

Chapter 173-183 WAC

PREASSESSMENT SCREENING AND OIL SPILL COMPENSATION SCHEDULE REGULATIONS

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WAC 173-183-010 Purpose. The purpose of this rule is to establish procedures for convening a resource damage assessment (RDA) committee, preassessment screening of resource damages resulting from oil spills to determine which damage assessment methods to use, and determining damages in cases where the compensation schedule is selected as the damage assessment methodology to apply. The RDA committee, utilizing the preassessment screening process, shall determine whether a detailed resource damage assessment studies should be conducted or whether the compensation schedule authorized under RCW 90.48.366 and 90.48.367 will be used to assess damages for each oil spill into state waters.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-010, filed 4/23/92, effective 5/24/92.]

WAC 173-183-020 Authority. This regulation implements RCW 90.48.366, 90.48.367, and 90.48.368 of the Water Pollution Control Act, as amended in 1987, 1989, and 1991.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-020, filed 4/23/92, effective 5/24/92.]

WAC 173-183-030 Applicability. This chapter shall apply to all oil spills into the waters of the state. Under this chapter, the department may require or take any and all actions necessary to investigate and assess damages from those spills.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-030, filed 4/23/92, effective 5/24/92.]

WAC 173-183-100 Definitions. (1) "Columbia River estuary environment" means the habitat and all other public resources associated with or dependent on the estuarine waters of the Columbia River.

(2) "Compensation schedule" means the set of procedures enumerated in WAC 173-183-300 through 173-183-870 to determine the public resource damages resulting from an oil spill for cases in which damages are not quantifiable at a reasonable cost.

(3) "Damages" means the amount of monetary compensation necessary to:

(a) Restore any injured public resource to its condition before sustaining injury as a result of an oil discharge in violation of chapter 90.48 or 90.56 RCW, to the extent technically feasible, including any loss in value incurred during the period between injury and restoration in cases where damages are quantifiable at a reasonable cost; or

(b) Adequately compensate for the loss or diminution in value as determined through application of the compensation schedule provided in WAC 173-183-300 through 173-183-870 in cases where damages are not quantifiable at a reasonable cost.

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

(5) "Director" means the director of the department of ecology, or his or her designee.

(6) "Discharge" means any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

(7) "Estuarine environment" means the habitat and all other public resources associated with or dependent on estuarine waters of the state.

(8) "Estuarine waters" or "estuarine waters of the state" means the waters within state jurisdiction that are semienclosed by land but have open, partly obstructed, or sporadic access to the ocean, and in which seawater is at least occasionally diluted by freshwater runoff from land. Estuarine waters of the state include adjacent tidal flats and beaches up to the limit of tidal inundation or wave splash. For purposes of this chapter, estuarine waters of the state include those designated on the map attached as Appendix 1 to this chapter, and the portion of the Columbia River estuary within state jurisdiction upstream to river mile 46 or the line drawn perpendicularly across the river which touches the upstream end of Puget Island.

(9) "Freshwater stream, river, and lake environment" means the habitat and all other public resources associated with or dependent on the streams, rivers, and lakes under state jurisdiction.

(10) "Freshwater wetland" or "freshwater wetlands" means lands transitional between terrestrial and freshwater aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water, and lands having one or more of the following attributes at least periodically: The land supports predominantly hydrophytes; the substrate is predominately undrained hydric soil; and the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season each year.

(11) "Freshwater wetland environment" means the habitat and all other public resources associated with or dependent on the freshwater wetlands of the state.

(12) "Freshwaters" or "freshwaters of the state" means all waters of the state except those classified as marine and estuarine waters of the state as defined in this chapter, including lakes, rivers, streams, ponds, other surface waters and wetlands.

(13) "Habitat" means the substrate and complement of associated biota not otherwise included in the vulnerability rankings in the applicable compensation schedule(s) that is part of this chapter.

(14) "Immediate removal" or "immediately removes" means removal of the spilled oil, or portions thereof, from the receiving environment by the potentially liable party within six hours of spill initiation.

(15) "Initial department responder" means the department of ecology spill responder who first arrives at the scene of the spill.

(16) "Injury" or "injuries" means an adverse change, either long- or short-term, to a public resource resulting either directly or indirectly from exposure to a discharge of oil in violation of chapter 90.48 or 90.56 RCW.

(17) "Loss in services" means a temporary or permanent reduction in the ability of the resource to provide its use or benefit to the public or to other resources.

(18) "Loss in value or lost value" of a damaged resource means the amount equal to the sum of consumptive, nonconsumptive, and indirect use values, as well as lost taxation, leasing, and licensing revenues during the period between injury and restoration; indirect use values may include existence, bequest, option, and aesthetic values.

(19) "Marine and estuarine habitats" mean the habitats found in marine and estuarine waters of the state as defined in this chapter.

(20) "Marine birds" means all seabirds, shorebirds, waterfowl, raptors and other avifauna that are dependent on marine and estuarine environments of the state for some portion of their life requirements including feeding, breeding, and habitat.

(21) "Marine environment" means the habitat and all other public resources associated with or dependent on marine waters of the state.

(22) "Marine fish," in context of the compensation schedule, means the species listed in Appendix 2.

(23) "Marine mammals" means the cetaceans, pinnipeds, sea otters, and river otters associated with marine and estuarine waters of the state.

(24) "Marine waters" or "marine waters of the state" means all coastal waters not appreciably diluted by freshwater, including open coastal areas, straits, and euhaline inland waters extending from the seaward limit of state jurisdiction to:

(a) The landward limit of tidal inundation or wave splash; or

(b) The seaward limit of estuarine waters of the state.

(25) "Not quantifiable at a reasonable cost" means any diminution in value of a public resource that cannot be measured with sufficient precision or accuracy by currently available and accepted procedures within a reasonable time frame.

(26) "Oil" or "oils" means oil of any kind that is liquid at atmospheric temperature and pressure and any fractionation thereof, including, but not limited to, crude oil, petroleum gasoline, fuel oil, diesel oil, oil sludge, oil refuse, biological oils and blends, and oil mixed with wastes other than dredged spoil. Oil does not include any substance listed in Table 302.4 of C.F.R. Part 302 adopted August 14, 1989, under section 101(14) of the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by P.L. 99-499.

(27) "On scene coordinator" (OSC) means the department official who supervises the spill response team and compiles the initial report concerning the facts and circumstances of the spill for the department.

(28) "Person" means any political subdivision, government agency, municipality, industry, public or private corpo-

ration, copartnership, association, firm, individual, or any other entity whatsoever.

(29) "Potentially liable party" means the person or persons who may be liable for damages resulting from an oil spill.

(30) "Preassessment screening" means the investigation and determination of the facts and circumstances surrounding an oil spill which are used to determine whether a damage assessment investigation should be conducted, or alternatively, whether the compensation schedule will be used to assess damages.

(31) "Public resources" or "publicly owned resources" means fish, animals, vegetation, land, waters of the state, and other resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the state.

(32) "Reasonable cost" for a damage assessment means a cost that is anticipated to be less than the amount of damages that may have occurred or may occur.

(33) "Receiving environment" means waters of the state exposed to the spill and all public resources associated with or dependent on the exposed waters.

