August 19, 2016

U.S. Army Corps of Engineers
Regulatory Brank, ATTN: Karen Urelius
P.O. Box 3755
Seattle, WA 98124-3755

Subject: Seattle District Nationwide Permit Regional Conditions June 20, 2016 Public Notice

Dear Mrs. Urelius:

The Washington State Department of Natural Resources (DNR) manages over 2.6 million acres of state-owned aquatic lands for the benefit of all the citizens in the state of Washington. Any projects proposed to occur or currently occurring on state-owned aquatic lands require a use authorization from the DNR. We welcome any opportunity to work with Corps staff on defining use conditions for projects.

DNR appreciates the extensive collaboration the Seattle District has given to our agency for the Nationwide Permit Program update for 2017. The Corps staff and management have been receptive to our input and have provided volumes of information to guide our discussions and recommendations. DNR anticipates a continued positive working relationship with the Seattle District as the Nationwide Permit Program is updated officially.

DNR has reviewed the Special Public Notice (June 20, 2016) issued by the Seattle District for the Regional Conditions of the Nationwide Permit Program. Please accept the final DNR comments and enclosures for consideration regarding the program.

Thank you for the opportunity to comment. If you have any questions regarding these comments, please feel free to call me at (360) 902-1075, or Lalena Amiotte, at (360) 902-1152.

Sincerely,

Michal Rechner, Assistant Manager
Aquatic Resources Division

Enclosures (3):

(1) Revised Code of Washington (RCW) 70.285 Brake Friction Material
(2) Revised Code of Washington (RCW) 70.300.020 Recreational Water Vessels-Antifouling Paints
(3) DNR Protected Submerged Aquatic Vegetation (March 2016)

Washington Department of Natural Resources (WA DNR)
Comments to the Nationwide Permit Program for the Seattle District of the U.S. Army Corps of Engineers Public Notice June 14, 2016

General Comment – Bank Stabilization

WA DNR supports the Seattle District on their work to minimize the effects to aquatic species and their habitats from bank stabilization projects through regional conditioning within the Salish Sea. Reductions in bank armoring and stabilization projects are priorities within the state of Washington under the Governor's Office-Puget Sound Partnership-Puget Sound Action Agenda (2016) http://www.psp.wa.gov/2016_AA_update.php , the Puget Sound Salmon Recovery Plan (2007) Shared Strategy for Puget Sound and the Puget Sound Region Federal Agency Action Plan (2012).
http://www.westcoast.fisheries.noaa.gov/publications/habitat/puget_sound_action_plan_050312.pdf .

The Puget Sound Nearshore Ecosystem Restoration Project (PSNERP) has provided substantial science http://www.pugetsoundnearshore.org/technical_reports.html which shows degraded conditions in Puget Sound, including those related to bank armoring. PSNERP also completed a candidate restoration site list for Puget Sound in September 2010
http://www.pugetsoundnearshore.org/graphics/psnerp_candidate_restoration_sites_map.pdf and a Technical Report on Strategies for Nearshore Protection and Restoration in Puget Sound (2012)
http://www.pugetsoundnearshore.org/technical_papers/psnerp_strategies_maps_lowres.pdf

This exhaustive, Corps sponsored research, supports using a precautionary approach when authorizing any shoreline armoring and maintenance as continued monitoring and evaluations on impacts are completed.

The WA DNR is concerned with impacts to the Columbia River Basin and watersheds from new bank stabilization projects and maintenance. Specifically Water Resource Inventory Areas (WRIA) from the mouth of Columbia River to Lyle, Washington
https://fortress.wa.gov/dfw/score/score/maps/map_wria.jsp . These WRIAs include 24-Willapa; 25-Grays/Elochoman; 27-Lewis; 28-Salmon/Washougal and; 29-Wind/White Salmon.

The currently proposed language regarding bank stabilization does not adequately address the impacts from bank stabilization on the following aquatic species and habitats:

**WRIA 24 (Willapa Bay):** Section of river from approximately Fort Canby/Illwaco to Knappton, WA. The Columbia River mouth/estuary/outer coast begins/ends the migration corridor for all the Columbia River basin anadromous salmonids, as well as Pacific Lamprey, green and white sturgeon, Pacific eulachon (smelt) and for many other migratory fish and vital habitat for estuarine/riverine aquatic life. The Columbia River also provides major resting/foraging habitat for waterfowl and shorebirds migrating along the Pacific Flyway during the late summer/fall and spring migrations. Other key habitat along this lower reach of the Columbia River provides snowy plover nesting/brooding habitat along the sand bars/dune formations along the mouth of

the Columbia/outer coast (Willapa National Wildlife Refuge), as well as forage fish spawning beach habitat. Nearshore estuarine habitat is utilized by salmonid outmigrants and a multitude of other estuarine-dependent aquatic species. There are various shoreline structures, such as at Illwaco that have hard bank armoring features, as well as periodic and disperse bulkheads in this reach of the river.

**WRIA 25 (Grays-Elochoman):** Section of river from approximately Knappton to South end of Longview, WA (Rainier, OR). This reach continues as part of the lower Columbia River Estuary and major corridor for salmonids and other aquatic migratory species (see above). The Cowlitz River is located along this reach (at Longview/Kelso) and is a major spawning tributary for Pacific eulachon. The Lewis and Clark National Wildlife Refuge is part of this river reach (mainly Oregon side). Island and side channel habitat continues along this river section. Hard bank armoring associated with marine bulkheads and terminals for import/export becomes more frequent, such as at the Port of Longview.

**WRIA 27 (Lewis):** Section of river from approximately the City of Kalama to Ridgefield. This reach continues as part of the lower to middle Columbia River estuary and a major aquatic species migration corridor (see above). Along this reach, Pacific eulachon regularly migrate to the Kalama and Lewis rivers to spawn. The Ridgefield National Wildlife Refuge is also part of this river reach, which includes island and side channel habitat features. Hard bank armoring is associated with import/export terminal bulkheads and city ports (Kalama and Woodland).

**WRIA 28 (Salmon-Washougal):** Section of river from approximately City of Ridgefield to North Bonneville (dam). This reach transitions from middle to lower Columbia River estuary and continues as a major aquatic species migration corridor (see above). The Shillapoo Wildlife Area is located along this reach (in proximity of Vancouver Lake). There continues island and side channel habitat features eastward into the west gorge section of the river. This reach is exposed to increasing higher densities of industrial infrastructure (marine terminals), including hard bank armoring within the major city ports of Vancouver/Portland and to a lesser extent at Camas/Washougal and Gresham/Troutdale (Oregon).

