (11) inches in size along every one hundred (100) feet of shoreline and within 400 feet of the treatment area.

**S5.B.5.d (Page 27):** Shoreline signs must be posted within 25 feet of the ordinary high water mark, and face both the water and the shore.

**S5.B.7 (Page 27): Posting Privately or Publicly-Owned Shoreline Areas (Excluding Public Access Areas)**

**S5.B.7.c (Page 27):** The Permittee must post signs to face the shore and site them where they are most visible to residents. For undeveloped properties, the Permittee must post one sign for approximately every two hundred fifty (250) feet of shoreline.

**Problem:**

S5.B.5. is labeled as requirements for Publicly-Owned Property, but appears to be written only for publicly accessible areas. Additional requirements for posting public property are given in S5.B.7 and are not the same as requirements specified in S5.B.5.

**Suggested Remedy(ies) (Language changes highlighted):**

**S5.B.5 (Page 26): Posting Publicly-Owned Property and private resorts:** Includes public access areas (e.g., public or community-provided swimming beaches, picnic areas, docks, marinas, at state or local parks and private resorts) and points of normal public access to publicly owned land (e.g., trails on State or Federally owned properties).

**S5.B.5.a (Page 26): Public Access Areas**

**i.** The Permittee must post two foot by three foot signs at public entrances to public access areas or pathways that allow reasonable direct access to the water body and that are within 400 feet of the treatment area. These must be constructed of durable weather-resistant material. The Permittee must attach a weather resistant map detailing the treatment sites for each chemical or product used. The map must identify the location(s) of the treatment site(s), identify addresses or parcels that represent the start and end points of the treatment area, or provide GPS coordinates that represent the corners of the treatment area or identify a whole waterbody treatment and mark the reader's location. In the event that the Permittee uses more than one chemical or product, each treatment area and the chemical/product used must be marked on the map.

**ii.** The Permittee must post two by three foot signs so that at least one is clearly readable from all points of normal public access to the shoreline or stream bank within 400 feet of the treatment area.

**S5.B.5.b (Page 27): Publicly Owned Shoreline Areas**

**i.** Signs must be a minimum of eight and one half (8 ½) by eleven (11) inches in size.

**ii.** The Permittee must post signs to face all points of normal public access to the shoreline or stream bank within 400 feet of the treatment area; or Permittee must post one sign for every one

hundred (100) feet of shoreline within 400 feet of the treatment area, facing the shore, and sited within 25 feet of the ordinary high water mark.

iii. If posting shorelines within public access areas, signs must face both the water and the shore.

### **23. Signage Requirements for posting private property are not clearly defined and as written, require trespass (which is not allowed).**

#### **Current Language:**

**S5.B.3.c (Page 24):** This permit does not authorize trespass or damage to property as a result of providing business and residential notices.

#### **S5.B.7 (Page 27): Posting Privately or Publicly-Owned Shoreline Areas (Excluding Public Access Areas).**

**S5.B.7.a (Page 27):** The Permittee must post signs or deliver handbills to each private residence or business property within 400 feet of the affected area that are a minimum of eight and one half (8 ½) by eleven (11) inches in size.

**S5.B.7.b (Page 27):** If the Permittee uses handbills, it must secure them to the residences or businesses in a fashion that will hold them in place but will not damage property.

**S5.B.7.c (Page 27):** The Permittee must post signs to face the shore and site them where they are most visible to residents. For undeveloped properties, the Permittee must post one sign for approximately every two hundred fifty (250) feet of shoreline.

**S5.B.7.d (Page 27):** If a shoreline is only accessible by entering through a gate, the Permittee must post a sign at each gate that allows access to the treated area or is within 400 feet of a treated area. In these situations the Permittee does not need to post additional signs along the shoreline or at individual docks or moorages.

#### **Problem:**

S5.B.7.a. currently applies to both privately and publicly owned shoreline areas. Separating requirements for publicly owned vs. privately owned is necessary, as access could be denied for private property. S5.B.3.c states that this permit does not authorize trespass. S5.B.7.a. allows the use of handbills or signs, but S5.B.7.c. states the Permittee must post signs, even on privately owned shorelines.

#### **Suggested Remedy(ies) (Language changes highlighted):**

Requirements for posting publicly owned property moved from S5.B.7. to S5.B.5.

#### **S5.B.7. (Page 27): Posting Private Property and Businesses**

**S5.B.7.a. (Page 27):** The Permittee must post signs or deliver handbills to each private residence or business property within 400 feet of the affected area that are a minimum of eight and one half (8 ½) by eleven (11) inches in size.

**S5.B.7.b. (Page 27):** If the Permittee uses handbills, it must secure them to the residences or businesses in a fashion that will hold them in place but will not damage property.

**S5.B.7.c. (Page 27):** If a residence or business property is only accessible by entering through a gate, the Permittee must post a sign at each gate that allows access to the treated area or is within 400 feet of a treated area. In these situations the Permittee does not need to deliver additional handbills or post additional signs along the shoreline or at the individual docks or moorages.

**S5.B.7.d. (Page 27):** If the Permittee posts signs, they must face the shore and be positioned in a manner most visible to residents. For undeveloped properties, one sign must be posted for every two hundred fifty (250) feet of shoreline.

## **24. Standard EPA testing protocols provides reporting limits.**

### **Current Language:**

**S7.B.7. (Page 32):** The method detection limit (MDL) and practical quantification limit (PQL)

**S7.B.8. (Page 32):** the results of all analyses, including concentration detected and reporting units.

### **Problem:**

(7) Standard EPA testing protocol provides reporting limits (RL) for rotenone and associated VOC analytes, not MDLs. MDLs are calculated via experiment. PQL is not appropriate here. Reporting limit is the most appropriate term. (8) Replace “reporting units” with “unit of measure” or “appropriate unit of measure”.

### **Suggested Remedy(ies) (Language changes highlighted):**

**S7.B.7. (Page 32):** The reporting limit (RL) of the chemical or analyte test for.

**S7.B.8. (Page 32):** The results of all analyses, including the concentration detected and appropriate unit of measure (e.g., ppb, mg/l, etc.).