(34) "Resource damage assessment committee" or "RDA committee" means the preassessment screening committee established under RCW 90.48.368 and charged with determining whether to conduct detailed damage assessment studies or to apply the compensation schedule for oil spills into waters of the state, and overseeing reconnaissance and damage assessment activities.

(35) "Restoration or enhancement projects or studies" means an activity that is intended to restore, replenish, restock, or replace public resources, or to further investigate the long-term effect of resource injuries as determined by the RDA committee for the benefit of the public.

(36) "Salmon," in context of the compensation schedule, means the species listed in Appendix 3.

(37) "Scientific advisory board" means the advisory group established by the department to assist in development of the compensation schedule as required by RCW 90.48.366.

(38) "Season" or "seasons" means winter, spring, summer, and/or fall, where winter occurs during the months December through February, spring occurs during the months March through May, summer occurs during the months June through August, and fall occurs during the months September through November.

(39) "Shellfish," in context of the compensation schedule, means the species listed in Appendix 4, but does not include privately grown shellfish on public lands.

(40) "Spill" means an unauthorized discharge of oil into waters of the state.

(41) "State" means state of Washington.

(42) "State trustee agencies" means the state agencies with responsibility for protecting and/or managing public resources.

(43) "Subregion" or "subregions" means the areas into which state marine and estuarine waters have been divided for purposes of the compensation schedule as designated on the maps attached as Appendix 1.

(44) "Technical feasibility" or "technically feasible" means that given available technology, a restoration or enhancement project can be successfully completed at a cost

that is not disproportionate to the value of the public resource before the injury.

(45) "Trust resources" means the public resource(s) under a particular state agency's jurisdiction for protection and/or management.

(46) "Unquantifiable damage" means any diminution in value of a public resource that cannot be measured with sufficient precision or accuracy by currently available and accepted procedures within a reasonable period of time.

(47) "Waters of the state" or "state waters" includes lakes, rivers, ponds, streams, inland waters, underground water, salt waters, estuaries, tidal flats, beaches, and lands adjoining the seacoast of the state, sewers, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

(48) "Wetland" or "wetlands" means lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water, and lands having one or more of the following attributes at least periodically: The land supports predominantly hydrophytes; the substrate is predominantly undrained hydric soil; and the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season each year.

[Statutory Authority: Chapters 90.56, 88.46, 90.48 RCW. 07-22-119 (Order 07-14), § 173-183-100, filed 11/7/07, effective 12/8/07. Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-100, filed 4/23/92, effective 5/24/92.]

THE RDA COMMITTEE AND PREASSESSMENT SCREENING

WAC 173-183-200 Preassessment screening process.

(1) Findings from the preassessment screening shall be used to determine whether a formal damage assessment investigation should be conducted or whether the compensation schedule will be applied to assess public resource damages associated with spills of oil into state waters.

(2) The preassessment screening process shall occur concurrently with reconnaissance and cleanup activities as defined in WAC 173-183-220(2).

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-200, filed 4/23/92, effective 5/24/92.]

WAC 173-183-210 Incident discovery and reporting.

The state on-scene coordinator (OSC) or initial department responder, shall provide prompt notice to the committee chair when there is evidence of an oil spill into state waters.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-210, filed 4/23/92, effective 5/24/92.]

WAC 173-183-220 Initial site reconnaissance and notification of the RDA committee. (1) The on-scene coordinator (OSC) or initial department responder to an oil spill shall report the following to the RDA committee chair as soon as practicable:

(a) Initial determination of the type and character of the oil(s) spilled;

(b) Initial determination of location of the spill, general type of habitat(s) impacted, geographic coverage of the spill, and amount of oil(s) spilled; and

(c) Initial determination of potentially liable party identity.

(2) The RDA committee chair shall notify RDA committee members of an oil spill as soon as practicable after receiving a report by the OSC or initial department responder, and provide a preliminary assessment of the potential risks to public resources.

(3) The RDA committee may, upon notification of an oil spill, initiate or authorize the RDA committee chair to initiate any necessary reconnaissance activities to:

- (a) Further identify public resources at risk;
- (b) Determine the extent to which public resources are, or may be, adversely affected;
- (c) Document actual or potential injury to public resources; and
- (d) Determine which local, state, and federal agencies and Indian tribes may have interests or jurisdiction over any of the public resources that may be adversely affected by the spill.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-220, filed 4/23/92, effective 5/24/92.]

WAC 173-183-230 RDA committee. (1) The following state agencies shall have membership on the RDA committee: Departments of ecology, fisheries, health, natural resources, wildlife, and the parks and recreation commission.

(2) Agencies with membership on the RDA committee shall nominate a representative and alternate to be appointed to the committee by the director.

(3) The department of ecology shall chair the RDA committee.

(4) The department may select representatives from the following agencies and governments for participation on the RDA committee on a spill-by-spill basis: Departments of emergency management, as well as other federal, state, and local agencies, and tribal and local governments whose presence would enhance reconnaissance or damage assessment activities of spill response.

If a selected representative declines or is unable to participate on the committee, the representative shall provide written notice to the department within twelve hours of being notified so that a replacement member may be appointed. Prompt consideration will be given to other local, state, or federal agency, or tribal government requests for participation on the RDA committee on a spill-by-spill basis.

(5) The RDA committee shall convene as soon as possible, but no later than thirty days after the department receives notification of a spill, or the next regularly scheduled meeting of the committee following a spill.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-230, filed 4/23/92, effective 5/24/92.]

WAC 173-183-240 Preassessment screening. (1) The primary duty of the RDA committee during the preassessment screening is to determine whether detailed damage assessment studies should be conducted under RCW 90.48.367, or alternatively, whether the compensation schedule authorized under RCW 90.48.366 and 90.48.367 will be used to assess damages.

(2) The RDA committee shall consider information collected during reconnaissance and cleanup as well as other rel-

evant background information pertaining to threatened public resources or resource use for the preassessment screening.

(3) The RDA committee shall consider the following factors when determining the type of damage assessment to be conducted:

(a) Whether evidence from reconnaissance investigations suggests that injury has occurred or is likely to occur to publicly owned resources;

(b) The potential loss in services provided by public resources injured or likely to be injured and the expected value of the potential loss;

(c) Whether a restoration project to return lost services is technically feasible;

(d) The accuracy of damage quantification methods that could be used and the anticipated cost-effectiveness of applying each method;

(e) The extent to which likely injury to public resources can be verified with available quantification methods; and

(f) Whether the injury, once quantified, can be translated into monetary values with sufficient precision or accuracy.

(4) The department shall apply the compensation schedule to determine the amount of damages if the RDA committee determines that:

(a) Restoration or enhancement of the injured resources is not technically feasible;

(b) Damages are not quantifiable at a reasonable cost; and

(c) The restoration and enhancement projects or studies proposed by the potentially liable party are insufficient to adequately compensate the people of the state for public resource damages.

(5) The RDA committee is encouraged to work cooperatively with the potentially liable party, to the greatest extent possible, to increase the efficiency of the damage assessment process, and shall provide for the ongoing involvement of the potentially liable party.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-240, filed 4/23/92, effective 5/24/92.]

WAC 173-183-250 Damage assessment studies. (1) If the RDA committee, after considering the factors enumerated in WAC 173-183-240(3), determines that the damages to be investigated are quantifiable at a reasonable cost and that proposed assessment studies are clearly linked to quantification of the damages incurred, then the RDA committee may authorize damage assessment studies.