**WRIA 29 (Wind-White Salmon):** Section of river from approximately City of North Bonneville to City of Lyle. This reach begins the non-estuarine and regulated flow section of the Columbia River (and upstream), and continues as a major aquatic species migration corridor (see above). Although Pacific eulachon is not established upstream of Bonneville Dam, individuals were identified above the dam in 2014. This reach is within the central Columbia River gorge that is featured with less island and side channels habitat, with shoreline areas impacted by regulated flow levels of Bonneville Dam and flow regulation further upstream. There is less shoreline infrastructure moving away (upstream) from the Portland/Vancouver metropolitan area. Disperse bulkheads exist, associated with terminal moorage locations, such as at White Salmon and Hood River (Oregon).

DNR recommends that the Seattle District refer to the following literature to assess important species and habitat, and take a precautionary approach, as is being taken in Puget Sound, to bank stabilization in the WIRAs encompassing the region from the mouth of the Columbia River to Lyle, Washington.

Columbia River Inter-Tribal Fish Commission:
http://plan.critfc.org/2013/spirit-of-the-salmon-plan/technical-recommendations/

Lower Columbia River Estuary Plan
http://www.estuarypartnership.org/sites/default/files/CCMP%20Action%20Update%20Final%200212.pdf

Washington State Department of Transportation
http://www.wsdot.wa.gov/research/reports/fullreports/587.1.pdf

U.S. Fish & Wildlife Service
https://catalog.data.gov/dataset/ridgefield-national-wildlife-refuge-comprehensive-conservation-plan

https://www.fws.gov/pacific/planning/main/docs/WA/docsjbhlc.htm

https://www.fws.gov/pacific//Fisheries/Hatcheryreview/Reports/columbiagorge/LW--012LWSsubbasinplan.pdf

Washington State Department of Fish & Wildlife
http://wdfw.wa.gov/publications/00536/

Federal Emergency Management Agency
http://www.fema.gov/pdf/about/regions/regionx/Engineering_With_Nature_Web.pdf

DNR recommends that any new bank stabilization or maintenance projects require an individual permit and require compensatory mitigation for the unavoidable adverse impacts associated with bank stabilization for new projects (NWP 13) and for the repair and maintenance (NWP 3) of existing structures.

General Comment-Chemically Treated Wood:
The cumulative effects to ESA listed species and long-term adverse environmental effects associated with metal based and chemically treated wood manifests in the accumulation of contaminants in sediment and the direct impacts to biota that may colonize a treated wood structure. Any impacts to the water column from treated wood are a short-term event lasting days to weeks. The contaminants which are leached from the treated wood into the water column are ultimately deposited into the sediment. The deposited metals will not degrade and may become mineralized, chemically sequestered, or physically sequestered. In the aquatic environment these chemicals and metals may cause/or contribute to adverse biological effects and human health impacts, degradation of the surrounding sediment and habitat, and devaluation of the affected property.

Avoidance of using treated wood should be based on the following principles:

- Fewer metal pilings are required than wood. Fewer pilings mean less structure and impacts from construction in the nearshore environment.

- The longer life span of metal pilings results in less need for disturbance from future piling maintenance and replacement.
- Eliminates potential impacts to water and sediment quality that would otherwise result from the use of treated wood.
- No mortality to herring spawn.
- Eliminates other related impacts from the use of treated wood such as environmental impacts and cost of disposal at the end of its life cycle.
- More than $10 million in state and federal funding to date has been devoted to removing creosote from Puget Sound in the past twenty years.
- All state and federal agencies consistently recommend as a mitigation measure avoiding the use of treated wood.

On state-owned aquatic lands, WA DNR discourages the use of treated wood as part of the decking, pilings, or other components of any in-water structures such as docks, wharves, piers, marinas, rafts, shipyards and terminals. Treated wood should only be used for above water structural framing. During maintenance that involves replacement of treated wood, existing treated wood should be replaced with alternative materials such as untreated wood, steel, concrete, or recycled plastic, or encased in a manner that prevents metals, hydrocarbons and other toxins from leaching out.

Beginning in 2015 brake pads manufacturers were required to reduce the use of several heavy metals, especially copper and asbestos in their products for purchase in Washington. The phase out of copper in brake pads is incremental with the final requirement of less than 0.5 percent of copper in brake pads by 2025. Findings showed that thousands of pounds of copper and other substances are released from brake friction materials every year and enter WA State's waterways. Chapter 70.285 RCW: BRAKE FRICTION MATERIAL (RCW 70.285) http://apps.leg.wa.gov/RCW/default.aspx?cite=70.285&full=true (See Attachment 1).

Copper is highly toxic to fish and other aquatic species. It interferes with their sense of smell, making them more vulnerable to predators or unable to return to their spawning streams. Young salmon are especially susceptible to the effects of copper. Additionally, in 2011, Washington State was the first state to pass legislation against antifouling paint containing copper for recreational boats (RCW 70.300.020) http://app.leg.wa.gov/RCW/default.aspx?cite=70.300&full=true (See Attachment 2). By 2018 any new recreational boats under 65 feet in length cannot be sold in Washington if the bottom paint contains copper. By 2020, the only bottom paint that will be allowed to be sold for application on recreational boats under 65 feet in in length will be required to have no more than 0.5 percent of copper.

The entire West Coast faces unprecedented salmon stock management challenges due to low returns from the Pacific Ocean and degraded natal and migratory habitats. Collectively, as management agencies, we must consider the incremental impacts of a single action that, taken together with other actions, will provide significant benefits to salmon recovery to ensure cumulative losses of aquatic habitat and species are addressed [33 CFR 320.4 (r) and 33 CFR 330.1 (e) (3)].

WA DNR suggests that the Corps discontinue authorization for use of treated wood except for framing purposes above the water within Washington, but also in regions where salmonid species are present.

At a minimum WA DNR recommends that the Seattle District (Corps) prohibit ACZA treated wood use on projects which have TMDL implementation plans (Water Quality Assessments (303[d]) | Water Quality Assessments & TMDLs | Water Quality Program | Washington State Department of Ecology) for Ammonia, Copper, Zinc and Arsenic. The avoidance of ACZA treated wood in these impaired waterbodies will help to achieve the Total Maximum Daily Loads issued by the WA State Department of Ecology.

WA DNR also recommends that if the Corps allows the use of any treated wood below the water line that the permit require compensatory mitigation to offset unavoidable adverse impacts to ESA listed species.

New General Regional Condition Suggestion:
WA DNR recommends that the Seattle District (Corps) consider adding the following General Regional Condition Nationwide Permits:
NWP 7, Outfall Structures and Associated Intake Structures,
NWP 29, Residential Developments,
NWP 39, Residential Developments and
NWP 43, Stormwater Management Facilities.

WA DNR suggests the following language:
Title: Stormwater Discharge Pollution Prevention

When a project with a stormwater discharge does not have coverage under a NPDES Permit or 401 Certification, measures shall be put in place to control the quantity and quality of discharge in order to achieve compliance with WA State water quality standards and to contribute to the protection of the beneficial uses of the receiving waters, as well as minimum adverse effects to those receiving waters.

