

Treated Water Use Restrictions (Numbers of Days)

Trade Name	Common Name	Human			Animal	Irrigation		
		Drinking	Swimming	Fish Consumption	Drinking	Turf	Forage	Food Crops
Aquathol K	endothall ^a	7-25	1	0	7-25	0	7-25	7-25
Aquathol Super K	endothall ^a	7	1	0	7	0	7	7
Various	copper complexes	0	0	0	0	0	0	0
	copper sulfate ^a	0	0	0	0	0	0	0
Aqua-Kleen, DMA 4 IVM, Navigate	2,4-D	21 ^b	--	--	0	21 ^c	21 ^c	21 ^{c,d}
Habitat	imazapyr ^a	2	0	0	0	120 ^d	120 ^d	120 ^d
Hydrothol 191, Teton	endothall	7-25	1	0	7-25	7-25	7-25	7-25
Renovate 3	triclopyr	- ^f	0	0	0 ^g	0 ^h	120 ^h	120 ^h
Reward, Weedtrine-D	diquat	1-3	0	0	1	1-3	5	5
Rodeo, AquaPro	glyphosate	0	0	0	0	0	0	0
Sonar (Sonar AS, Sonar ARP, Sonar PR, Sonar QR)	fluridone ^a	0	0	0	0	30 ⁱ	30 ⁱ	30 ^h
Stingray	carfentrazone ethyl	1 ^k	0	0	1 ^k	14 ^k	14 ^k	14 ^k
GreenClean	sodium percarbonate	no	0	0	no	0	0	0
GreenCleanPro, PAK 27, Phycomycon SPC	sodium percarbonate peroxyhydrate ^a	0	0	0	0	0	0	0
Magnacide H	acrolein ^a	no	No	no	no	See label		
Clipper	flumioxazin	0	0	no	0	0-3	0	5
petroleum distillate	xylene ^a	no	No	no	no	See label		
Clearcast	imazamox	0 ⁱ	0	0	0	See label		
Tradewind	bispyribac-sodium	0	0	0	0 ⁱ	0	0	0 ⁱ
Galleon SC	penoxsulam	0	0	0	0	0 ^m	0 ^m	0 ^{m,l}
ProcellaCOR EC	florpyrauxifen-benzyl	See label	0	0	See label	See label	See label	See label
Oasis	topramezone	0 ^x	0 ^x	0 ^x	See label	See label	See label	See label
Phoslock	lanthanum-modified bentonite clay	See label	See label	See label	See label	0	0	0

^a For Washington there are additional water use restrictions mandated within the Aquatic Plant and Algae Management General Permit and the Irrigation Canal General Permit.

^b See label for distance allowed from potable water intake.

^c Shorter interval may be used if approved assay indicates less than 0.1 ppm 2,4-D.

^d Do not use in ditches where water is used to irrigate highly susceptible crops, such as cotton, grapes, and tomatoes.

^e Less if Habitat herbicide residue levels are determined by laboratory analysis or other appropriate means of analysis to be below 1 ppb.

^f Drinking water can only be used when concentration of Renovate 3 is less than 0.4 ppm as determined by laboratory analysis.

^g See label for drinking water or grazing restrictions for lactating dairy animals.

^h If Renovate 3 residue levels are determined to be nondetectable by laboratory analysis, there is no restriction for use of irrigation water on established grasses.

ⁱ Restrictions suggested by manufacturer.

^j No restrictions if less than 20% of the water surface is treated.

^k When concentration is less than 50 ppb

^l When concentration is less than 1 ppb

^m When concentration is less than 30 ppb

Control of Some Common Aquatic Weeds with Herbicides

	Copper Complexes Copper Sulfate ^a	Hydrothol 191	Reward	2,4-D	Aquathol K or Super K	Glyphosate	Sonar	Habitat	Renovate 3	Stingray b	Galleon SC	Tradewind	Clearcast	Clipper	GreenClean	GreenClean Pro, PAK 27
ALGAE																
cyanobacteria or potentially environmentally harmful algae (single cell)	x	X													x	x
filamentous and water net	x	X	x											x	x	x
chara and nitella	x	X														
FLOATING WEEDS (NOT ATTACHED TO BOTTOM)																
azolla			x			x				x	x	x	x			
duckweed			x				x			x	x	x		x		
watermeal			x				x	x		x	x			x		
EMERSED WEEDS (ATTACHED TO BOTTOM)																
watershield				x			x		x	x			x			
fragrant waterlily				x			x	x	x				x			
frogbit			x	x				x	x	x			x	x		
water pennywort			x					x			x	x	x	x		
flowering rush			x				x						x			
parrotfeather			x	x	x		x	x	x	x	x	x	x			
spikerush				x			x				x		x			
SUBMERSED WEEDS																
bladderwort			x		x		x						x			
coontail		x	x		x		x		x				x	x		
bushy pondweeds (najas)		x	x		x		x						x	x		
Eurasian watermilfoil		x	x	x	x		x		x	x	x		x	x		
fanwort		x					x		x					x		
pondweeds (Potamogeton)			x		x		x				x	x	x	x		
egeria / elodea	x	x	x				x				x					
hydrilla		x					x					x	x	x		
EMERGED / SHORELINE WEEDS																
water primrose						x		x	x							
yellow flag iris						x		x								
purple loosestrife						x		x								
phragmites & reed canary grass						x		x								
smartweed				x		x	x	x	x		x		x			
arrowhead		x	x	x			x	x	x		x		x			
willows				x		x		x	x	x						
cattail			x			x		x					x			
bulrush						x		x			x					
burweed				x												

NOTE: X indicates suppression or control of the specified aquatic weed by a particular herbicide. It is not intended that any suggested usage in this table be in violation with existing regulations or manufacturer's label.