## **25. Overly restrictive in which formulations are appropriate to apply**

### **Current Language:**

**S9.B.2.c. (Page 39):** The use of liquid rotenone is only authorized for treatments in areas where the application of powdered rotenone in slurry form is not practical by pumper boat equipped with outboard motor. Wasters typically treated with liquid formulations of rotenone include flowing water (e.g., rivers, streams, creeks), areas inundated with emergent vegetation, shallow areas, and areas where boats cannot be transported or launched. WDFW must treat open water areas that are

accessible by boat with powdered rotenone that is missed with water and applied as slurry, as described in Special Conditions S9.D

**S9.B.2.e.ii. (Page 40):** When treating rivers and streams the water downstream of the intended treatment areas must be deactivated, unless a) where non-treated waters within the Treatment Area can serve to dilute treated water to a calculated level <2 ppb rotenone: or b) where the treatment area ends in a location where the stream goes dry.

**Problem:**

This language should be deleted. WDFW is the expert in applying rotenone and which formulation is appropriate for use is contingent on a host conditions. Currently language restricts our ability to properly treat still (Powdered and liquid formulations) and flowing waters (Only liquid). Additionally, justification for the restriction of liquid rotenone formulation use is unclear and conflicts with EPA approved use.

**Suggested Remedy(ies) (Language changes highlighted):**

**S9.B.2.c. (Page 39):** ~~The use of liquid rotenone is only authorized for treatments in areas where the application of powdered rotenone in slurry form is not practical by pumper boat equipped with outboard motor. Wasters typically treated with liquid formulations of rotenone include flowing water (e.g., rivers, streams, creeks), areas inundated with emergent vegetation, shallow areas, and areas where boats cannot be transported or launched. WDFW must treat open water areas that are accessible by boat with powdered rotenone that is missed with water and applied as slurry, as described in Special Conditions S9.D~~

**S9.B.2.e.i. (Page 40):** Flowing waters outside of the treatment area (in either still or flowing waters) must be deactivated

**S9.B.2.e.ii. (Page 40):** Exceptions include when the receiving flowing water: (a) dilutes the concentration of rotenone treated water to an undetectable level (<2 ppb) or (b) goes dry or subsurface

## **26. Reporting Limit for VOC's should be used instead of a blanket mg/l (ppb)**

**Current Language:**

S9.F.4.(3) (Page 46): For treatments using liquid rotenone formulations that contain **volatile organic compounds** (VOCs) permittees must conduct pre-treatment VOC testing to determine if VOCs are present in the water body prior to treatment (background levels of VOCs). Analytical methods used for VOC monitoring must have a lower detection limit of at least 0.5 ppb.

Permittees are responsible for ensuring VOCs discharged to the water body from treatments have dissipated to background levels or dropped below 0.5 ppb before surface water withdrawal can resume. This can be done by either:



- a) Permittees must demonstrate that VOC concentrations in the treated water body have returned to pre-treatment levels, or
- b) Demonstrate that concentration are below 0.5 ppb for any VOC identified by the Safety Data Sheet (SDS) or label for the liquid rotenone product used.

**Problem:**

Reporting Levels may vary by VOC and so it is more appropriate to cite RLs than a universal application of 0.5ppb for VOCs.

**Suggested Remedy(ies) (Language changes highlighted):**

S9.F.4.(3) (Page 46): For treatments using liquid rotenone formulations that contain **volatile organic compounds** (VOCs) permittees must conduct pre-treatment VOC testing to determine if VOCs are present in the water body prior to treatment (background levels of VOCs). Analytical methods used for VOC monitoring must have a lower detection limit of at least 0.5 ppb. Permittees are responsible for ensuring VOCs discharged to the water body from treatments have dissipated to background levels or dropped below **RL's from appropriate EPA standardized laboratory testing protocols** before surface water withdrawal can resume. This can be done by either:

- a) Permittees must demonstrate that VOC concentrations in the treated water body have returned to pre-treatment levels, or
- b) Demonstrate that concentration are below **RL's from appropriate EPA standardized laboratory testing protocols** for any VOC identified by the Safety Data Sheet (SDS) or label for the liquid rotenone product used.

## **27. Unnecessary section / verbiage**

**Current Language:**

S9.D.2. (Page 40): The Permittee must apply powdered rotenone formulations using the best available and practical technology. The Permittee must use the best available and practical rotenone application technology that minimizes airborne dust, such as the method outlined in Finlayson et. al. 2018. "Semi-Closed Aspirator Systems for Application of Powdered Rotenone SOP: 9.1," in *Planning and Standard Operating Procedures for Use of Rotenone in Fish Management*, pp 107-109.

**Problem:** Unnecessary section/verbiage. There are numerous times in the document (including in S9) that cite the Product Label must be followed. Per the product label and SOP, powdered rotenone can only be applied via semi-closed aspirator or gelatin/sand mixture. We don't need section specifically stating this

**Suggested Remedy(ies) (Language changes highlighted):**

S9.D.2. (Page 40): ~~The Permittee must apply powdered rotenone formulations using the best available and practical technology. The Permittee must use the best available and practical rotenone application technology that minimizes airborne dust, such as the method outlined in Finlayson et. al. 2018. “Semi-Closed Aspirator Systems for Application of Powdered Rotenone SOP: 9.1,” in *Planning and Standard Operating Procedures for Use of Rotenone in Fish Management*, pp 107-109.~~

**28. Application equipment cannot be calibrated but are manually adjusted.**

**Current Language:**

S9.D.3.e (Page 40): Using calibrated equipment during deactivation procedures to achieve the minimum effective concentration of potassium permanganate to oxidize the piscicide within the deactivation zone. The Permittee must closely monitor potassium permanganate concentrations using methods provided in the Rotenone SOP Manual (Finlayson 2018) to keep residual permanganate levels at a concentration that effectively deactivates rotenone while minimizing damage to aquatic life downstream of the treatment area and deactivation zone.