Project proponents shall be required to document the technical basis for the design criteria used to design their stormwater facility and facility management Best Management Practices (BMPs). This includes: 1) How BMPs were selected, 2) The pollutant removal performance expected from the selected BMPs, 3) The scientific basis, technical studies, and/or modeling which supports the performance claims for the selected BMPs and 4) An assessment of how the selected BMPs will comply with WA State water quality standards and satisfy WA State All Known Available and Reasonable Treatment (AKART) requirements and Federal technology based treatment requirements. (Project proponents who choose to follow the stormwater management approached contained in the WA State Department of Ecology approved stormwater technical manuals are presumed to have satisfied this demonstration requirement and do not need to provide technical justification to support the selection of BMPs for the project.)

New General Regional Condition Suggestion:

WA State natural resource agencies have identified the importance of freshwater submerged aquatic vegetation (see WA DNR Protected Submerged Aquatic Vegetation guide, Attachment 3) to special aquatic species such as the Columbia Spotted Frog, Northern Leopard Frog, Oregon Spotted Frog, Western Toad and the Pacific Pond Turtle. Without the protections for freshwater native aquatic vegetation there is a potential for significant adverse effects to fresh water amphibian life. .

WA DNR recommends the following language:
Title: Freshwater Aquatic Vegetation
Fresh Water Vegetation surveys using Washington State Department of Ecology sampling protocols (WA State Department of Ecology 2001)
https://fortress.wa.gov/ecy/publications/publications/0103017.pdf are required for work proposed in freshwater aquatic systems.

All permitted activities and structures must avoid existing native aquatic vegetation through established buffers.

Regional General Condition 5 Bank Stabilization Comment:
WA DNR suggests adding a 'note' to this section highlighting the WA State Fish and Wildlife Department publication Marine Shoreline Design Guidelines (2014).
http://wdfw.wa.gov/publications/01583/

Regional General Condition 4 Commencement Bay Comment:
WA DNR supports Regional General Condition 4. We suggest that following the completion of the 2017 Nationwide Permit Program update, the Seattle District establish a WA State technical working group to continue the joint work and explore potential approaches to future updates (2022) in identifying Regional General Conditions in other areas of the Seattle District based on the same rationales used to establish RGC#4.

Regional General Condition 1 Pre-Construction Notification (d):
WA DNR recommends requiring pre-project and post-project color photos be provided by the applicant as part of this condition.

Regional General Condition 6 Crossings of Waters of the United States:
For crossings of the Waters of the U.S. DNR would prefer inclusion of all fish life, not just salmonid species. WA DNR recommends removing the reference to "salmonids" and use the term "fish" in its place.

Nationwide Permit 48 Commercial Shellfish Aquaculture Activities:
WA DNR will reserve our opportunity to comment s to on NW48 until regional conditions are established by the Seattle District and announced through the Federal Register.

**Chapter 70.285 RCW**

**BRAKE FRICTION MATERIAL**

Chapter Listing

**Sections**



---

## 70.285.010
## Findings.

The legislature finds that:

(1) Brake friction material is an essential component of motor vehicle brakes and is critically important to transportation safety and public safety in general;

(2) Debris from brake friction material containing copper and its compounds is generated and released to the environment during normal operation of motor vehicle brakes;

(3) Thousands of pounds of copper and other substances released from brake friction material enter Washington state's streams, rivers, and marine environment every year; and

(4) Copper is toxic to many aquatic organisms, including salmon.

[ 2010 c 147 § 1.]

---

## 70.285.020
## Definitions.

The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Accredited laboratory" means a laboratory that is:

(a) Qualified and equipped for testing of products, materials, equipment, and installations in accordance with national or international standards; and

(b) Accredited by a third-party organization approved by the department to accredit laboratories for purposes of this chapter.

(2) "Alternative brake friction material" means brake friction material that:

(a) Does not contain:

(i) More than 0.5 percent copper or its compounds by weight;

(ii) The constituents identified in RCW 70.285.030 at or above the concentrations specified; and

(iii) Other materials determined by the department to be more harmful to human health or the environment than existing brake friction material;

(b) Enables motor vehicle brakes to meet applicable federal safety standards, or if no federal safety standard exists, a widely accepted industry standard;

(c) Is available at a cost and quantity that does not cause significant financial hardship across the majority of brake friction material and vehicle manufacturing industries; and

(d) Is available to enable brake friction material and vehicle manufacturers to produce viable products meeting consumer expectations regarding braking noise, shuddering, and durability.

(3) "Brake friction material" means that part of a motor vehicle brake designed to retard or stop the movement of a motor vehicle through friction against a rotor made of more durable material.

(4) "Committee" means the brake friction material advisory committee.

(5) "Department" means the department of ecology.

(6)(a) "Motor vehicle" has the same meaning as defined in RCW 46.04.320 that are subject to registration requirements under "RCW 46.16A.030.

(b) "Motor vehicle" does not include:

(i) Motorcycles as defined in RCW 46.04.330;

(ii) Motor vehicles employing internal closed oil immersed motor vehicle brakes or similar brake systems that are fully contained and emit no debris or fluid under normal operating conditions;

(iii) Military combat vehicles;

(iv) Race cars, dual-sport vehicles, or track day vehicles, whose primary use is for off-road purposes and are permitted under RCW 46.16A.320; or

(v) Collector vehicles, as defined in RCW 46.04.126.

(7)(a) "Motor vehicle brake" means an energy conversion mechanism used to retard or stop the movement of a motor vehicle.

(b) "Motor vehicle brake" does not include brakes designed primarily to hold motor vehicles stationary and not for use while motor vehicles are in motion.

(8) "Original equipment service" means brake friction material provided as service parts originally designed for and using the same brake friction material formulation sold with a new motor vehicle.

(9) "Small volume motor vehicle manufacturer" means a manufacturer of motor vehicles with Washington annual sales of less than one thousand new passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles, and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years.

[ 2011 c 171 § 111; 2010 c 147 § 2.]

**NOTES:**

*Reviser's note: Although RCW 46.16.010 was recodified as RCW 46.16A.030 pursuant to 2010 c 161 § 1215, the list of vehicles exempted from registration requirements, formerly under RCW 46.16.010, are codified under RCW 46.16A.080.

Intent—Effective date—2011 c 171: See notes following RCW 4.24.210.

---

## 70.285.030
## Prohibition on the sale of certain brake friction material—Exemptions.

(1) Beginning January 1, 2014, no manufacturer, wholesaler, retailer, or distributor may sell or offer for sale brake friction material in Washington state containing any of the following constituents in an amount exceeding the specified concentrations:

(a) Asbestiform fibers, 0.1 percent by weight.

(b) Cadmium and its compounds, 0.01 percent by weight.