^a Use of products containing copper are restricted because its toxicity to fish and its effectiveness in controlling aquatic weeds is depend on total alkalinity of the water. Copper cannot be used anywhere in Washington, except irrigation canals. This requires a NPDES irrigation permit.

^b Product is efficacious when used in combination with an herbicide with systemic activity.

Treatment of Aquatic Weeds

Aquatic weed	Treatment	Rate	Comments
FLOATING			
algae	copper sulfate (pentahydrate)	1 to 2 ppmw	Toxicity to fish and algae increases with temperature but decreases with water alkalinity. For water with less than 50 ppm total alkalinity, do not use copper sulfate. For water above 50 ppm, determine the amount of copper to use by dividing total alkalinity (ppm) by 100. This equals the desired copper concentration in the water. Catfish are not very tolerant to copper. Always leave untreated aquatic areas for fish to move into.
	copper complex	0.67 to 0.75 gal/a foot water	Complexed forms of copper are more active in alkaline water than the sulfate. For water with less than 50 ppm alkalinity, catfish may be killed. Apply a surface spray. Apply when algae begin to grow and water temperature is above 60°F. Best results when applied on sunny days.
		1.25 to 1.5 gal/a foot water	Apply when total alkalinity is above 50 ppm
duckweed	diquat	1 gal/surface acre	Inject or spray in non-flowing water. Do not apply diquat to muddy water. Spraying along the margins reduces reinfestation. Retreat if necessary.
SUBMERGED			
elodea	diquat	2 gal/a	Inject or apply on surface of non-flowing water. Do not apply diquat to muddy water.
Eurasian watermilfoil	2,4-D amine	10 to 40 lb/a	Do not treat more than one-half lake or pond at one time to avoid oxygen depletion and fish kill. In large lakes leave 100-foot buffer strip. Do not treat within one half mile of potable water intakes. Treat in spring when milfoil starts to grow. Spray on or inject under water.
	diquat	1 to 2.0 gal per surface acre	Distribute evenly over infested area. Inject or apply on surface of slow-flowing water. Do not apply diquat to muddy water.
	endothall (Aquathol K and Aquathol granular)	0.5 to 2.5 ppmw	Safer to fish than dimethylalkylamine salts. Spray or inject liquids under water. Apply granules evenly with cyclone seeder. Apply as soon as possible after weeds begin to grow and water temperature is above 65°F. When treating in sections, treat on 5- to 7-day interval. Use higher rates when spot treating.
	florpyrauxifen-benzyl (ProcellaCOR EC)	1 to 4 prescription dose units per acre-foot of water	This product has relatively short exposure requirements for in-water treatments (hours to days), but treatments with high exchange and short exposure periods should be carefully planned to achieve best results.

Treatment of Aquatic Weeds

Aquatic weeds	Treatment	Rate	Comments
SUBMERSED AND EMERSED			
Eurasian watermilfoil	2,4-D (20% granules)	100 lb/a	Best results when applied in spring to early summer during early growth stage. Apply uniformly using portable spreader (cyclonic seeder). Rate depends upon weed species, weed mass, water depth, and water pH. Repeat application if needed. Do not use water for agricultural purposes, watering dairy animals, or domestic purposes.
bladderwort waterlily watershield coontail	2,4-D (20% granules)	150-200 lb/a	Rates are based on type of water body treated and average water depth. See label for details. Do not use water for irrigation from ponds for 30 days or lakes for 7 days after treatment.
elodea hydrilla naiad	Sonar AS	0.5-4 quarts/a	Fluridone requires a long contact time (>60 days) to be effective. A test available from the manufacturer may be advisable for some water bodies to ensure that adequate concentrations of herbicide remain in the waterbody for effective control.
pondweed	Sonar PR	10-80 lb/a	
coontail Eurasian watermilfoil, waterprimrose, waterpurslane	Sonar SRP		
EMERSED (SHORELINE)			
arrowhead	2,4-D	4 to 8 lb/a	Spray on foliage. Use only formulations labeled for aquatics.
cattail	Rodeo	3 to 5 quarts/a	Spray on foliage. See Rodeo entry below.
cattail pondlily waterlily	Habitat 2 lb ae/gal	2-3 pints/a or 1% solution	Spray on foliage. Add 1 quart aquatic approved nonionic surfactant per 100 gallons spray solution.
actively growing (floating or emersed) grasses, broadleaves and brush	Rodeo (glyphosate)	1.5 to 7.5 pints/a or spot treatments use 0.75 to 1.5% solution	For application to floating or emersed vegetation, undesirable shoreline weeds and brush by air, booms, or handheld equipment using 3 to 20 gal spray per acre. Do not expect control of vegetation that has a majority of the leaf surface submerged. Add 1 to 2 quarts nonionic surfactant to 100 gal spray but use only X-77 if applications are made to aquatic sites. For hand guns, use 3 to 6 quarts Rodeo in 100 gal water depending upon weed species. Spray to wet. For broadcast application use 1.5 to 2.5 pints for small annuals and 3 to 4.5 pints for perennial weeds and brush.
emerged broadleaves	2,4-D (amine), 2,4-D Amine, and 2,4-D Amine No. 4	1.2 to 2.1 lb ai/a	For control of aquatic weeds in lakes, ponds, drainage ditches, and marshes. Apply 2.5 to 4.5 pints/a of 3.8 lb/gal or 1.67 to 3.0 pints/a of 5.64 lb/gal formulation in 50 to 100 gal water. Spray to wet foliage thoroughly. Apply when leaves are fully developed, actively growing, and are above the water level. Restrict applications to one-third to one-half of lake or pond. Repeat treatment once if needed.