(2) If the RDA committee authorizes damage assessment studies under RCW 90.48.367(3), the RDA committee chair shall promptly notify the potentially liable party of this decision.

(3) The state trustee agency(ies) responsible for the potentially injured resource and habitat shall conduct the damage assessment studies and pursue all appropriate remedies with the responsible party. The RDA committee shall consider the proposed damage assessment studies and the effects of any proposed remedies in a timely manner, consistent with WAC 173-183-240(3).

(4) As new information becomes available, the committee may reevaluate the scope of damage assessment studies using the factors listed in WAC 173-183-240(3), and may

reduce or expand the scope of damage assessment studies as appropriate.

(5) The department may negotiate with a potentially liable party to perform restoration and enhancement projects or studies which may substitute for all or part of the damages determined through the damage assessment studies.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-250, filed 4/23/92, effective 5/24/92.]

WAC 173-183-260 Restoration and enhancement projects proposed by the PLP. (1) The potentially liable party (PLP) may propose restoration or enhancement projects or studies during the preassessment screening phase to substitute for some or all of:

(a) The damages calculated from the compensation schedule authorized under RCW 90.48.366 and 90.48.367; or
(b) The claims from damage assessment studies authorized under RCW 90.48.142 and 90.48.367.

(2) To be considered as part of the preassessment screening decision process specified in WAC 173-183-240, PLP proposals must be submitted to the RDA committee chair within ten days of PLP notification by the RDA committee.

(3) The RDA committee may accept the PLP proposal in lieu of some or all of:

(a) The damages calculated from the compensation schedule authorized under RCW 90.48.366 and 90.48.367; or
(b) The claims from damage assessment studies authorized under RCW 90.48.142 and 90.48.367.

(4) For the RDA committee to find a proposal sufficient to adequately compensate the people of the state for public resource damages, the PLP proposal must at least contain the following elements:

(a) An investigation of all potentially injured public resources to determine if they have been exposed to the spilled oil;

(b) Follow-up investigations on all public resources documented to be exposed to determine if exposure has resulted in injury;

(c) Follow-up investigations on all public resources documented to be injured by the spill to quantify the injury;

(d) Quantification of damages for all public resources where injury has been quantified; and

(e) Restoration/enhancement projects to compensate for public resource injuries to the extent technically feasible; and, for damages that cannot be compensated by technically feasible restoration or enhancement projects, implementation of projects/studies to compensate for these losses. Public resource restoration and enhancement projects and studies shall be prioritized as follows:

- (i) On-site, in-kind;
- (ii) Offsite, in-kind;
- (iii) On-site, out-of-kind; and
- (iv) Offsite, out-of-kind.

(5) Prior to the PLP initiating any projects or studies intended to substitute for damages, the PLP's proposal must be approved by the RDA committee. If a PLP proposal is found to be acceptable to the RDA committee, the committee shall notify the PLP of this decision.

(6) If RDA committee finds a PLP project and study plan proposal to be acceptable, the RDA committee shall oversee all projects and studies conducted by the PLP.

(3/10/09)

(7) Upon completion of the PLP's project and study plan, the RDA committee shall decide the extent to which the PLP's projects and studies substitute for public resource damages as identified in subsection (3) of this section.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-260, filed 4/23/92, effective 5/24/92.]

WAC 173-183-270 Participation. To efficiently implement WAC 173-183-250 the RDA committee may develop public resource damage assessment agreements to facilitate cooperation between state and federal agencies and Indian tribes.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-270, filed 4/23/92, effective 5/24/92.]

OIL SPILL COMPENSATION SCHEDULE GENERAL

WAC 173-183-300 Purpose. The purpose of this section is to establish a compensation schedule that will provide a simple methodology for assessing damages to public resources from oil spills into fresh, marine, and estuarine waters of the state. The intent is to provide an alternate methodology to the extensive and expensive natural resource damage assessments presently being conducted following oil spills. This section provides the procedures for:

(1) Establishing the relative vulnerability of public resources to oil spills by taking into consideration the relative toxicity of the oil spilled and the sensitivity of public resources present in the receiving environment; and

(2) Determining adequate monetary compensation for injury to public resources resulting from an oil spill.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-300, filed 4/23/92, effective 5/24/92.]

WAC 173-183-310 Authority. This regulation implements the establishment of a resource damage compensation schedule consistent with the provisions of RCW 90.48.366 for the discharge of oil in violation of chapter 90.48 or 90.56 RCW which requires the department to establish the compensation schedule in consultation with the departments of fisheries, wildlife, and natural resources, and the parks and recreation commission, and with the assistance of a scientific advisory board.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-310, filed 4/23/92, effective 5/24/92.]

WAC 173-183-320 Compensation schedule. (1) The compensation schedule determines adequate compensation for unquantifiable damages or for damages not quantifiable at a reasonable cost for persons liable under RCW 90.48.142.

(2) Adequate compensation as determined from the compensation schedule is derived from preexisting information of resource vulnerability to a class of oil spilled in a particular subregion of the state during a particular season, plus any additional information collected at the reconnaissance stage of the spill response.

(3) Under RCW 90.48.366, the amount of compensation assessed under this schedule shall be no less than one dollar per gallon of oil spilled and no greater than one hundred dollars per gallon of oil spilled.

[Statutory Authority: Chapters 90.56, 88.46, 90.48 RCW. 07-22-119 (Order 07-14), § 173-183-320, filed 11/7/07, effective 12/8/07. Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-320, filed 4/23/92, effective 5/24/92.]

WAC 173-183-330 Resource damage assessment using the compensation schedule. The compensation schedule includes:

(1) A relative ranking for each of the classes of oil defined in this chapter as determined by their known chemical, physical, and mechanical properties, and other factors that may affect the severity and persistence of the spill on the receiving environment;

(2) A relative vulnerability ranking of receiving environments which takes into account location of the spill, habitat and public resource sensitivity to oil, seasonal distribution of public resources, areas of recreational use and aesthetic importance, the proximity of the spill to important habitats for birds, aquatic mammals, fish, or to species listed as threatened or endangered under state or federal law, and other areas of special ecological or recreational importance as determined by the department;

(3) A quantitative method for determining public resource damages resulting from an oil spill, based on the oil effects and vulnerability rankings designed to compensate the people of this state for those damages that cannot be quantified at a reasonable cost that result from oil spills; and

(4) A method for adjusting damages calculated under the compensation schedule based on actions taken by the potentially liable party that:

(a) Demonstrate a recognition and affirmative acceptance of responsibility for the spill, such as the immediate removal of oil and the amount of oil removed from the environment; or

(b) Enhance or impede the detection of the spill, the determination of the quantity of oil spilled, or the extent of damage, including the unauthorized removal of evidence such as injured fish or wildlife.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-330, filed 4/23/92, effective 5/24/92.]

WAC 173-183-340 Oil class ranking. (1) The purpose of this section is to provide a relative ranking of the severity of effects caused by a spilled oil. The ranking is based on the known chemical, physical, and mechanical properties of oils in the six classes identified in this section, as well as other properties affecting propensity to cause acute toxicity and mechanical injury, and to persist in the environment. For purposes of the compensation schedule, relative rankings of the severity of effects caused by a spilled oil are provided for the following classes of oils:

- (a) Prudhoe Bay crude oil;
- (b) Bunker C;
- (c) No. 2 fuel oil;
- (d) Gasoline;
- (e) Kerosene; and
- (f) Kerosene-type jet fuel.