(c) Chromium(VI)-salts, 0.1 percent by weight.

(d) Lead and its compounds, 0.1 percent by weight.

(e) Mercury and its compounds, 0.1 percent by weight.

(2) Beginning January 1, 2021, no manufacturer, wholesaler, retailer, or distributor may sell or offer for sale brake friction material in Washington state containing more than five percent copper and its compounds by weight.

(3) Brake friction material manufactured prior to 2015 is exempt from subsection (1) of this section for the purposes of clearing inventory. This exemption expires January 1, 2025.

(4) Brake friction material manufactured prior to 2021 is exempt from subsection (2) of this section for the purposes of clearing inventory. This exemption expires January 1, 2031.

(5) Brake friction material manufactured as part of an original equipment service contract for vehicles manufactured prior to January 1, 2015, is exempt from subsection (1) of this section.

(6) Brake friction material manufactured as part of an original equipment service contract for vehicles manufactured prior to January 1, 2021, is exempt from subsection (2) of this section.

[ 2010 c 147 § 3 ]

---

## 70.285.040
## Brake friction material advisory committee—Members—Duties.

(1) By December 1, 2015, the department shall review risk assessments, scientific studies, and other relevant analyses regarding alternative brake friction material and determine whether the material may be available. The department shall consider any new science with regard to the bioavailability and toxicity of copper.

(2) If the department finds that alternative brake friction material may be available, it shall convene a brake friction material advisory committee. The committee shall include, but is not limited to:

(a) A representative of the department, who will chair the committee;

(b) The chief of the Washington state patrol, or the chief's designee;

(c) A representative of manufacturers of brake friction material;

(d) A representative of manufacturers of motor vehicles;

(e) A representative of a nongovernmental organization concerned with motor vehicle safety;

(f) A representative of the national highway traffic safety administration; and

(g) A representative of a nongovernmental organization concerned with the environment.

(3) If convened pursuant to subsection (2) of this section, the committee shall separately assess alternative brake friction material for passenger vehicles, light-duty vehicles, and heavy-duty vehicles. The committee shall make different recommendations to the department as to whether alternative brake friction material is available or unavailable for passenger vehicles, light-duty vehicles, and heavy-duty vehicles. For purposes of this section, "heavy-duty vehicle" means a vehicle used for commercial purposes with a gross vehicle weight rating above twenty-six thousand pounds. The committee shall also consider appropriate exemptions including original equipment service and brake friction material manufactured prior to the dates specified in RCW 70.285.050. The department shall consider the committee's recommendations and make a finding as to whether alternative brake friction material is available or unavailable.

(4) If, pursuant to subsection (3) of this section, the department finds that alternative brake friction material:

(a) Is available, it shall comply with RCW 70.285.050;

(b) Is not available, it shall periodically evaluate the finding and, if it determines that alternative brake friction material may be available, comply with subsections (2) and (3) of this section. If the department finds that alternative brake friction material is available, it shall comply with RCW 70.285.050.

[ 2010 c 147 § 4.]

---

## 70.285.050
## Finding that alternative brake friction material is available—Report—Rules.

If, pursuant to RCW 70.285.040, the department finds that alternative brake friction material is available:

(1)(a) By December 31st of the year in which the finding is made, the department shall publish the information required by RCW 70.285.040 in the Washington State Register and present it in a report to the appropriate committees of the legislature; and

(b) The report must include recommendations for exemptions on original equipment service and brake friction material manufactured prior to dates specified in this section and may include recommendations for other exemptions.

(2) Beginning eight years after the report in subsection (1) of this section is published in the Washington State Register, no manufacturer, wholesaler, retailer, or distributor may sell or offer for sale brake friction material in Washington state containing more than 0.5 percent copper and its compounds by weight, as specified in the report.

(3) The department shall adopt rules to implement this section.

[ 2010 c 147 § 5.]

## 70.285.060
## Application for exemption from chapter.

Any motor vehicle manufacturer or brake friction material manufacturer may apply to the department for an exemption from this chapter for brake friction material intended for a specific motor vehicle model or class of motor vehicles based on special needs or characteristics of the motor vehicles for which the brake friction material is intended. Exemptions may only be issued for small volume motor vehicle manufacturers, specific motor vehicle models, or special classes of vehicles, such as fire trucks, police cars, and heavy or wide-load equipment hauling, provided the manufacturer can demonstrate that complying with the requirements of this chapter is not feasible, does not allow compliance with safety standards, or causes significant financial hardship. Exemptions are valid for no less than one year and may be renewed automatically as needed or the exemption may be permanent for as long as the vehicle is used in the manner described in the application.

[ 2010 c 147 § 6.]

## 70.285.070
## Manufacturers of brake friction material must provide certain data to the department—Department's duties.

(1) By January 1, 2013, and at least every three years thereafter, manufacturers of brake friction material sold or offered for sale in Washington state shall provide data to the department adequate to enable the department to determine concentrations of antimony, copper, nickel, and zinc and their compounds in brake friction material sold or offered for sale in Washington state.

(2) Using data provided pursuant to subsection (1) of this section and other data as needed, and in consultation with the brake friction material manufacturing industry, the department must:

(a) By July 1, 2013, establish baseline concentration levels for constituents identified in subsection (1) of this section in brake friction material; and

(b) Track progress toward reducing the use of copper and its compounds and ensure that concentration levels of antimony, nickel, or zinc and their compounds do not increase by more than fifty percent above baseline concentration levels.

(3) If concentration levels of antimony, nickel, or zinc and their compounds in brake friction material increase by more than fifty percent above baseline concentration levels, the department shall review scientific studies to determine the potential impact of the constituent on human health and the environment. If scientific studies demonstrate the need for controlling the use of the constituent in brake friction material, the department may consider recommending limits on concentration levels of the constituent in the material.

(4) Confidential business information otherwise protected under RCW 43.21A.160 or chapter 42.56 RCW is exempt from public disclosure.

[ 2010 c 147 § 7.]

## 70.285.080
## Compliance with chapter—Proof of compliance.

(1) Manufacturers of brake friction material offered for sale in Washington state must certify compliance with the requirements of this chapter and mark proof of certification on the brake friction material in accordance with criteria developed under this section.

(2) By December 1, 2012, the department must, after consulting with interested parties, develop compliance criteria to meet the requirements of this chapter. Compliance criteria includes, but is not limited to:

(a) Self-certification of compliance by brake friction material manufacturers using accredited laboratories; and

(b) Marked proof of certification, including manufacture date, on brake friction material and product packaging. Marked proof of certification must appear by January 1, 2015. Brake friction material manufactured or packaged prior to January 1, 2015, is exempt from this subsection (2)(b).

(3) Beginning January 1, 2021, manufacturers of new motor vehicles offered for sale in Washington state must ensure that motor vehicles are equipped with brake friction material certified to be compliant with the requirements of this chapter.