**Problem:**

potassium permanganate/rotenone application equipment cannot be calibrated in the same sense a YSI water quality meter or laboratory instrument can be calibrated against a “standard” or “standard scale of reading”. Potassium permanganate dispensing equipment can be adjusted/metered to apply the correct concentration.

**Suggested Remedy(ies) (Language changes highlighted):**

S9.D.3.e (Page 40): ~~During deactivation, use dispensing equipment with a metering device to manually adjust potassium permanganate concentration as conditions change (e.g., stream discharge rates, rotenone concentration, biological demand, etc.)~~ The Permittee must closely monitor potassium permanganate concentrations using methods provided in the Rotenone SOP Manual (Finlayson 2018) to keep residual permanganate levels at a concentration that effectively deactivates rotenone while minimizing damage to aquatic life downstream of the treatment area and deactivation zone.

## 29. Additional reporting requirement for chain of lakes

### Current Language:

S9.F.1. (Page 41; Second Sentence): The Permittee must submit a sampling plan, for monitoring lake chains, for Ecology approval at least one month prior to treatment.

### Problem:

This is an additional and unnecessary reporting requirement. The lake chain monitoring design can be included in the pre-treatment plan. Results can be included in the post-treatment monitoring plan due February 1 of the following year.

### Suggested Remedy(ies) (Language changes highlighted):

S9.F.1. (Page 41; Second Sentence): When monitoring a chain of lakes, each individual waterbody need not be monitored. The Permittee must include the lake chain monitoring design in the Pre-Treatment Plan (G.1.b) submitted to Ecology each year. Results from lake chain monitoring must be included in the annual Monitoring Plan (S6.D.) due to Ecology on February 1 of the following year. Monitoring a chain of lakes does not diminish or eliminate the Permittees responsibility to monitor lakes with surface potable, irrigation, and/or livestock water rights.

## 30. GPS coordinate requirements incomplete and / or redundant

### Current Language:

S9.G.1.b.i. (Page 47): Name of surface water;

S9.G.1.b.iii. (Page 47): Section, township, range and the decimal latitude and longitude of the approximate center of the lake for still water;

S9.G.1.b.iv. (Page 47): Section(s), township, range of the watershed and the decimal latitude and longitude of the downstream boundary of the project area for flowing water.

### Problem:

S9.G.1.b.i. (Page 47): needs to include language about lake chains

S9.G.1.b.iii. (Page 47): redundancy in the requirement to report TRS and GPS.

S9.G.1.b.iv. (Page 47): redundancy in the requirement to report TRS and GPS. Should include “top” and “bottom” of the treatment area and deactivation zones.

### Suggested Remedy(ies) (Language changes highlighted):

S9.G.1.b.i. (Page 47): name of waterbody(ies). If the treatment area is a chain of lakes, indicate which lakes will not be monitored;

S9.G.1.b.iii. (Page 47): Provide either the section(s), township, and range or decimal latitude and longitude of the approximate center of the waterbody to be treated;

S9.G.1.b.iv. (Page 47): Provide either the section(s), township, and range of the watershed or decimal latitudes and longitudes of the furthest upstream and downstream points of the treatment area and deactivation zone;

### **31. Piscicide should be replaced with “rotenone”**

#### **Current Language:**

**S9.B.2. Last Paragraph (Page 40):** Piscicides treatments may be applied by pumper boats, airboat, helicopters, canoe, trucks, ATV’s, backpack sprayer, *drip cans*, *gelatin/sand mixtures*, or other methods consistent with the 2018 AFS Rotenone SOP Manual.

#### **Problem:**

piscicide should be replaced with rotenone as the SOP and application methods are for rotenone at the moment. Piscicides infer there are more than just rotenone available/authorized for use.

#### **Suggested Remedy(ies) (Language changes highlighted):**

**S9.B.2. Last Paragraph (Page 40):** Rotenone formulations may be applied by pumper boats, airboat, helicopters, canoe, trucks, ATV’s, backpack sprayer, *drip cans*, *gelatin/sand mixtures*, or other methods consistent with the 2018 AFS Rotenone SOP Manual.

### **32. Clarify additional testing requirement as a subset of conditions per formulation used**

#### **Current Language:**

**S9.E. Second paragraph (Page 40):** For treatments using liquid rotenone formulation that contain volatile organic compounds (VOC’s), as identified by the product Safety Data Sheet (SDS): provide an alternative potable water supply for human consumption from the time of piscicide application until the treated water body is shown to have returned to pre-treatment levels for VOC’s or VOC levels are below 0.5 ppb (Special Condition S9.F.4).

#### **Problem:**

The second paragraph should be a sub bullet to For potable surface water rights because it’s an additional testing requirement to testing for rotenone concentration. As formatted it looks like it’s a separate bullet/subsection. Reporting Levels may vary by VOC and so it is more appropriate to cite RLs than a universal application of 0.5ppb for VOCs.

**Suggested Remedy(ies) (Language changes highlighted):**

1. For potable surface water rights: provide an alternative potable water supply for human consumption from the time of rotenone application until the treated water body is shown to be below 40 ppb rotenone (Special Condition S.9.F.4)
  - a. For treatments using liquid rotenone formulations that contain volatile organic compounds (VOC's), as identified by the product Safety Data Sheet (SDS): provide an alternative potable water supply for human consumption from the time of piscicide application until the treated water body is shown to have returned to pre-treatment levels for VOC's or VOC levels **are below appropriate laboratory RL's** (Special Condition S9.F.4).

### **33. S4. Table 3 Edits**

**Current Language:**

S4.Table 3. (page 20; Rotenone (row) Restrictions / Advisories (column)): Follow EPA Label restrictions and Rotenone SOP Manual.