(2) The relative ranking scores for the oil classes range from 1 to 5, where 1 represents the least harmful effect and 5 represents the most harmful effect. For purposes of RCW 90.48.366 and 90.48.367, the acute toxicity, mechanical

injury, and persistence relative ranking scores for the oils described by the classes enumerated in subsection (1) of this section shall be as follows:

Table 1. Acute Toxicity, Mechanical Injury and Persistence Relative Ranking Scores for Classified Oils (OIL).

Oil Class	Acute Toxicity	Mechanical Injury	Persistence
Prudhoe Bay Crude Oil	0.9	3.6	5
Bunker C	2.3	5.0	5
No. 2 Fuel Oil	2.3	3.2	2
Gasoline	5.0	1.0	1
Kerosene	1.4	2.4	1
Kerosene-type Jet Fuel	1.4	2.4	1

(3) In cases where the spilled oil is not described by any of the oil classes listed in subsection (1) of this section, or is a mixture of oils, the department shall determine the acute toxicity, mechanical injury, and persistence scores as follows:

(a) By assigning the acute toxicity, mechanical injury, and persistence scores assigned to the oil class best describing the spilled oil from subsection (2) of this section; or

(b) By using the following guidance to determine the acute toxicity, mechanical injury, and persistence relative ranking scores:

(i) Acute toxicity relative ranking score. An acute toxicity raw score is determined by summing the weighted averages of the 1-, 2-, and 3-ringed aromatic compounds comprising the spilled oil and dividing this sum by 107, where aromatic compound composition is determined by percent-weight, and weighting is determined by aqueous solubility of the aromatic compounds, as described by the following formula:

$$\text{Acute Toxicity Raw Score} = \frac{[(\text{SOL}_1 * \text{PCT-WT}_1) + (\text{SOL}_2 * \text{PCT-WT}_2) + (\text{SOL}_3 * \text{PCT-WT}_3)]}{107}$$

where SOL_i = solubility in seawater of i-ring aromatic hydrocarbons, and

PCT-WT_i = percent weight of i-ring aromatic hydrocarbons in the spilled oil, $i = 1, 2, \text{ and } 3$.

The final acute toxicity relative ranking score is determined by rounding the acute toxicity raw score to the nearest 0.1 using standard rounding procedures where decimals less than 0.05 are rounded down and decimals equal to or greater than 0.05 are rounded up.

(ii) Mechanical injury relative ranking score. A mechanical injury raw score is determined by subtracting 0.688 from the specific gravity of the spilled oil and dividing this result by 0.062 as follows:

$$\text{Mechanical Injury Score} = (\text{SP} - 0.688) / 0.062$$

where SP = specific gravity of the spilled oil.

The final mechanical injury ranking score is determined by rounding the mechanical injury raw score to the nearest 0.1 using standard rounding procedures where decimals less than 0.05 are rounded down and decimals equal to or greater than 0.05 are rounded up.

(iii) Persistence relative ranking score. A persistence relative ranking score is determined from empirical data

describing the length of time the spilled oil is known to, or is likely to, persist in a variety of habitat types. Scoring is assigned on a 1 to 5 scale as follows:

SCORE	ANTICIPATED PERSISTENCE
5	5 - 10 years or more
4	2 - 5 years
3	1 - 2 years
2	1 month to 1 year
1	days to weeks.

(4) In cases where the spilled oil is comprised of two or more types of oil, damages shall be calculated under the schedule for each oil type and then summed to calculate total damages liability.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-340, filed 4/23/92, effective 5/24/92.]

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

COMPENSATION SCHEDULE FOR SPILLS INTO MARINE AND ESTUARINE WATERS, EXCLUDING ESTUARINE WATERS OF THE COLUMBIA RIVER

WAC 173-183-400 Vulnerability of marine and estuarine environments to oil spills. (1) The purpose of this section is to describe the method of ranking vulnerability of marine and estuarine environments, excluding the Columbia River estuary environment to oil spills for the purposes of assessing damages using the compensation schedule.

(2) Marine and estuarine waters of the state excluding the Columbia River estuary are divided into sixteen regions and one hundred thirty-one subregions for purposes of RCW 90.48.366, as designated on the maps attached as Appendix 5 of this chapter.

(3) A spill vulnerability score (SVS) shall be calculated at the time of a spill for the most sensitive subregion and season impacted by the spill. The SVS rates the vulnerability of public resources to spilled oil based on the propensity of the oil to cause acute toxicity and mechanical injury, and to persist in the environment. SVS is determined by summing the vulnerability scores for marine birds, marine mammals, fishery species, recreational use and habitats for the subregion(s) and most sensitive season impacted by the spill. The formula to be used to calculate SVS for each of the three oil effects, acute toxicity, mechanical injury, and persistence, is as follows:

$$\text{Spill vulnerability score (SVS)}_i = \text{HVS}_i + \text{BVS}_j + \text{MVS}_j + \text{MFVS}_j + \text{SFVS}_j + \text{SAVS}_j + \text{RVS}_j$$

where HVS_i = habitat vulnerability to oil's propensity to cause i
 BVS = marine bird vulnerability score (WAC 173-183-420(3));
 MVS = marine mammal vulnerability score (WAC 173-183-460(3));
 MFVS = marine fisheries vulnerability score (WAC 173-183-430(3));
 SFVS = shellfish vulnerability score (WAC 173-183-440(3));

SAVS = salmon vulnerability score (WAC 173-183-450(5));

RVS = recreation vulnerability score (WAC 173-183-470(3));

i = acute toxicity (AT), mechanical injury (MI), or persistence (Per); and

j = the most sensitive season affected by the spill: Spring, summer, fall, or winter

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-400, filed 4/23/92, effective 5/24/92.]

WAC 173-183-410 Marine and estuarine habitat vulnerability. (1) The purpose of this section is to provide a marine and estuarine habitat vulnerability ranking. The marine and estuarine habitats present in the state are:

(a) Classified into thirty-seven types based on substrate type, energy regime and depth of occurrence; and

(b) Relatively ranked and scored for vulnerability to oil spills on a 1 to 5 scale, where a habitat vulnerability score (hv) of 5 represents the greatest vulnerability and an hv of 1 represents the least vulnerability.

(2) Marine and estuarine habitat vulnerability scores (hv) are based on the following:

(a) Presence of living public resources at risk, where living public resources include only those not otherwise incorporated into the compensation schedule in the marine fish, shellfish, salmon, marine mammal or marine bird vulnerability rankings of WAC 173-183-420 through 173-183-460; and

(b) Predicted sensitivity to the acute toxicity, mechanical injury and persistence effects of oil based on energy regime of the habitat and propensity to entrain oil.

(3) For purposes of RCW 90.48.366, marine and estuarine habitats of the state are classified into the following thirty-seven habitat types:

(a) Marine intertidal habitats.

(i) Exposed and semiexposed rocky shores. Bedrock and boulder habitats exposed to the full range of wave energies of the Pacific (i.e., on the outer coast), or to extensive wave fetch along the Strait of Juan de Fuca. Rocky areas on the coast partly protected behind sea stacks or islands also fall into this category.