[ 2010 c 147 § 8.]

## 70.285.090
## Enforcement of chapter—Violations—Penalties.

(1) The department shall enforce this chapter. The department may periodically purchase and test brake friction material sold or offered for sale in Washington state to verify that the material complies with this chapter.

(2) Enforcement of this chapter by the department must rely on notification and information exchange between the department and manufacturers, distributors, and retailers. The department shall issue one warning letter by certified mail to a manufacturer, distributor, or retailer that sells or offers to sell brake friction material in violation of this chapter, and offer information or other appropriate assistance regarding compliance with this chapter. Once a warning letter has been issued to a distributor or retailer for violations under subsections (3) and (5) of this section, the department need not provide warning letters for subsequent violations by that distributor or retailer. For the purposes of subsection (6) of this section, a warning letter serves as notice of the violation. If compliance is not achieved, the department may assess penalties under this section.

(3) A brake friction material distributor or retailer that violates this chapter is subject to a civil penalty not to exceed ten thousand dollars for each violation. Brake friction material distributors or retailers that sell brake friction material that is packaged consistent with RCW 70.285.080(2)(b) are not in violation of this chapter. However, if the department conclusively proves that the brake friction material distributor or retailer was aware that the brake friction material being sold violates RCW 70.285.030 or 70.285.050, the brake friction material distributor or retailer is subject to civil penalties according to this section.

(4) A brake friction material manufacturer that knowingly violates this chapter shall recall the brake friction material and reimburse the brake friction distributor, retailer, or any other purchaser for the material and any applicable shipping and handling charges for returning the material. A brake friction material manufacturer that violates this chapter is subject to a civil penalty not to exceed ten thousand dollars for each violation.

(5) A motor vehicle distributor or retailer that violates this chapter is subject to a civil penalty not to exceed ten thousand dollars for each violation. A motor vehicle distributor or retailer is not in violation of this chapter for selling a vehicle that was previously sold at retail and that contains brake friction material failing to meet the requirements of this chapter. However, if the department conclusively proves that the motor vehicle distributor or retailer installed brake friction material that violates RCW 70.285.030, 70.285.050, or 70.285.080(2)(b) on the vehicle being sold and was aware that the brake friction material violates RCW 70.285.030, 70.285.050, or 70.285.080(2)(b), the motor vehicle distributor or retailer is subject to civil penalties under this section.

(6) A motor vehicle manufacturer that violates this chapter must notify the registered owner of the vehicle within six months of knowledge of the violation and must replace at no cost to the owner the noncompliant brake friction material with brake friction material that complies with this chapter. A motor vehicle manufacturer that fails to provide the required notification to registered owners of the affected vehicles within six months of knowledge of the violation is subject to a civil penalty not to exceed one hundred thousand dollars. A motor vehicle manufacturer that fails to provide the required notification to registered owners of the affected vehicles after twelve months of knowledge of the violation is subject to a civil penalty not to exceed ten thousand dollars per vehicle. For purposes of this section, "motor vehicle manufacturer" does not include a vehicle dealer defined under RCW 46.70.011 and required to be licensed as a vehicle dealer under chapter 46.70 RCW.

(7) Before the effective date of the prohibitions in RCW 70.285.030 or 70.285.050, the department shall prepare and distribute information about the prohibitions to manufacturers, distributors, and retailers to the maximum extent practicable.

(8) All penalties collected under this chapter must be deposited in the state toxics control account created in RCW 70.105D.070.

[ 2010 c 147 § 9.]

---

## 70.285.100
## Adoption of rules.

The department may adopt rules necessary to implement this chapter.

[ 2010 c 147 § 10.]

---

## 70.285.900
## Severability—2010 c 147.

If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected.

[ 2010 c 147 § 12.]

**Chapter 70.300 RCW**

**RECREATIONAL WATER VESSELS—ANTIFOULING PAINTS**

Chapter Listing

**Sections**



## 70.300.005
## Intent.

The legislature intends to phase out the use of copper-based antifouling paints used on recreational water vessels.

[ 2011 c 248 § 1.]

## 70.300.010
## Definitions.

The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Department" means the department of ecology.

(2) "Director" means the director of the department of ecology.

(3)(a) "Recreational water vessel" means any vessel that is no more than sixty-five feet in length and is: (i) Manufactured or used primarily for pleasure; or (ii) leased, rented, or chartered by a person for the pleasure of that person.

(b) "Recreational water vessel" does not include a vessel that is subject to United States coast guard inspection and that: (i) Is engaged in commercial use; or (ii) carries paying passengers.

[ 2011 c 248 § 2.]

## 70.300.020
## Antifouling paint containing copper.

(1) Beginning January 1, 2018, no manufacturer, wholesaler, retailer, or distributor may sell or offer for sale in this state any new recreational water vessel manufactured on or after January 1, 2018, with antifouling paint containing copper.

(2) Beginning January 1, 2020, no antifouling paint that is intended for use on a recreational water vessel and that contains more than 0.5 percent copper may be offered for sale in this state.

(3) Beginning January 1, 2020, no antifouling paint containing more than 0.5 percent copper may be applied to a recreational water vessel in this state.

[ 2011 c 248 § 3.]

## 70.300.030
## Recreational water vessel hull cleaning—Best practices.

The department, in consultation and cooperation with other state natural resources agencies, must increase educational efforts regarding recreational water vessel hull cleaning to reduce the spread of invasive species. This effort must include a review of best practices that consider the type of antifouling paint used and recommendations regarding appropriate hull cleaning that includes in-water methods.

[ 2011 c 248 § 4.]

## 70.300.040
## Civil penalty.

(1) The department shall enforce the requirements of this chapter.

(2)(a) A person or entity that violates this chapter is subject to a civil penalty. The department may assess and collect a civil penalty of up to ten thousand dollars per day per violation.

(b) All penalties collected by the department under this chapter must be deposited in the state toxics control account created in RCW 70.105D.070.

[ 2011 c 248 § 5.]

WASHINGTON STATE DEPARTMENT OF
Natural Resources

# Protected Submerged Aquatic Vegetation

## Plant Species Review

Washington Department of Natural Resources (DNR) defines potentially protected vegetation as native photosynthetic plants or algae that are either attached to, or rooted in, the substrate on state-owned aquatic lands. There are four groups of protected native aquatic vegetation.

- Saltwater plants (such as seagrass and saltmarsh plants)
- Kelps (algae in the order Laminariales)
- Complex freshwater algae (such as stoneworts and brittle worts)
- Rooted freshwater plants (submerged, floating, and emergent types).

To be protected, there needs to be evidence that a vegetation type provides important habitat for any of the WA State or Federally listed species during a portion of their life history.