S4.Table 3. (page 20; Rotenone (row) Treatment Limitations (column)):

- Whole water body application permitted.
- The Permittee must comply with all the requirements on the product label. Permit requirements on the Product Label. Permit requirements do not reduce the requirements on the Product Label.
- The application or direct supervision of the application of piscicide and potassium permanganate is performed by an aquatic licensed pesticide applicator
- All pesticide applicators must have current training in the use of equipment necessary to apply piscicides correctly.
- Endangered Species Act (ESA) listed fish species must not be present at the time of treatment and for three months following treatment, unless the state and federal fish agencies approve treatment.
- Except for emergencies or when in situations where invasive species may move out of water body if treatment is delayed, limit treatment to periods of low water, usually September or October, unless the water body has a closed basin.
- Unless the outlet is being treated for invasive species, in water bodies with flowing outlets, rotenone must be deactivated to eliminate downstream impacts. Below the deactivation zone (distance the water travels in 20 minutes), the rotenone must be totally neutralized using potassium permanganate. Residual potassium permanganate, not to exceed 1 mg/L past the deactivation zone.
- Follow monitoring requirements in Tables 4, 5, 6, 7 and 8.

S4.Table 3. (page 20; Potassium permanganate (row) Restrictions /Advisories (column)):  
blank

S4.Table 3. (page 20; Potassium permanganate (row) Treatment Limitations (column))

- Use under tarpaulins or impermeable covers secured over the invasive organisms.
- Limit treatment to docks, boat hulls, and fixed objects or defined areas where the Permittee can secure impermeable covers.
- The Permittee may treat enclosed, small water bodies where the threat of the invasive species outweighs other environmental damage.
- When used to deactivate rotenone treated waters – use calibrated equipment to achieve the minimum effective concentration of potassium permanganate necessary to oxidize the rotenone within the deactivation zone.

**Problem:**

Redundant restrictions, editorial consistency

**Suggested Remedy(ies) (Language changes highlighted):**

S4.Table 3. (page 20; Rotenone (row) Restrictions / Advisories (column)): Follow the EPA Product label

S4.Table 3. (page 20; Rotenone (row) Treatment Limitations (column)):

- Whole water body application permitted.
- The Permittee must comply with all the requirements on the product label. Permit requirements on the Product Label. Permit requirements do not reduce the requirements on the Product Label.
- Treatments must be performed by or under the supervision of a **licensed applicator**
- State and/or Federal ***sensitive, threatened, or endangered species*** must not be present at the time of treatment and for three months following treatment, unless appropriate state and federal agencies approve of the treatment
- Flowing waters outside of the treatment area (in either still or flowing waters) must be deactivated using potassium permanganate. Rotenone must be undetectable (<2 ppb) below the ***deactivation zone*** and residual potassium permanganate cannot exceed 1 ppm,
- ~~All pesticide applicators must have current training in the use of equipment necessary to apply piscicides correctly.~~
- ~~Endangered Species Act (ESA) listed fish species must not be present at the time of treatment and for three months following treatment, unless the state and federal fish agencies approve treatment.~~

- Except for emergencies or when in situations where invasive species may move out of water body if treatment is delayed, limit treatment to periods of low water, usually September or October, unless the water body has a closed basin.
- Unless the outlet is being treated for invasive species, in water bodies with flowing outlets, rotenone must be deactivated to eliminate downstream impacts. Below the deactivation zone (distance the water travels in 20 minutes), the rotenone must be totally neutralized using potassium permanganate. Residual potassium permanganate, not to exceed 1 mg/L past the deactivation zone.
- Follow monitoring requirements in Tables 4, 5, 6, 7, 8 and 9.

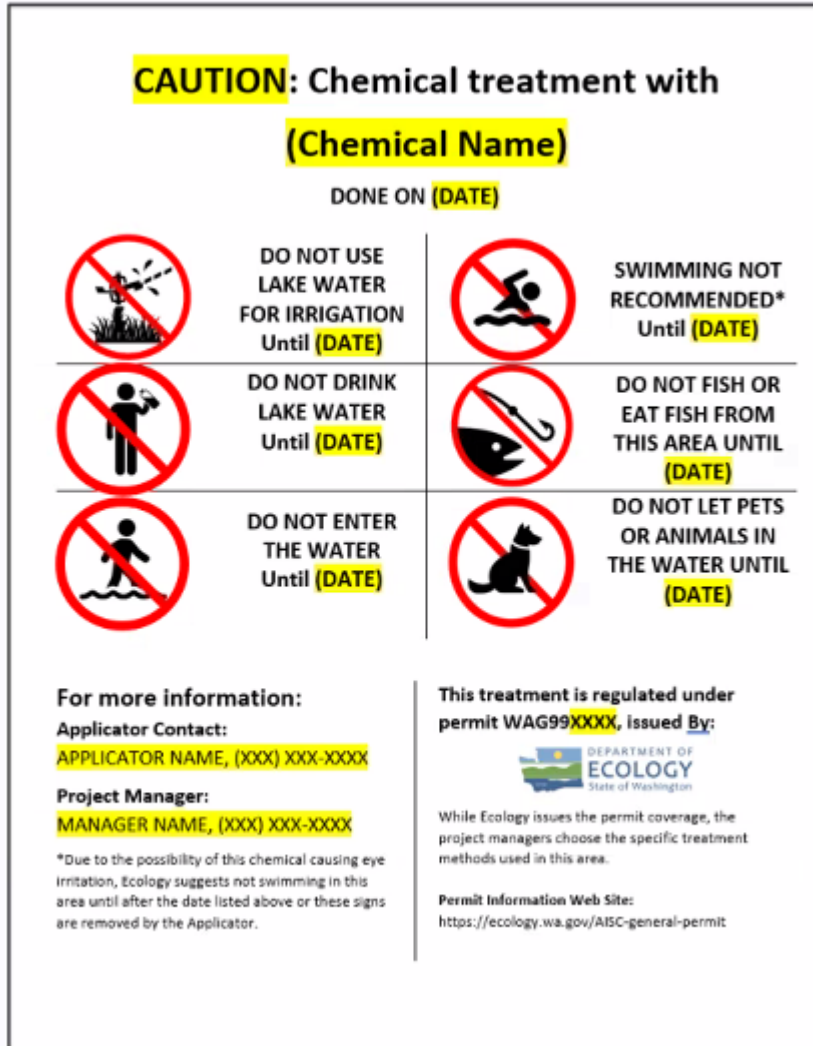
S4.Table 3. (page 20; Potassium permanganate (row) Restrictions /Advisories (column)): Follow the EPA Product Label