(ii) Sand-scoured rocky shores. Rocky headlands or sea stacks directly adjacent to high energy sandy beaches such that there is much suspended sand in the water, which scours the rock. Unique plants and animals are found here.

(iii) Protected rocky shores. Bedrock and boulder habitats lacking oceanic swell and extensive wave fetch; e.g., inside waters of the San Juan Islands, headlands in bays off the Strait of Juan de Fuca or well protected behind islands on the outer coast.

(iv) Semiexposed cobble and mixed-coarse beaches. Beaches exposed to moderate wave action composed of cobble overlying sand, or to somewhat less wave action, with a mix of cobble, gravel, and sand where no one component occupies more than seventy percent of the surface. Algae may grow on larger cobbles, and animals live both on the surface and in the sediment. Species vary dramatically with degree of wave exposure and composition of the sediment. Found inside the San Juan Islands, outside of Whidbey Island, at semiprotected sites along the Strait, and behind island and sea stacks on the coast.

(v) Semiexposed gravel beaches. Unstable beaches, containing some sand in more protected areas. Many sites along the Strait of Juan de Fuca.

(vi) Exposed sandy beaches. Pure marine sands found in moderate to high-energy areas, e.g., on the outer coast and along the Strait of Juan de Fuca. Mouths of bays with some wave action also fall into this category.

(vii) Semiprotected mixed-fine beaches. Mixed sand and silt habitats, found in bays and inlets with some wave action so they are not dominated by the finer sediments (muds). Patches of gravel may be present high on the shore.

(viii) Protected mud flats. Areas of little to no wave energy, where fine sediments settle and accumulate organic matter. Found in calm bays and inlets with little freshwater influx (i.e., not estuaries).

(b) Marine subtidal.

(i) Shallow subtidal rock and boulders. Areas less than 15 m depth with some currents so that sediments do not totally cover bedrock. Kelp beds are found in these habitats, which are widespread in the state.

(ii) Deep subtidal rock and boulders. Areas deeper than 15 m and thus lacking in significant algal cover, but still with enough currents to keep the substrate exposed. Common in the San Juans and the Strait.

(iii) Deep subtidal cobble and mixed-coarse areas. "Scoured" areas in channels or passes with high currents, composed entirely of cobbles or with gravel and sand mixed in.

(iv) Shallow subtidal mixed-coarse to mixed-fine areas (low energy). Areas ranging from cobbles lying over a matrix of sand and gravel to mixed sand and silt, in waters less than 15 m. Bays and inlets commonly have this range of substrate types. Plants and animals exist both on the cobbles and in the sediment.

(v) Shallow subtidal gravel or mixed-fine areas (high energy). Areas just offshore of sand or gravel beaches, where swells or wave action keep fine sediments from accumulating. Substrates range from pure gravel to gravel mixed with sand and shells. Common in the Strait.

(vi) Deep subtidal sand. Areas deeper than 15 m in the Strait or on the coast where swells keep the substratum fairly coarse.

(vii) Deep subtidal mixed-fine areas. Areas of sand, shells, and pebbles with some currents removing finer particles.

(viii) Deep subtidal muddy areas. Areas with no swell and few currents, where fine silts settle out and accumulate organic matter.

(ix) Open water. Areas deeper than 20 m.

(c) Estuarine intertidal.

(i) Open rocky shores. Rocky intertidal areas (including hardpan and riprap) in areas exposed to moderate waves or currents, e.g., on headlands in Puget Sound.

(ii) Open mixed-coarse beaches. One of the most common beach types in Puget Sound, composed of a mix of cobble, gravel, and sand in areas with some wave action that keeps finer silts suspended. Sparse salt marsh vegetation may occur at the tops of these beaches, especially in quieter areas.

(iii) Open gravel beaches. Areas of gravel or pebbles, often overlying sand, in areas of moderate wave action.

(iv) Open sandy beaches. Common habitats of gently sloping beaches but moderate wave action. May have gravel on the upper shore. Found in Puget Sound and in some areas of other estuaries, including Grays Harbor.

(v) Sandy low marshes. Found on spits, berms, and deltas where sand collects. Areas of different salinities are dominated by different marsh plant communities. Widespread (although disturbed) throughout the Puget Trough.

(vi) Mixed-fine beaches and low marshes. Found in backwaters or deltas away from large channels, where the substrate is mixed sand and mud, sometimes with patches of gravel or peat. Substrate is stable and organic-rich. Marsh communities vary with salinity.

(vii) Saline lagoons. Areas where water-borne sediments are deposited into a spit closing off an embayment, which is flushed regularly or irregularly. Salinities vary with evaporation and runoff but are generally high.

(viii) Low-salinity lagoons. Lagoons that are nearly separated from tidal/salt influence by a berm, and where there is a source of freshwater. Substrate is usually soft silt. This habitat is rare in the state.

(ix) Mud flats. Areas lacking in gravel or significant amounts of sand due to limited wave action, usually found in the heads of bays and inlets. Includes undisturbed channels and sloughs which drain slowly through a tidal cycle, and which may contain some sand.

(x) High salt marshes. Areas above normal high water but salt influenced, with organic/peat substrata. Salinities vary, and plant communities with them.

(xi) Transition zone wetland. Areas transitional between salt marshes and uplands, where salt water only rarely inundates. Substrata are peat or fine silts.

(d) Estuarine subtidal.

(i) Shallow subtidal rock and boulders. Areas less than 15 m deep with moderate currents or wave action that remove silt. Kelp beds develop here.

(ii) Deep subtidal rock and boulders. Areas in narrow channels or around headlands where currents remove sediment that otherwise would settle in these deeper areas. These habitats are essentially marine, since freshwater tends to stay layered in shallow water.

(iii) Shallow subtidal cobble and mixed-coarse areas. Mixed cobble, gravel, and sand remain in shallow areas fairly open to wave action or currents.

(iv) Deep subtidal cobble and mixed-coarse areas. Tidal currents running through deep channels in Puget Sound keep fine silts from settling and create areas of mixed cobbles, sand, and gravel.

(v) Shallow subtidal sandy or mixed-fine areas. High-current areas with little debris and some gravel, or less current-swept with more debris. Both are common outside of enclosed bays in Puget Sound.

(vi) Deep subtidal sandy or mixed-fine areas. Current-swept areas below 15 m. Organic debris and gravel tend to accumulate deeper (below 30 m), leading to different assemblages there.

(vii) Shallow subtidal muddy bays. Common habitats in open to partly enclosed bays in Puget Sound, where limited water movement allows fine sediments to accumulate. Organic enrichment is high, especially in more enclosed bays.

(viii) Deep subtidal muddy bays. Habitats in the heads and centers of inlets in Puget Sound where there is little motion and the substrate is soft mud and sand. Assemblages vary with depth and amount of organic debris accumulated.

(ix) Open water. Areas deeper than twenty meters.

