WAC 173-183-450  **Salmon vulnerability.**  (1) The salmon vulnerability ranking is based on seasonal habitat preference of juveniles during outmigration, adults as they return to spawn and the presence of oil in river mouths during peak occurrence of salmon runs. The salmon vulnerability ranking was developed from existing information and determinations of the salmon subcommittee of the scientific advisory board. In the case of Chinook salmon, habitat preference differs for subyearlings and yearlings.

(2) The vulnerability of five salmon species in nine habitats are relatively scored for vulnerability to oil spills on a 1 to 5 scale for each season, where 5 represents the most vulnerable condition, and a score of 1 represents the least vulnerable condition, as follows:

<table>
<thead>
<tr>
<th>Table 7. Vulnerability of Salmon Species and/or Species Yearclass by Habitat and Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIES/YEARCLASS and SALMON VULNERABILITY HABITAT</td>
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<td></td>
</tr>
<tr>
<td>Chinook (subyearling)</td>
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<tr>
<td>Intertidal</td>
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<tr>
<td>Rocky</td>
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<tr>
<td>Cobble</td>
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<td>Gravel</td>
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<tr>
<td>Sand (vegetated)</td>
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<td>Sand (no vegetation)</td>
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<td>Mud (vegetated)</td>
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<td>Mud (no vegetation)</td>
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<tr>
<td>Subtidal</td>
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<tr>
<td>Pelagic</td>
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<tr>
<td>Chinook (yearling)</td>
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<td>Intertidal</td>
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<td>Subtidal</td>
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<td>Pelagic</td>
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<tr>
<td>Coho</td>
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<tr>
<td>Intertidal</td>
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<td>Cobble</td>
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<tr>
<td>SPECIES/YEARCLASS and SALMON VULNERABILITY HABITAT</td>
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<td>--------------------------------------------------</td>
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<td>Pink</td>
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<td>Mud (no vegetation)</td>
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<tr>
<td>Subtidal</td>
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<td>Pelagic</td>
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<td>Chum</td>
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<tr>
<td>Intertidal</td>
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<td>Rocky</td>
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<td>Mud (no vegetation)</td>
</tr>
<tr>
<td>Subtidal</td>
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<tr>
<td>Pelagic</td>
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</tbody>
</table>

The habitat-types classified under WAC 173-183-400 correlate with the habitats listed in Table 7 as follows:

**TABLE. 8. KEY TO TRANSLATING MARINE/ESTUARINE HABITAT TYPES CLASSIFIED UNDER WAC 173-183-410 TO SALMON VULNERABILITY HABITATS**

<table>
<thead>
<tr>
<th>MARINE/ESTUARINE HABITAT TYPE from WAC 173-183-410(3)</th>
<th>EQUIVALENT SALMON VULNERABILITY HABITAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Intertidal, exposed and semiexposed rocky shores</td>
<td>Intertidal, rocky</td>
</tr>
<tr>
<td>Marine Intertidal, sand-scoured rocky shores</td>
<td>Intertidal, rocky</td>
</tr>
<tr>
<td>Marine Intertidal, protected rocky shores</td>
<td>Intertidal, rocky</td>
</tr>
</tbody>
</table>
(3) For each oil spill where the compensation schedule is applied, the RDA committee shall determine the following:

(a) For spills greater than 1,000 gallons, the salmon vulnerability habitat(s) exposed to spilled oil and each habitat's percent-coverage of the total area exposed to spilled oil;

(b) For spills of less than 1,000 gallons, the salmon vulnerability habitat(s) in the subregion(s) exposed to spilled oil and the percent-coverage of these habitats in the exposed subregion(s);

(c) The season in which spill impacts will be greatest;

(d) The individual species/year class vulnerability score (SAVSi) as described in subsection (4) of this section; and

(e) The composite salmon vulnerability score for a spill (SAVSs) as described in subsection (5) of this section.

(4) From the information enumerated in subsection (2) of this section, the RDA committee shall determine the species/year class vulnerability score for a spill (SAVSi) by summing the weighted species/year class vulnerability scores for each of the salmon vulnerability habitats classified in Table 8 of subsection (2) of this section, where weighting is defined as percent-coverage of the salmon vulnerability habitats as determined in subsection (3) of this section, as follows:

\[
SAVS_i = (savs_1 \times PCT-COV_1) + (savs_2 \times PCT-COV_2) + \ldots + (savs_n \times PCT-COV_n)
\]
where \( SAVS_i \) = salmon vulnerability score for a species/year class;
\( savs_j \) = species/year class habitat vulnerability score for the season of greatest spill impact from subsection (2) of this section;
\( PCT-COV_j \) = percent-coverage of habitat \( j \) from subsection (2) of this section;
\( i \) = Chinook, subyearling (Cs); Chinook, yearling (Cy); Coho (C); Pink (P); Chum (Ch); and Sockeye (So); and
\( n \) = the number of salmon vulnerability habitats used to calculate SAVS as determined in subsection (3) of this section.