S4.Table 3. (page 20; Potassium permanganate (row) Treatment Limitations (column))

- Use under tarpaulins or impermeable covers secured over the invasive organisms.
- Limit treatment to docks, boat hulls, and fixed objects or defined areas where the Permittee can secure impermeable covers.
- The Permittee may treat enclosed, small water bodies where the threat of the invasive species outweighs other environmental damage.
- When used to deactivate rotenone, use dispensing equipment with a metering device to manually adjust potassium permanganate concentration as conditions change (e.g., stream discharge rates, rotenone concentration, biological demand, etc.).

**34. Sign templates require dates for return to safe use, which cannot be accurately predicted following rotenone treatments.**

**Current Language:**



**S5. B.4.a. (page 25): The Permittee Must:** Use the sign templates provided on Ecology’s permit website. Ecology does not allow modifications of templates, except that the Permittee must fill in label or other restrictions about the chemical or product to be used. The Permittee may provide additional information about the project on the sign, including a treatment map. In the event that the Permittee applies more than one chemical or product, the Permittee may include information about all chemical/ products on one sign.



**Problem:**

The requirement to provide dates that indicate a return to safe use are inconsistent with the nature of rotenone treatments. WDFW is required to monitor toxicity for all rotenone treatments, as well as VOCs when liquid formulations are applied. The period of rotenone toxicity and persistence of VOCs can vary substantially and are influenced by a host of environmental conditions thus, it is not possible to preemptively provide dates of safe use following treatment. The provision stipulated in S5.B.4.a, precludes the Permittee’s ability to provide useful information via signage, as no modifications to the sign template are allowed. Also, the pictograph of a person drinking lake water: “Do not drink lake water until...[Date]”. The WDFW does not regulate drinking water and cannot guarantee safe drinking water from a lake.

**Suggested Remedy(ies) (Language changes highlighted):**

Either a rotenone treatment-specific sign template must also be included on Ecology’s website as an alternative for use with the permit OR it must be noted in the permit that dates for resumption of safe uses following rotenone treatments are influenced by a number of environmental variables and cannot be accurately predicted; thus, safe use dates will be determined via monitoring, and signage will be removed when restrictions are no longer in effect. WDFW would be allowed to write “To be determined” or “Until further notice” in the “Date” spaces for the various use restrictions on the sign template.

**35. Editorial Comments and Consistency in Section 9.**

**Current Language:**

**S9. B.1.a. (page 39):** The application or direct supervision of the application of piscicide and potassium permanganate is performed by an **aquatic licensed pesticide applicator**

**S9. B.1.b. (page 39):** All pesticide applicators must have current training in the use of equipment necessary to apply piscicides correctly

**S9. B.1.c. (page 39):** appropriately trained personnel service and/or calibrate the application equipment prior to each application

**Problem:**

**S9. B.1.a. (page 39):** the term does not align with the license title and should be corrected in the glossary as well as its reference here.

**S9. B.1.b. (page 39):** this section needs to be changed to support staff being trained prior to treatments

**S9. B.1.c. (page 39):** WDFW application equipment isn’t and cannot be calibrated. Even in the instance of drip cans and KMNo4 dispensing equipment, these are not calibrated but manually adjusted. The language is not applicable.

**Suggested Remedy(ies) (Language changes highlighted):**

**S9. B.1.a. (page 39):** Treatments must be performed by or under the supervision of a *licensed applicator*.

**S9. B.1.b. (page 39):** Applicators must receive training on the use of application equipment prior to the treatment

**S9. B.1.c. (page 39):** Application equipment must be serviced and in proper working order prior to treatment.

**36. Housekeeping Edits (typos, format, consistency, etc.)**

**Entire document:** References to WAC's (especially) and RCW's need to be double-checked. Many are incorrect or the WAC's no longer exist.

**S1.A.1.a.ii (Page 7)**

*Reads:* Washington Aquatic Nuisance Species Committee

*Remedy:* Washington Aquatic Nuisance Species Committee (ANS)

**S1.A.1.a.v (Page 7)**

*Reads:* ... or the Washington Aquatic Nuisance Species (ANS) Committee, or applicable...

*Remedy:* ...ANS, or applicable...

**S1.A.2.a.ii (Page 8)**

*Reads:* ... or the Washington Invasive Species Council (WISC) management...

*Remedy:* ...or the WISC management...

**S1.A.2.a.v (Page 8)**

*Reads:* ... such as the USFWS

*Remedy:* ...such as the USFWS.

**S1.B.2. (Page 8)**

*Reads:* ... Ecology regulates its discharge...

*Remedy:* ...Ecology regulates discharge...

**S2.B. (Page 10)**

*Reads:* Any state government entity...

*Remedy:* Any state agency...

**S2.B.1. (Page 10)**

*Reads:* submit an electronic application form (NOI) available through Ecology's Water Quality Permitting Portal (WQWebPortal).

*Remedy:* Submit an electronic Notice of Intent (NOI) application form through Ecology’s Water Quality Permitting Portal (WQWebPortal).

**S2.B.3. (Page 10)**

*Reads:* Any state government entity seeking to obtain coverage for activities covered under this permit must:

*Remedy:* Any state government agency seeking to obtain coverage for activities covered under this permit must:

**S2.B.6. (Page 10)**

*Reads:* ...containing the Public Notice and newspaper date to Ecology for each week the Public Notice is published, or submit a signed, notarized affidavit of publication indicating what is included in the Public Notice and the scheduled Public Notice...

*Remedy:* ...containing the public notice and newspaper date to Ecology for each week the public notice is published, or submit a signed, notarized affidavit of publication indicating what is included in the public notice and the scheduled public notice...