(4) For purposes of RCW 90.48.366, marine and estuarine habitat vulnerability scores (hv) for each of the habitat types classified in subsection (3) of this section shall be as follows:

TABLE 2. Habitat Vulnerability for a Single Habitat Type and Oil Effect (hv)

HABITAT TYPE	HABITAT VULNERABILITY (hv)		
	ACUTE (hv _{AT})	MECH (hv _{MI})	PERS (hv _{PER})
MARINE INTERTIDAL			
Exposed and semiexposed rock shores	3.7	4.3	3.1
Sand-scoured rocky shores	3.3	3.8	2.7
Protected rocky shores	3.0	3.5	3.0
Semiexposed cobble and mixed-coarse beaches	3.2	3.2	3.2
Semiexposed gravel beaches	3.2	1.4	2.0
Exposed sandy beaches	2.9	1.3	1.8
Semiprotected mixed-fine beaches	3.2	2.6	3.7
Protected mud flats	3.8	2.7	4.3
MARINE SUBTIDAL			
Shallow subtidal rock and boulders	3.7	3.7	3.1
Deep subtidal rock and boulders	2.7	2.7	3.3
Deep subtidal cobble and mixed coarse	1.5	2.2	2.2
Shallow subtidal mixed-coarse to mixed-fine	3.6	3.6	3.6
Shallow subtidal gravel or mixed-fine	2.8	1.6	2.3
Deep subtidal sand	1.6	2.0	1.6
Deep subtidal mixed-fine	1.5	2.6	3.1
Deep subtidal muddy	2.0	2.0	3.2
Open water	5.0	3.2	2.2
ESTUARINE INTERTIDAL			
Open rocky shores	3.0	3.5	3.0
Open mixed-coarse beaches and low marsh	3.7	3.2	3.2
Open gravel beaches	3.4	1.5	2.2
Open sandy beaches	3.3	2.8	2.3
Sandy low marshes	3.5	3.0	3.0
Mixed-fine beaches and low marshes	4.3	4.3	4.3
Saline lagoons	3.7	3.7	4.1
Low-salinity lagoons	3.0	3.5	3.9
Mud flats	3.7	2.6	4.1
High salt marshes	3.0	3.5	3.9
Transition zone wetlands	3.0	3.5	3.9
ESTUARINE SUBTIDAL			
Shallow subtidal rock and boulders	3.2	3.2	2.6
Deep subtidal rock and boulders	2.3	2.3	2.8
Shallow subtidal cobble and mixed-coarse	2.6	3.2	3.2
Deep subtidal cobble and mixed-coarse	1.5	2.2	2.2
Shallow subtidal sandy or mixed-fine	3.2	3.2	3.2
Deep subtidal sandy or mixed-fine	2.0	2.4	2.8
Shallow subtidal muddy bays	3.0	2.4	3.9
Deep subtidal muddy bays	1.8	1.8	2.9
Open water	5.0	3.2	2.2

(5) When seagrass or kelp are present in a particular habitat type, the portion of the habitat type with seagrass or kelp shall be treated as a separate habitat type. The habitat vulnerability for a particular habitat type and oil effect (hv) shall be

multiplied by a factor of 1.5 for habitat types with seagrass or kelp present. The RDA committee shall be responsible for determining whether seagrass or kelp are present in a habitat type, and the portion of a habitat type containing seagrass or kelp.

(6) In general, several of the habitat types classified in this section may be affected by a particular spill. The habitat vulnerability score for a particular spill and oil effect (HVS_i) is composite of the habitat vulnerability scores for each of the habitat types affected by the spill which takes into consideration the percent coverage of each habitat type in the area of spill impact.

(7) The habitat vulnerability score for a particular spill and oil effect (HVS) shall be determined as follows:

(a) For spills of 1,000 gallons or more. Sum the weighted habitat vulnerability scores for each habitat type exposed to the spill as described by the formula provided in (c) of this subsection, where weighting is defined by percent coverage of each habitat type within the area of spill exposure.

(b) For spills of less than 1,000 gallons. Sum the weighted habitat vulnerability scores for each habitat type present in the subregion(s) exposed to the spill as described by the formula provided in (c) of this subsection, where weighting is defined by percent coverage of each habitat type present in the subregion(s) exposed to the spill.

(c) The formula to calculate the raw habitat vulnerability score for a particular spill and oil effect (HVS_i) is as follows:

$$HVS_i = \sum_{j=1}^n (hv_{ij} \times PC_j)$$

where PC_j = Percent-coverage of habitat-type j

expressed as a decimal;

hv_{ij} = habitat vulnerability for a particular habitat type & oil effect;

j = habitat type;

i = acute toxicity (AT), mechanical injury (MI)

and persistence (PER); and

n = number of habitats to be considered as determined under (a) and (b) of this subsection.

(d) The final HVS_{AT} , HVS_{MI} , and HVS_{PER} scores are found by rounding the raw scores calculated from the formula in (c) of this subsection 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.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-410, filed 4/23/92, effective 5/24/92.]

WAC 173-183-420 Marine bird vulnerability. (1)

Each of the marine and estuarine subregions of state waters established in WAC 173-183-400(2) is relatively ranked and scored for marine bird vulnerability to oil spills on a 1 to 5 scale for each season, where a score of 5 represents the greatest vulnerability and a score of 1 represents the least vulnerability.

(2) The marine bird vulnerability ranking relatively ranks the vulnerability of seabirds, shorebirds, and waterfowl present in a subregion during a particular season to oil spills, where vulnerability is based on population status, abundance, roosting habits, escape behavior, flocking behavior, feeding specialization, population size, reproductive capacity, breeding dispersion, winter dispersion, seasonal exposure to waters

where oil spills could occur, and significance of Washington population to total population.

(3) Marine bird seasonal vulnerability scores for each of the marine and estuarine subregions defined in WAC 173-183-400 are based on existing information and determinations made by the marine bird subcommittee of the scientific advisory board. For purposes of RCW 90.48.366, marine bird seasonal vulnerability scores (BVS) for each of the subregions defined in WAC 173-183-400 shall be as follows:

Table 4. Subregional Marine Bird Vulnerability Scores (BVS)

SUBREGION	SP	SU	FA	WI
101 NORTHERN OUTER COAST	5	5	5	5
102 KALALOCH	5	5	5	5
103 QUINULT	5	5	5	5
104 COPALIS BEACH	5	5	5	5
105 GRAYS HARBOR	5	5	5	5
106 TWIN HARBORS BEACH	5	5	5	5
107 WILLAPA BAY	5	5	5	5
108 LONG BEACH	5	5	5	5
109 INNER SHELF	4	2	5	5
110 OUTER SHELF	4	1	1	1
111 SHELF EDGE	5	1	1	1
112 CONTINENTAL SLOPE	2	1	1	1
201 STRAIT OF JUAN DE FUCA-OUTER	3	2	5	4
203 CAPE FLATTERY	4	3	4	3
204 NEAH BAY	2	2	2	2
205 NEAH BAY TO CLALLAM BAY	2	3	3	2
206 CLALLAM BAY	2	2	2	2
207 CLALLAM BAY TO CRESCENT BAY	2	3	3	2
208 CRESCENT BAY	2	2	2	2
209 CRESCENT BAY TO EDIZ HOOK	2	2	2	4
301 STRAIT OF JUAN DE FUCA-INNER	3	3	3	4
302 EDIZ HOOK	1	1	1	1
303 PORT ANGELES	2	3	3	2
304 VOICE OF AMERICA	2	2	2	2
305 DUNGENESS SPIT	2	2	2	3
306 DUNGENESS BAY/HARBOR	4	2	2	3
307 JAMESTOWN	5	5	5	5
308 SEQUIM BAY	2	1	1	2
309 MILLER PENINSULA	2	2	2	3
310 PROTECTION ISLAND	4	5	5	3
311 DISCOVERY BAY	3	1	1	4
312 QUIMPER PENINSULA	2	3	3	4
313 WHIDBEY ISLAND	1	2	2	2
314 SMITH ISLAND	3	5	5	3
315 DECEPTION PASS	2	2	2	2
316 LOPEZ ISLAND (SOUTH SHORE)	5	4	4	3
317 SAN JUAN IS. (SOUTH SHORE)	2	2	2	2
401 ADMIRALTY INLET	3	5	5	2
402 SOUTH ADMIRALTY INLET	2	1	2	3
403 PORT TOWNSEND	3	2	3	4
404 OAK BAY	2	2	2	2
405 KILISUT HARBOR	3	2	3	4
501 BELLINGHAM CHANNEL	2	2	4	4
502 GUEMES CHANNEL	2	2	1	3
503 FIDALGO BAY	2	2	2	3
504 PADILLA BAY	5	5	4	5
505 SAMISH BAY	5	5	4	5