The following is a list of freshwater and marine and estuarine plant species that will be evaluated on a site-by-site and situational basis for protection on state-owned aquatic lands. While all species within the four groups are potentially protected, the list is limited to species that occur in areas with a high likelihood of receiving project proposals to use state-owned aquatic lands. This list does not warrant protection of the listed plant species; instead, it is a tool to assist with further evaluation and investigation to better determine plant species protection on state-owned aquatic lands.

## *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| *Alisma gramineum* | Narrowleaf water plantain | Alismataceae | Lakes; shoreline (rarely submersed); found throughout WA | Food and habitat for waterfowl and fish | |
| *Alisma triviale* | Northern water plantain | Alismataceae | Lakes; shoreline (rarely submersed); found throughout WA | Food and habitat for waterfowl and fish | |
| *Alopecurus* spp. (various) | Foxtail | Poaceae | Lakes; rivers; Shoreline; found throughout WA | Nutritious and palatable for wildlife | Some non-native species in WA; Alopecurus myosuroides is on the WA noxious weed list |
| *Brasenia schreberi* | Watershield | Cambomaceae | Lakes; floating (rooted 0.5–3 meters (1.6–10 feet) deep); found throughout WA | Habitat for fish and aquatic insects; seeds eaten by waterfowl; leaves provide roosts for organisms | |
| *Callitriche* spp. (various) | Water-starwort | Callitrichaceae | Lakes; rivers (margins and slow water); free floating; found throughout WA | Forage and habitat for aquatic insects and fish; ducks eat foliage and seeds; leaves can keep soil moist in a drawdown; filters and absorbs toxins | Not required to identify to species level, which requires a 10-20x magnification of the fruit; some species are introduced but still provide habitat |
| *Carex* spp. (various) | Sedge | Cyperaceae | Lakes; rivers; shoreline; found throughout WA | Seeds eaten by birds; browsed by deer, elk and moose; shoreline stabilizer | Tolerant of brackish conditions |
| *Ceratophyllum demersum* | Coon's tail | Ceratophyllaceae | Lakes; rivers (still and slow water); | Habitat for juvenile fish, small aquatic animals, and aquatic | Common in WA and can be seen as a native weed |

### *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | | | floating (rootless but modified leaves can attach to sediment); found throughout WA | insects; waterfowl eat seeds and foliage | |
| *Ceratophyllum echinatum* | Spineless hornwort | Ceratophyllaceae | Lakes; rivers (still and slow water); floating (rootless but modified leaves that can attach); found throughout WA | Habitat for juvenile fish, small aquatic animals, and aquatic insects; waterfowl eat seeds and foliage | Rare plant list |
| *Chara spp. (various)* | Stonewort, muskgrass, muskwort | Characeae | Lakes; shoreline to deep water (about 0.05–20 meters (0.2–66 feet); found throughout WA | Food source for waterfowl, especially ducks; provides protection for juvenile fish and invertebrates | A plant-like algae that uses root-like structures called holdfasts to attach to sediment |
| *Comarum palustre* | Marsh cinquefoil, purple marshlocks | Rosaceae | Lakes; rivers (margin); shoreline; found throughout WA | Leaves and seeds eaten by wildlife, especially waterfowl | |
| *Cyperus* spp. (various) | Flatsedge | Cyperaceae | Lakes; rivers; shoreline; found throughout WA | Food source for wildlife and birds | Cyperus eragrostis and C. esculentus are on the WA noxious weed list |
| *Dulichium arundinaceum* | Threeway sedge | Cyperaceae | Lakes; rivers (slow and still water); | Food for waterfowl | |

## *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | | | shoreline (margin); found throughout WA | | |
| *Elatine* spp. (various) | Waterwort | Elatinaceae | Lakes; rivers (slow and still water); shoreline; found throughout WA | Stabilizes the shoreline; very few known locations In WA | |
| *Eleocharis* spp. (various) | Spike rushes | Cyperaceae | Lakes; rivers; shoreline; found throughout WA | Shoreline stabilizer if it covers a large area and many are present | Tolerant of brackish conditions |
| *Elodea canadensis* | Canadian waterweed | Hydrocharitaceae | Lakes; rivers; shoreline (submersed); found throughout WA | Food and habitat for fish, waterfowl, and wildlife | Tolerant of brackish conditions |
| *Elodea nuttallii* | Western waterweed | Hydrocharitaceae | Lakes; rivers; shoreline (submersed); found throughout WA | Food and habitat for fish, waterfowl, and wildlife | Tolerant of brackish conditions |
| *Fontinalis antipyretica* | Antifever fontinalis moss, aquatic moss | Fontinalaceae | Lakes; rivers; attached (rocks or logs in flowing water); floating (loose or attached to substrate in still water); found throughout WA | Habitat for aquatic insects, larvae, and other microorganisms; small fish species will nest in it | |
| *Heteranthera dubia* | Water stargrass, | Pontederiaceae | Lakes; rivers; | Waterfowl eat foliage; provides fish cover and | |

## *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | grassleaf mudplantain | | shoreline (up to 3 meters (10 feet) deep); found throughout WA | habitat for invertebrates; ducks eat leaves | |
| *Hippuris montana* | Mountain mare's-tail | Hippuridaceae | Lakes; rivers; shoreline (shallow water or mud up to 2 meters (6.5 feet) deep); found throughout WA | Seeds and vegetation eaten by waterfowl and shorebirds; provides shelter for small animals and cover for fish and amphibians | |
| *Hippuris vulgaris* | Common mare's-tail | Hippuridaceae | Lakes; rivers; shoreline (shallow water or mud up to 2 meters (6.5 feet) deep); found throughout WA | Seeds and vegetation eaten by waterfowl and shorebirds; provides shelter for small animals and cover for fish and amphibians | Easily confused with Equisetum spp. |
| *Hydrocotyle ranunculoides* | Water pennywort, floating marshpenny wort | Apiaceae | Lakes; shoreline (forms floating mat or anchors in mud); found in western WA | Provides habitat for aquatic invertebrates; rare | |
| *Isoetes* spp. (various) | Quillwort | Isoetaceae | Lakes; rivers shoreline (submersed in shallow to moderate water); found throughout WA | Deer feed on leaves and muskrats and waterfowl eat the fleshy corms; intolerant of nutrient enrichment and can be an indicator of good water quality | |