(5) The raw salmon vulnerability score for a spill (SAVS\(_s\)) shall be calculated as follows:

(a) In years when pink salmon are present in state waters. The chinook salmon spill vulnerability scores for subyearlings (SAVS\(_{Cs}\)) and yearlings (SAVS\(_{Cy}\)) as determined in subsection (4) of this section shall be averaged, then added to the spill vulnerability scores for coho (SAVS\(_C\)), pink (SAVS\(_P\)), chum (SAVS\(_Ch\)) and sockeye (SAVS\(_So\)) salmon as determined in subsection (4) of this section. The sum of these scores shall then be divided by 5, as described by the following formula:

\[
SAVS_s = \frac{1}{5} \left( \frac{SAVS_{Cs} + SAVS_{Cy}}{2} + SAVS_C + SAVS_P + SAVS_{Ch} + SAVS_{So} \right)
\]

where 
\( SAVS_s \) = salmon vulnerability score for a spill;
\( SAVS_{Cs} \) = chinook, subyearling vulnerability score from subsection (4) of this section;
\( SAVS_{Cy} \) = chinook (yearling) vulnerability score from subsection (4) of this section;
\( SAVS_C \) = coho salmon vulnerability score from subsection (4) of this section;
\( SAVS_P \) = pink salmon vulnerability score from subsection (4) of this section;
\( SAVS_{Ch} \) = chum salmon vulnerability score from subsection (4) of this section;
\( SAVS_{So} \) = sockeye salmon vulnerability score from subsection (4) of this section;

(b) In years when pink salmon are not present in state waters. The chinook salmon spill vulnerability scores for subyearlings (SAVS\(_{Cs}\)) and yearlings (SAVS\(_{Cy}\)) as determined in subsection (4) of this section shall be averaged, then added to the spill vulnerability scores for coho (SAVS\(_C\)), chum (SAVS\(_Ch\)) and sockeye (SAVS\(_So\)) salmon as determined in subsection (4) of this section. The sum of these scores shall then be divided by 4, as described by the following formula:

\[
SAVS_s = \frac{1}{4} \left( (SAVS_{Cs} + SAVS_{Cy})/2 + SAVS_C + SAVS_P + SAVS_{Ch} + SAVS_{So} \right)
\]
where \( \text{SAVS}_s = \text{salmon vulnerability score for a spill}; \)
\( \text{SAVS}_{Cs} = \text{chinook, subyearling vulnerability score from subsection (4) of this section}; \)
\( \text{SAVS}_{Cy} = \text{chinook (yearling) vulnerability score from subsection (4) of this section}; \)
\( \text{SAVS}_C = \text{coho salmon vulnerability score from subsection (4) of this section}; \)
\( \text{SAVS}_p = \text{pink salmon vulnerability score from subsection (4) of this section}; \)
\( \text{SAVS}_C = \text{chum salmon vulnerability score from subsection (4) of this section}; \)
\( \text{SAVS}_{So} = \text{sockeye salmon vulnerability score from subsection (4) of this section}; \)

(6) If spilled oil enters a river mouth, \( \text{SAVS}_i \) from subsection (4) of this section shall be assigned a score of 5 for each species/year class in peak occurrence in a river mouth during the period of time the spilled oil enters and remains in the river mouth. Scores of 5 determined for species/year classes under this subsection shall supersede \( \text{SAVS}_i \) scores calculated under subsection (4) of this section. The RDA committee shall make determinations of whether oil enters a river mouth and whether species/year classes are in peak occurrence when spilled oil is present in a river mouth.

(7) The final \( \text{SAVS}_s \) score is found by rounding the raw \( \text{SAVS}_s \) score calculated in subsection (5) of this section to the nearest 0.01 as follows: Decimals less than 0.005 shall be rounded down and decimals equal to or greater than 0.005 shall be rounded up.

(8) The final salmon vulnerability score for a spill shall be multiplied by 1.5 when any number of individuals of state or federal threatened or endangered salmon races and/or runs are exposed to spilled oil.

[Statutory Authority: Chapter 90.48 RCW. WSR 92-10-005 and 92-13-083 (Order 91-13 and 91-13A), § 173-183-450, filed 4/23/92 and 6/16/92, effective 5/24/92 and 7/17/92.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.