Table 4. Subregional Marine Bird Vulnerability Scores (BVS)

SUBREGION	SP	SU	FA	WI
506 BELLINGHAM BAY	4	4	4	5
507 HALE PASSAGE	3	3	2	2
601 LUMMI BAY	5	5	3	4
602 CHERRY POINT	5	5	2	2
603 BIRCH BAY	4	4	3	3
604 SEMIAHOO SPIT	4	4	4	4
605 DRAYTON HARBOR	3	3	3	4
607 SAN JUAN IS.-NORTHERN TIER	3	3	2	4
608 GEORGIA STRAIT-EASTERN	4	4	4	4
701 PT. ROBERTS	4	4	2	4
703 GEORGIA STRAIT-WESTERN	2	2	2	2
801 NORTHERN HARO STRAIT	2	2	4	3
802 SOUTHERN HARO STRAIT	1	1	1	2
901 SOUTHERN ROSARIO STRAIT	3	3	3	5
902 CENTRAL ROSARIO STRAIT	3	3	5	4
903 NORTHERN ROSARIO STRAIT	5	5	5	4
1001 PRESIDENT CHANNEL	2	2	2	2
1002 NORTHERN AREAS	1	1	2	3
1101 SPEIDEN CHANNEL	1	1	2	2
1102 NORTHERN SAN JUAN CHANNEL	1	1	1	1
1103 SOUTHERN SAN JUAN CHANNEL	1	1	2	3
1104 WASP PASS	1	1	1	2
1105 UPRIGHT CHANNEL	1	1	2	2
1106 HARNEY CHANNEL	1	1	1	2
1107 OBSTRUCTION PASS	2	2	3	2
1108 THATCHER PASS	1	1	1	1
1201 MOSQUITO/ROCHE COMPLEX	2	2	2	3
1202 FRIDAY HARBOR	2	2	2	2
1203 GRIFFIN BAY	2	2	2	3
1205 FISHERMAN BAY	2	2	2	3
1206 SWIFTS/SOAL BAYS	2	2	2	2
1207 DEER HARBOR	2	2	2	2
1208 WEST SOUND	1	1	2	2
1209 EAST SOUND	2	2	1	2
1210 LOPEZ SOUND	2	2	3	4
1401 SKAGIT BAY	5	3	2	1
1402 PENN COVE/CRESCENT HARBOR	5	3	2	1
1403 SARATOGA PASSAGE	5	1	2	2
1404 HOLMES HARBOR	4	2	3	3
1405 PORT SUSAN	3	1	1	1
1406 POSSESSION SOUND	3	1	2	2
1501 HOOD CANAL ENTRANCE	2	1	2	3
1502 PORT LUDLOW	2	2	2	2
1503 PORT GAMBLE	2	2	2	2
1504 NORTHERN HOOD CANAL	2	1	2	2
1505 CENTRAL HOOD CANAL	2	1	2	2
1506 DABOB BAY	2	1	2	3
1507 QUILCENE BAY	2	2	2	2
1508 SOUTHCENTRAL HOOD CANAL	2	1	2	3
1509 ANNAS BAY	2	2	2	2
1510 GREAT BEND	3	1	3	5
1601 N. PUGET SOUND	4	1	2	2
1602 N. CENTRAL PUGET SOUND	2	1	2	2
1603 CENTRAL PUGET SOUND	2	1	2	2
1604 ELLIOT BAY	2	2	2	1
1605 EAST PASSAGE	2	1	2	2
1606 COLVOS PASSAGE	2	1	2	2

Table 4. Subregional Marine Bird Vulnerability Scores (BVS)

SUBREGION	SP	SU	FA	WI
1607 COMMENCEMENT BAY	2	2	2	2
1608 NARROWS	3	2	3	4
1609 STEILACOOM	2	1	2	3
1610 NISQUALLY	2	1	2	3
1611 TREBLE-JOHNSON	2	2	2	2
1612 HALE PASSAGE	3	2	3	3
1613 CARR INLET	3	1	3	4
1614 PITT PASSAGE	2	2	2	2
1615 DRAYTON HARBOR	2	2	2	2
1616 CASE INLET	2	1	2	3
1617 HENDERSON INLET	2	2	2	1
1618 DANA PASSAGE	2	2	2	1
1619 BUDD INLET	2	2	2	2
1620 ELD INLET	2	2	2	2
1621 TOTTEN INLET	2	2	2	2
1622 PICKERING PASSAGE	2	2	2	2
1623 PEALE PASSAGE	2	2	2	1
1624 SQUAXIN	2	2	2	2
1625 SKOOKUM INLET	2	2	2	2
1626 HAMMERSLEY INLET	2	2	2	2
1627 OAKLAND BAY	2	2	2	2
1628 AGATE PASSAGE	2	2	2	2
1629 LIBERTY BAY	3	2	3	3
1630 PORT ORCHARD	2	2	2	2
1631 SINCLAIR INLET	3	2	3	3
1632 DYES INLET	2	2	2	2
1633 RICH PASSAGE	2	2	2	2
1634 QUARTERMASTER HARBOR	3	2	3	3
1635 DALCO PASSAGE	2	2	2	2
1636 BALCH PASS	2	2	2	2

(4) The marine bird vulnerability score for a spill shall be multiplied by 1.5 when any number of state or federal threatened or endangered marine birds are exposed to spilled oil.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-420, filed 4/23/92, effective 5/24/92.]

WAC 173-183-430 Marine fisheries vulnerability. (1)

Each of the subregions designated in WAC 173-183-430 is relatively ranked and scored for marine fisheries vulnerability to oil spills on a 1 to 5 scale for each season where 5 represents the most vulnerable ranking and 1 represents the least vulnerable ranking.

(2) The marine fisheries vulnerability ranking relatively ranks the vulnerability of marine fisheries species present in a subregion to oil spills, where vulnerability is based on habitat preference, population status, abundance, fecundity, and sensitivity of life stages.