**S2.D. (Page 11)**

*Reads:* Entities that propose significant changes to the aquatic and invasive species control activities authorized by their original permit coverage, such as expanding the area covered, must revise...

*Remedy:* Permittees (or Washington government agencies) that propose significant changes to the control activities authorized under this permit, such as expanding the area covered, must revise, and resubmit permit application materials in accordance with Special Condition S2.B.

**S3.A.7. (Page 13)**

*Reads:* ... restrictions and SOPs

*Remedy:* ... restrictions and SOPs.

**S2.F. (Page 12)**

*Reads:* ... the Permittee must submit an NOT... unless the permittee...

*Remedy:* ... the Permittee must submit a NOT... unless the Permittee...

**S4.D.6. (Page 16)**

*Reads:* ...to protect salmon, steelhead, and bull trout...

*Remedy:* ...to protect Salmon, Steelhead, and Bull Trout...

**S4.D.6. (Page 16)**

*Reads:* modifications..

*Remedy:* modifications.

**Table 2 – Tracer and Marker Dyes, Treatment Limitations Column (Page 17)**

*Reads:* Follow the product label, and notification requirements in S5.B.8

*Remedy:* Follow the product label and notification requirements in S5.B.8.

**Table 2 – Heat/Freezing, Restrictions/Advisories Column (Page 18)**

*Reads:* None

*Remedy:* None.

**Table 3 – Sodium chloride & Potassium chloride, Restrictions/Advisories Column (Page 19)**

*Reads:* None

*Remedy:* None.

**Table 3 – Rotenone, Restrictions/Advisories Column (Page 20)**

*Reads:* Follow EPA label restrictions and Rotenone SOP Manual

*Remedy:* Follow EPA label restrictions and AFS Rotenone SOP Manual.

**Table 3 – Rotenone, Treatment Limitations Column, 3<sup>rd</sup> Bullet (Page 20)**

*Reads:* ...licensed pesticide applicator

*Remedy:* ... licensed pesticide applicator.

**Table 3 – Rotenone, Treatment Limitations Column, 8<sup>rd</sup> Bullet (Page 20)**

*Reads:* ...licensed pesticide applicator

*Remedy:* ... licensed pesticide applicator.

**Table 3 – Pages 21 & 22**

*Period use in columns is very inconsistent – need to add periods in Restrictions/Advisories Column and Treatment Limitations Column to be consistent with the remainder of the table.*

**S5.B.2. (Page 23)**

*Reads:* ...listed in Condition S5.3.e below.

*Remedy:* listed in Condition S5.B.3.e below.

**S5.B.8.b. (Page 28)**

*Reads:* ...include the following information in S5.B.3.e.

*Remedy:* ...include the information in S5.B.3.e.

**S7.B.8. (Page 32)**

*Reads:* reporting units.

*Remedy:* reporting units

**S9 (Page 37)**

*Reads:* The Special Conditions this section...

*Remedy:* The Special Conditions in this section...

**S9.A.2 (Page 37)**

*Reads:* ...for native fish and habitat restoration...

*Remedy:* ...for native fish and/or habitat restoration...

**S9.B.2.c. (Page 38)**

*Reads:* ...Special Condition S9.D

*Remedy:* ...Special Condition S9.D.

**S9.B.2.e. (Page 39)**

*Reads:* ...piscicide treated waters is required for the following situations.

*Remedy:* ...piscicide-treated waters is required for the following situations:

**S9.B.2.e. (Page 39)**

*Reads:* ...level <2 ppb rotenone: or b)...

*Remedy:* ...level <2 ppb rotenone, or b)...

**S9.B.2.e (Page 39)**

*Reads:* Piscicides treatments may be applied by pumper boat, airboat, helicopters, canoe, trucks, ATV's, backpack sprayer, drip cans, gelatin/sand mixtures, or other methods consistent with the 2018 AFS Rotenone SOP Manual.

*Remedy:* Piscicide treatments may be applied by pumper boat, airboat, helicopter, canoe, truck, ATV, backpack sprayer, drip can, gelatin/sand mixture, or other methods consistent with the 2018 AFS Rotenone SOP Manual.

**S9.D.2. (Page 40)**

*Reads:* ...such as the method outlined in Finlayson et al. 2018. "Semi-Closed Aspirator Systems for Application of Powdered Rotenone SOP: 9.1," in Planning and Standard Operating Procedures for Use of Rotenone in Fish Management, pp 107-109.

*Remedy:* ...such as the method outlined in the AFS Rotenone SOP 9.1 "Semi-Closed Aspirator Systems for Application of Powdered Rotenone" (pp 107-109).

*Alternative:* It doesn't matter how you reference the 2018 AFS Rotenone SOP Manual...just be consistent throughout the document.

**S9.D.3.c. (Page 40)**

*Reads:* Effectively deactivate treated...

*Remedy:* Effectively deactivating treated...

**S9.D.3.d. (Page 40)**

*Reads:* Ensuring that rotenone is totally deactivated and a residual potassium permanganate level of 1 mg/L (ppm) is maintained at the end of the deactivation zone.

*Remedy:* Ensuring that rotenone is totally deactivated and a residual potassium permanganate level  $\leq$  1 mg/L (ppm) is maintained at the end of the deactivation zone.

**S9.D.3.e. (Page 40)**

*Reads:* ...in the Rotenone SOP Manual (Finlayson 2018) to keep residual permanganate levels...

*Remedy:* ...in the AFS Rotenone SOP Manual (Finlayson et al. 2018) to keep residual potassium permanganate levels...

*Alternative:* It doesn't matter how you reference the 2018 AFS Rotenone SOP Manual - just be consistent throughout the document.

### **S9.E. (Pages 40-41)**

*Reads:* For treatments using rotenone:

For potable surface water rights: provide an...

For treatments using liquid rotenone formulations that contain volatile organic compounds (VOC's), as identified by the product Safety Data Sheet (SDS):

For irrigation and livestock watering rights: Provide an...