## *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| *Juncus* spp. (various) | Rush | Juncaceae | Lakes; rivers; shoreline; found throughout WA | Birds use plant material for nests; has been used by the frog Rana pretiosa Juncus effusus as breeding habitat; provides food and shelter for insects, birds and small mammals; contributes plant material to wetlands; removes excess nutrients and heavy metals | Identification to species level not necessary |
| *Leersia oryzoides* | Rice cutgrass | Poaceae | Lakes; rivers; (slow and still water); shoreline (margin or mud); found throughout WA | Provides food and cover for amphibious organisms and waterfowl | |
| *Lipocarpha* spp. (various) | Halfchaff sedge | Cyperaceae | Lakes; rivers; shoreline; uncommon in WA | Lipocarpha aristulata is state listed as threatened | |
| *Lobelia dortmanna* | Water lobelia, Dortmann's cardinalflower | Campanulaceae | Lakes; shoreline (submersed up to 2 meters (6.5 feet) deep); found in western WA | State listed as threatened; at high risk of extirpation in WA state | Identify during blooming season; can be confused for more common species |
| *Marsilea* spp. (various) | Waterclover | Marsileaceae | Lakes; rivers (slow and still water); shoreline; found throughout WA | Spore cases are eaten by waterfowl; the plant provides shelter for fish | Some non-native species in WA |

## *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| *Myriophyllum* spp. (various) | Watermilfoil | Haloragaceae | Lakes; submersed; found throughout WA | Provides habitat for aquatic invertebrates, amphibians, and juvenile fish | Three species are on the noxious weed list: Myriophyllum spicatum, M. heterophyllum, and M. aquaticum; M. hippuroides is a native that can be confused with M. heterophyllum |
| *Najas flexilis* | Nodding waternymph | Najadaceae | Lakes; rivers; submersed (to 4 meters (13 feet) depth); found throughout WA | Entire plant is eaten by waterfowl and considered one of their most important food sources; provides shelter for small fish and insects | Tolerant of brackish conditions |
| *Najas guadalupensis* | Southern waternymph | Najadaceae | Lakes; rivers; brackish conditions; submersed (to 4 meters (13 feet) depth); found throughout WA | Entire plant is eaten by waterfowl and considered one of their most important food sources; provides shelter for small fish and insects | Tolerant of brackish conditions |
| *Nitella spp.* | Brittlewort | Characeae | Lakes; shoreline to deep (about 5 centimeters (2 inches) to 20 meters (66 feet)) water; floats above sediment or attaches to sediment; found throughout WA | Important food source for waterfowl; provides cover and food source for fish; stabilizes soil | A plant-like algae that uses root-like structures called holdfasts to attach to sediment; sometimes forms underwater meadows with muskgrass (Chara spp.) |

### *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| *Nuphar polysepalum* | Yellow water lily | Nymphaceae | Lakes; rivers; (slow and still water); shoreline (up to 4 meters (13 feet) deep); found throughout WA | Food source for mammals and waterfowl; spawning habitat for fish; adult frogs observed using floating and emergent vegetation; plant eaten by pond turtle postpartum | |
| *Polygonum* spp. (various) | Knotweed, floating smartweed | Polygonaceae | Lakes; rivers; (slow and still water); shoreline to deep water; found throughout WA | Food for birds | Some Polygonum species have taxonomic synonyms within the Fallopia or Persicaria genus; for those species that may be on the WA noxious weed list, identify to species level |
| *Potamogeton* spp. (various) | Pondweed | Potamogetonaceae | Lakes; floating (rooted 0–6 meters (0–20 feet) deep); found throughout WA | Seeds, tubers, and vegetation provide food and cover for aquatic animals and waterfowl | Potamogeton crispus is on the WA noxious weed list |
| *Ranunculus aquatilis* | Water buttercup, spearwort, white water crowfoot | Ranunculaceae | Lakes; rivers; submersed; found throughout WA | Fruit eaten by waterfowl | |
| *Ruppia cirrhosa* | Ditchgrass | Ruppiaceae | Lakes; river; submersed; throughout WA | Cover and food for many aquatic species; all plant parts eaten by waterfowl; used in restoration projects; | Identification to species level not necessary; unclear if Ruppia cirrhosa and R. maritima are the same species |
| *Sagittaria* spp. (various) | Arrowhead | Alismataceae | Lakes; shoreline (rarely submersed); | Eaten by waterfowl, beaver, muskrat, and porcupine | Sagittaria graminea and S. platyphylla are on the WA noxious weed list |

### *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | | | found throughout WA | | |
| *Scheuchzeria palustris* | Rannoch-rush | Scheuchzeriaceae | Lakes; shoreline; uncommon in WA | Similar in growth and structure to other valuable shoreline species | |
| *Schoenoplectus* spp. (various) | Bulrush | Cyperaceae | Lakes; rivers; shoreline (up to 1.5 meters (5 feet) deep); throughout WA | Food, cover, and nesting habitat for birds; shoreline stabilizer and used for contaminated water treatment | Schoenoplectus mucronatus is on the WA noxious weed list |
| *Scirpus* spp. (various) | Bulrush | Cyperaceae | Lakes; shoreline; found throughout WA | Food, cover, and nesting habitat for birds; shoreline stabilizer and used for contaminated water treatment | Used in habitat restoration projects for stabilization and to increase diversity |
| *Sparganium* spp. (various) | Bur-reed | Scrophulariaceae | Lakes; rivers; shoreline (1–2 meters (3–6.5 feet) deep); found throughout WA | Food source and habitat for waterfowl and mammals; known to absorb pollutants | Used in restoration projects |
| *Spartina gracilis* | Alkali cordgrass | Poaceae | Lakes; rivers; shoreline; found mostly in eastern WA | Wildlife cover, nesting habitat, and hunting area for various birds | Many invasive Spartina species present in WA saltwater areas |
| *Spartina pectinata* | Prairie Cordgrass | Poaceae | Lakes; rivers; shoreline; found mostly in eastern WA | Wildlife cover, nesting habitat, and hunting area for various birds | Spartina pectinata is uncommon in WA |
| *Stuckenia pectinata* | Sago pondweed | Potamogetonaceae | Lakes; shoreline (submersed); | Food source for ducks; habitat for invertebrates and young fish | Three species Stuckenia pectinata, S. filiformis, and S. |

### *Freshwater Species*

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | | | found throughout WA | | vaginatus are so similar they can be lumped together |
| *Torreyochloa spp.* | Weak alkaligrass, false mannagrass | Poaceae | Lakes; rivers; shoreline; found throughout WA | Shoreline stabilizer and palatable | |
| *Typha latifolia* | Cattail | Typhaceae | Lakes; rivers; shoreline; found throughout WA | Filters runoff; reduces nutrients and sediment loading; eaten by pond turtles | Typha angustifolia is on the WA noxious weed list |
| *Utricularia* spp. (various) | Bladderwort | Lentibulariaceae | Lakes; rivers; (slow and still water); shoreline (no roots but can attach); found throughout WA | Utricularia gibba, U. intermedia, and U. minor are all rare | U. inflata is on the WA noxious weed list |
| *Veronica* spp. (various) | Speedwell | Scrophulariaceae | Lakes; rivers; (slow and still water); Shoreline (2.5–10 centimeters (1–4 inches) deep); found throughout WA | Typically occurs with sedges and rushes | |
| *Zannichellia palustris* | Horned pondweed | Zannichelliaceae | Lakes; rivers; submersed; Found throughout WA | Fruit and entire plant eaten by waterfowl and other birds. Habitat for small aquatic animals. | Tolerant of brackish conditions |