*Remedy:* For treatments using rotenone:

1. For potable surface water rights: provide an...
2. For treatments using liquid rotenone formulations that contain volatile organic compounds (VOC's) identified by the product Safety Data Sheet (SDS):
3. For irrigation and livestock watering rights: Provide an...

### **S9.F. (Page 41)**

*Reads:* 1. Use the actual...

2. Conduct monitoring...

#### **1. Monitoring a Chain of Lakes**

*Remedy:* a. Use the actual...

b. Conduct monitoring...

#### **1. Monitoring a Chain of Lakes**

### **S9.F.2.; Table 5, Footnote 1 (Page 42)**

*Reads:* 1. WDFW must use appropriate analytical techniques to determine organic demand in still waters

*Remedy:* 1. WDFW need monitor only when potassium permanganate is used to deactivate the treatment.

2. WDFW must use appropriate analytical techniques to determine organic demand.

### **S9.F.2.; Table 6, Footnote 1 (Page 42)**

*Reads:* 1. WDFW may use the analytical method given in the 2018 AFS Rotenone SOP Manual (Finlayson et al. 2018) in place of the trout toxicity bioassay. WDFW, when using this analytical method, must demonstrate that rotenone concentrations are at or below 3.75 µg/L.

*Remedy:* 1. WDFW may use the analytical method given in the AFS Rotenone SOP Manual (Finlayson et al. 2018) in place of the trout toxicity bioassay. WDFW, when using this analytical method, must demonstrate that rotenone concentrations (ai) are at or below 3.75 ppb.

### **S9.F.2.; Table 7 (Page 43)**

Table 7 is a combination of pre- and post-treatment monitoring requirements for “Downstream and Deactivated Waters” and should be divided into two tables for consistency with Tables 5 (Pre-Treatment Monitoring for Still Water) and 6 (Post-Treatment Monitoring for Still Water)

and Tables 8 (Pre-Treatment Monitoring of Treated Flowing Water) and 9 (Post-Treatment Monitoring of Treated and Deactivated Flowing Waters).

**S9.F.2.; Table 7, Footnote 2 (Page 43)**

*Reads:* Must use the guidelines provided in Engstrom-Heg (1971) to determine organic demand for  $\text{KmnO}_4$ .

*Remedy:* Must use appropriate analytical techniques to determine organic demand.

**S9.F.2.; Table 7, Footnote 3 (Page 43)**

*Reads:* Must measure  $\text{KmnO}_4$  in waters downstream of the deactivation zone using either spectrophotometrically or using a colorimeter.

*Remedy:* Must measure potassium permanganate in waters downstream of the deactivation zone using either spectrophotometer or colorimeter.

**S9.F.2.; Table 7, Footnote \* (Page 43)**

Delete footnote \* (outdated and unneeded reference)

**S9.F.3.; Table 8, Footnote 2 (Page 44)**

*Reads:* Must use the appropriate analytical techniques (e.g., Engstrom-Heg, colorimeter, etc.) to determine organic demand for  $\text{KmnO}_4$

*Remedy:* Must use appropriate analytical techniques to determine organic demand.

**S9.F.3.; Table 9, Footnote 1 (Page 45)**

*Reads:* Must measure  $\text{KmnO}_4$  in waters downstream of the deactivation zone either spectrophotometrically or using a colorimeter.

*Remedy:* Must measure potassium permanganate in waters downstream of the deactivation zone using either spectrophotometer or colorimeter.

**S9.F.3.; Table 9, Footnote \* (Page 45)**

Delete footnote \* (unneeded reference)

**S9.F.4.1 (Page 46)**

*Reads:* Permittees must test the treated water body until it is shown to be below the EPA estimated drinking water level of concern of 40 ppb for rotenone. Permittees must use one of the methods given in the 2018 AFS Rotenone SOP Manual.

*Remedy:* Permittees must test the treated water body until it is shown to be below the EPA estimated drinking water level of concern of 40 ppb for rotenone. Permittees must use one of the methods given in the AFS Rotenone SOP 16.1 “Monitoring Rotenone Concentrations in Surface and Ground Waters” (pp 157-163).

*Alternative:* It doesn’t matter how you reference the 2018 AFS Rotenone SOP Manual...just be consistent throughout the document.

**S9.G.1.b.iii-vi (Page 47)**

*Reads:* iii. Section, township, range...

- iv. Section(s), township, range of the watershed...
- v. If the water body...
- vi. If the water body to be treated is flowing water, a stream description:, length, discharge of stream/outlet (cubic feet per second);
- vii. Surface water description...
- viii. Stream description: , length...

*Remedy:* iii. Section, township, range...

- iv. Section(s), township, range of the watershed...
- v. If the water body...
- vi. If the water body to be treated is flowing water, a stream description: Length, discharge of stream/outlet (cubic feet per second);
- vii. Surface water description...
- viii. Stream description: Length...

### 37. Appendix A – Definitions (recommended amendments and rewrites of definitions)

**Applicator:** An individual that applies pesticides to control pests. An applicator may be licensed by the Washington Department of Agriculture or under the direct supervision of licensed applicator (see licensed applicator).

~~**Aquatic licensed pesticide applicator:** Any individual with an aquatic pesticide endorsement who is licensed as a 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.~~

**Aquatic Pesticide Endorsement:** An endorsement required by the Washington State Department of Agriculture for an applicator who applies pesticides to water bodies to control aquatic animals (e.g., fish, insects, etc.).

**Constructed water body:** An artificial water body **less than or equal to five surface acres(?)** excavated in an area that is not part of a previously existing and naturally occurring watercourse (such as a pond, stream, wetland, etc.).

**Control:** Any type of pesticide treatment intended to remove target aquatic animals from an entire or portion of a still water or flowing water.

**Deactivation Zone:** The area (length) of flowing water beginning at the point where KMnO<sub>4</sub> is added to the stream discharge to the point downstream where rotenone treated water has been deactivated to an undetectable concentration (<2 ppb). The travel time of water in the deactivation zone moving between these two points is typically 30 minutes.