## Marine/Estuarine Species

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| *Agarum* spp. | Sea colander, solid broad kelp | Laminariaceae | Marine; subtidal; attaches to rocks, wood and algae; found along the Pacific Coast and Puget Sound | Used by salmonids, juvenile fish, and forage fish; nursery habitat for rock fish; herring spawn on this kelp | This prostrate kelp is part of a large functional group in the Laminariales order |
| *Alaria* spp. (various) | Ribbon kelp | Alariaceae | Marine; low intertidal; subtidal; found along Pacific Coast and Puget Sound | Used by salmonids, juvenile fish, and forage fish; nursery habitat for rock fish; herring spawn on this kelp | These prostrate kelps are part of a large functional group in the Laminariales order; they are associated with *Nereocystis* beds |
| *Carex lyngbyei* | Lyngbye's sedge | Cyperaceae | Estuarine; shoreline; Pacific Coast | Seeds eaten by birds; browsed by deer, elk and moose; shoreline stabilizer | Used as an indicator in riverine estuaries of the extent of marine influence |
| *Costaria costata* | Five-ribbed kelp | Costariaceae | Marine; low intertidal and shallow subtidal; attaches to rocks; found along Pacific Coast and Puget Sound | Used by salmonids, juvenile fish, and forage fish; nursery habitat for rock fish; herring spawn on this kelp | This prostrate kelp is part of a large functional group in the Laminariales order |
| *Cymathaere triplicata* | Three-ribbed kelp | Laminariaceae | Marine; lower intertidal and shallow subtidal; attaches to rocks up to 30 meters (98 feet) deep; Found along Pacific Coast and Puget Sound | Used by salmonids, juvenile fish, and forage fish; nursery habitat for rock fish; herring spawn on this kelp | These prostrate kelps are part of a large functional group in the Laminariales order; they are commonly associated with other species of kelp |
| *Distichlis spicata* | Saltgrass | Gramineae | Estuarine; Shoreline; | Potential salmonid use | Supports primary productivity of salt marshes |

## Marine/Estuarine Species

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | | | found along Pacific Coast and Puget Sound | | |
| *Egregia menziesii* | Feather boa kelp | Laminariaceae | Marine; upper subtidal; attaches to rocks up to 30 meters (98 feet) deep; fully sheltered to fully exposed; found along Pacific Coast and Puget Sound | Habitat for salmonids, juvenile rock fish, forage fish, and numerous invertebrates | This floating kelp is part of a large functional group in the Laminariales order; often co-occurs with bull kelp, giant kelp and other floating kelps |
| *Jaumea carnosa* | Jaumea | Compositae | Estuarine; shoreline; found along Pacific Coast | Potential salmonid use | Supports primary productivity of salt marshes |
| *Laminaria* spp. (various) | Brown kelp | Laminariaceae | Marine; estuarine; low intertidal and upper subtidal; attaches to rocks; found along Pacific Coast and Puget Sound | Used by salmonids, juvenile fish, and forage fish; nursery habitat for rock fish; herring spawn on this kelp | These prostrate and stipitate kelps are part of a large functional group in the Laminariales order; *Laminaria farlowii, L. longipes, L. ephemera, L. setchellii and L. sinclairii* are uncommon in WA |
| *Macrocystis pyrifera* | Giant kelp | Laminariaceae | Marine; low intertidal and subtidal; attaches to rocks; found in open ocean and along Pacific | Benefits to numerous fish and invertebrate species, including salmonids and forage fish. | This floating kelp is part of a large functional group in the Laminariales order |

## Marine/Estuarine Species

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | | | Coast and Juan de Fuca | | |
| *Nereocystis luetkeana* | Bull kelp | Laminariaceae | Marine; upper subtidal; attaches to rocks up to 30 meters (98 feet) deep; fully sheltered to fully exposed; found along Pacific Coast and Puget Sound | Habitat for salmonids, juvenile rock fish, forage fish, and numerous invertebrates | This floating kelp is part of a large functional group in the Laminariales order; restoration methods with this species are being researched |
| *Phyllospadix* spp. | Surfgrass | Zosteraceae | Marine; low intertidal and subtidal; attaches to rocky substrates in regions with moderate-to-high wave exposure; found along Pacific Coast and Puget Sound | Small organisms inhabit the canopy and rhizomes; herring lay their eggs on surfgrass; provides juvenile salmon habitat; nourishment for detritivores, fish and waterfowl | Common in exposed areas along the Strait of Juan de Fuca, western Whidbey Island, and the San Juan Archipelago; often occurs with *Zostera marina*; roots are often covered by sand |
| *Pterygophora californica* | Woody kelp | Laminariaceae | Marine; Estuarine; low intertidal and subtidal; attaches to rocks; found along Pacific Coast and Puget Sound | Used by salmonids, juvenile fish, and forage fish; nursery habitat for rock fish | This stipitate kelp is part of the Laminariales order |

## Marine/Estuarine Species

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| *Ruppia maritima* | Widgeongrass | Ruppiaceae | Estuarine; submersed; found along Pacific Coast | Cover and food for many aquatic species; all plant parts eaten by waterfowl; used in restoration projects | Identification to species level not necessary; unknown if *Ruppia maritima* and *R. cirrhosa* are the same species |
| *Saccharina* spp. (various) | Brown kelp | Laminariaceae | Marine; Estuarine; low intertidal and subtidal; attaches to rocks; found along Pacific Coast and Puget Sound | Used by salmonids, juvenile fish, and forage fish; nursery habitat for rock fish; herring spawn on this kelp | These floating kelps are part of a large functional group in the Laminariales order |
| *Salicornia virginica* | Pickleweed, Virginia glasswort | Chenopodiaceae | Marine; estuarine; low elevation salt marsh; mud flat; found in western WA | Supports small copepods on which salmonids feed | |
| *Scirpus maritimus* | Seacoast bulrush | Cyperaceae | Estuarine; shoreline; found along Pacific Coast and Puget Sound | Potential salmonid use | Supports primary productivity of salt marshes |
| *Triglochin maritimum* | Seaside arrowgrass | Juncaginaceae | Estuarine Shoreline Coastal | Potential salmonid use | Supports primary productivity of salt marshes |
| *Zostera marina* | Eelgrass | Zosteraceae | Marine; estuarine; intertidal (up to 12 meters (39 feet) deep; found in western WA | Small organisms inhabit the canopy, including juvenile shellfish; herring lay eggs on eelgrass; provides habitat | |

## Marine/Estuarine Species

| Species | Common Names | Family | General Location | Rationale | Comments |
|---|---|---|---|---|---|
| | | | | juvenile salmon; nourishment for detritivores | |