**Drip Cans:** A container equipped with a delivery apparatus that provides a uniform flow and constant concentration of liquid rotenone to flowing waters.

~~**Endangered Species:** Means, as defined in 16 USC 1532(6): Any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this Act would present an overwhelming and overriding risk to man.~~

**Experimental Use Permit:** Federal and state permits that allow for use of pesticides unregistered in Washington State or registered pesticides but in a manner currently not allowed by the Product Label for experimental purposes.

**Licensed Pesticide Applicator:** An individual who is licensed by the Washington Department of Agriculture to use and/or supervise the use of restricted use pesticides. For this permit, a licensed pesticide applicator must also hold an Aquatic Pesticide Endorsement.

**Marker/Tracer Dyes:** Liquid or powdered dyes, usually fluorescent colors, that are added to pesticides to better mark coverage or directly to water to analyze flow. Marker and tracer dyes are considered nontoxic, make no pesticidal control claims, and are not registered as restricted use pesticides by the EPA.

- ~~i. **Marker Dyes:** Colorants that are sprayed onto the targeted area along with the pesticide. Marker dyes allow better targeting of pesticide sprays since treated and untreated areas are more clearly seen by the applicator. Marker and tracer dyes are generally considered nontoxic, and make no pesticidal or pest control claims, therefore such dyes are not registered as pesticides by EPA.~~
- ~~ii. **Tracer Dyes:** Liquid or powdered dyes, usually fluorescent, added to another liquid or water to analyze the flow. Marker and tracer dyes are generally considered nontoxic, and make no pesticidal or pest control claims, therefore such dyes are not registered as pesticides by EPA.~~

**Notice of Intent (NOI):** This term is used to describe the process for applying for coverage under this permit. NOI forms can be found electronically on Ecology's website.

**Notice of Termination (NOT):** Notice of Termination (to terminate permit coverage). This term is used to describe the completed request to terminate permit coverage form.

**Non-Governmental Organization (NGO):** A group of individuals that functions independently of any government to pursue goals and aspirations related to public, social, or political good. NGOs typically are non-profit.

~~**Non-governmental organizations:** Entities such as the Nature Conservancy that may have a role in managing non-native invasive species. Many non-governmental organizations are non-profit.~~

~~**Non-native invasive:** An organism outside of its natural or historical range of distribution. Organisms considered to be non-native were not endemic to Washington prior to European settlement. Many non-native organisms are not always invasive or problematic.~~

**Permittee:** For this permit, the Washington Department of Fish and Wildlife, Washington State Department of Agriculture, and where appropriate contractors covered under this permit to apply aquatic pesticides to control aquatic animals and invasive insects.

**Public Entrances:** Areas such as public parking lots where numerous people can access public pathways. Although the public may be able to access public pathways at multiple locations, the Permittee must post two foot by three foot signs only in the areas where many people routinely access the pathway.

**Federal and State Sensitive, threatened, or endangered species:**

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

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

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

~~**Threatened Species:** Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.~~

**Treatment:** The application of a pesticide product to waters of the state for the purpose of removing aquatic animals and invasive aquatic insects.

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

**Washington State government agencies:** For this permit, Washington state government agencies include the Washington Department of Fish and Wildlife, Washington State Department of Agriculture, and where appropriate contractors that have coverage under this permit to apply aquatic pesticides to control aquatic animals and aquatic invasive insects.

**Questions:**

**1. S1.2.B.3 (Page 8):**

“Any constructed water body five acres or less in surface area with no discharge to other surface waters of the state during treatment and for two weeks after treatment.”

Q: Please provide an explanation on where the  $\leq 5$  surface acres come from? What is significant about 5 surface acres? Should the  $\leq 5$  surface acres be incorporated into the definitions?

**2. S5.B.1. (Page 23):**

“Each treatment season, the Permittee must post information on its website about the locations of any planned treatments, timing of treatments, chemicals or products proposed for use, and information about the organisms to be treated. Continuing throughout the treatment season, the Permittee must update their website with changes or additions to the information about their activities under this permit.”

Q: Since our SEPA documents are posted on our website, does that satisfy this requirement? All the information requested is included in our SEPA application, and no changes or additions are generally made.

**3. S4.D.2. (Page 15) and S9.B.3. (Page 39)**

Except for emergencies, the Permittee must make every effort to avoid pesticide applications that restrict public water use during opening week of fishing season...

Except for emergencies, the Permittee must make every effort to avoid pesticide applications that restrict public water use during the opening week of fishing season or during tribal fisheries...

- Which fishing season? Needs specificity. Is this a problem as it could be applied to any season that opens?

**4. S9.F.2., Table 7 (Monitoring of Downstream and Deactivated Still Water): (Pages 42-43)**

Table of parameters to be monitored.

- What are Downstream and Deactivated Still Waters, and why do they matter? Why would we monitor any still waters downstream of a treatment area when any surface water connection is required to be deactivated and monitored - the incoming water would be monitored and detoxified before it enters the downstream still water? Does this table refer to cove sampling? Is this table necessary?

**5. S11.B.1.: (Page 57)**

At least 30 days prior to the first treatment conducted under this permit, the Permittee must submit a Spill Prevention and Response Plan to Ecology, or when necessary update an existing plan, that addresses all types of treatments to be done by the Permittee.

- Does this mean we don't have to submit a spill plan for each treatment? We can find no other requirement in the Permit for a spill plan.

**6. S9.F.Table 5 (Page 42):**

The table indicates a requirement to measure alkalinity and organic demand in still waters. These parameters are unnecessary and are only important when performing whole lake potassium permanganate treatments to deactivate rotenone. Measuring alkalinity and organic demand are not post-treatment requirements

Q: given the evidence we've supplied to support these data are not utilized for still waters, why are Permittees required to monitor these parameters.

**7. Appendix A – Definitions. (Page 70)**

Privately or publicly-owned shorelines: Any shoreline area without public access, owned by either an individual or a public entity.

- Can there be publicly owned shoreline without public access (e.g., via boat)?