(3) Marine fisheries seasonal vulnerability scores for each of the marine and estuarine subregions are based on existing information and recommendations of the marine fisheries subcommittee. For purposes of RCW 90.48.366 marine fisheries seasonal vulnerability ranking scores (MFVS) for the subregions defined in WAC 173-183-400 are as follows:

Table 5. Subregional Marine Fisheries Vulnerability Scores (MFVS)

SUBREGION	SEASON	SP	SU	FA	WI
101 NORTHERN OUTER COAST	5	3	3	5	
102 KALALOECH	5	3	3	5	
103 QUINAULT	5	3	3	5	
104 COPALIS BEACH	5	3	3	5	
105 GRAYS HARBOR	5	5	5	5	
106 TWIN HARBORS BEACH	5	3	3	4	
107 WILLAPA BAY	5	5	5	5	
108 LONG BEACH	5	3	3	4	
109 INNER SHELF	5	3	3	4	
110 OUTER SHELF	4	2	2	4	
111 SHELF EDGE	4	1	2	3	
112 CONTINENTAL SLOPE	2	1	1	1	
201 STRAIT OF JUAN DE FUCA-OUTER	5	3	3	4	
203 CAPE FLATTERY	5	3	3	4	
204 NEAH BAY	5	3	3	4	
205 NEAH BAY TO CLALLAM BAY	5	3	3	4	
206 CLALLAM BAY	5	3	3	4	
207 CLALLAM BAY TO CRESCENT BAY	5	3	3	4	
208 CRESCENT BAY	5	3	3	4	
209 CRESCENT BAY TO EDIZ HOOK	5	3	3	4	
301 STRAIT OF JUAN DE FUCA-INNER	5	3	3	4	
302 EDIZ HOOK	5	3	3	4	
303 PORT ANGELES	5	3	3	4	
304 VOICE OF AMERICA	5	3	3	4	
305 DUNGENESS SPIT	5	3	3	4	
306 DUNGENESS BAY/HARBOR	5	3	3	4	
307 JAMESTOWN	5	3	3	4	
308 SEQUIM BAY	5	3	3	4	
309 MILLER PENINSULA	5	3	3	4	
310 PROTECTION ISLAND	5	3	3	4	
311 DISCOVERY BAY	5	3	3	4	
312 QUIMPER PENINSULA	5	3	3	4	
313 WHIDBEY ISLAND	5	3	3	4	
314 SMITH ISLAND	5	3	3	4	
315 DECEPTION PASS	5	3	3	4	
316 LOPEZ ISLAND (SOUTH SHORE)	5	3	3	4	
317 SAN JUAN ISLAND (SOUTH SHORE)	5	3	3	4	
401 ADMIRALTY INLET	5	4	3	5	
402 SOUTH ADMIRALTY INLET	5	4	3	5	
403 PORT TOWNSEND	5	4	3	5	
404 OAK BAY	5	4	3	5	
405 KILISUT HARBOR	5	4	3	5	
501 BELLINGHAM CHANNEL	5	4	3	5	
502 GUEMES CHANNEL	5	4	3	5	
503 FIDALGO BAY	5	4	3	5	
504 PADILLA BAY	5	4	3	5	
505 SAMISH BAY	5	3	3	5	
506 BELLINGHAM BAY	5	3	3	5	
507 HALE PASSAGE	5	3	3	5	
601 LUMMI BAY	5	3	3	5	
602 CHERRY POINT	5	3	3	5	
603 BIRCH BAY	5	3	3	5	

SUBREGION		SEASON				SUBREGION		SEASON																																																
		SP	SU	FA	WI			SP	SU	FA	WI																																													
604	SEMAHOO SPIT	5	3	3	5	1610	NISQUALLY	4	3	2	3																																													
605	DRAYTON HARBOR	5	3	3	5	1611	TREBLE-JOHNSON	4	3	2	3																																													
607	SAN JUAN ISLANDS-NORTHERN TIER	5	3	3	4	1612	HALE PASSAGE	4	3	2	3																																													
608	GEORGIA STRAIT-EASTERN	5	3	3	5	1613	CARR INLET	4	3	2	3																																													
701	PT. ROBERTS	5	3	3	5	1614	PITT PASSAGE	4	3	2	3																																													
703	GEORGIA STRAIT-WESTERN	5	3	3	5	1615	DRAYTON HARBOR	4	3	2	3																																													
801	NORTHERN HARO STRAIT	5	3	3	4	1616	CASE INLET	4	3	2	3																																													
802	SOUTHERN HARO STRAIT	5	3	3	4	1617	HENDERSON INLET	4	3	2	3																																													
901	SOUTHERN ROSARIO STRAIT	5	3	3	4	1618	DANA PASSAGE	4	3	2	3																																													
902	CENTRAL ROSARIO STRAIT	5	3	3	4	1619	BUDD INLET	4	3	2	3																																													
903	NORTHERN ROSARIO STRAIT	5	3	3	4	1620	ELD INLET	4	3	2	3																																													
1001	PRESIDENT CHANNEL	5	3	3	4	1621	TOTTEN INLET	4	3	2	3																																													
1002	NORTHERN AREAS	5	3	3	4	1622	PICKERING PASSAGE	4	3	2	3																																													
1101	SPEIDEN CHANNEL	5	3	3	4	1623	PEALE PASSAGE	4	3	2	3																																													
1102	NORTHERN SAN JUAN CHANNEL	5	3	3	4	1624	SQUAXIN	4	3	2	3																																													
1103	SOUTHERN SAN JUAN CHANNEL	5	3	3	4	1625	SKOOKUM INLET	4	3	2	3																																													
1104	WASP PASS	5	3	3	4	1626	HAMMERSLEY INLET	4	3	2	3																																													
1105	UPRIGHT CHANNEL	5	3	3	4	1627	OAKLAND BAY	4	3	2	3																																													
1106	HARNEY CHANNEL	5	3	3	4	1628	AGATE PASSAGE	5	4	3	5																																													
1107	OBSTRUCTION PASS	5	3	3	4	1629	LIBERTY BAY	5	5	5	5																																													
1108	THATCHER PASS	5	3	3	4	1630	PORT ORCHARD	5	5	5	5																																													
1201	MOSQUITO/ROCHE COMPLEX	5	3	3	4	1631	SINCLAIR INLET	5	5	5	5																																													
1202	FRIDAY HARBOR	5	3	3	4	1632	DYES INLET	5	5	5	5																																													
1203	GRIFFIN BAY	5	3	3	4	1633	RICH PASSAGE	5	5	5	5																																													
1205	FISHERMAN BAY	5	3	3	4	1634	QUARTERMASTER HARBOR	4	3	2	3																																													
1206	SWIFTS/SOAL BAYS	5	3	3	4	1635	DALCO PASSAGE	4	3	2	3																																													
1207	DEER HARBOR	5	3	3	4	1636	BALCH PASS	4	3	2	3																																													
1208	WEST SOUND	5	3	3	4	[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-430, filed 4/23/92, effective 5/24/92.]																																																		
1209	EAST SOUND	5	3	3	4																																																			
1210	LOPEZ SOUND	5	3	3	4	WAC 173-183-440 Shellfish vulnerability. (1) Each of the subregions designated in WAC 173-183-430 is relatively ranked and scored for shellfish vulnerability to oil spills on a 1 to 5 scale for each season where 5 represents the most vulnerable ranking and 1 represents the least vulnerable ranking.																																																		
1401	SKAGIT BAY	5	4	3	5																																																			
1402	PENN COVE /CRESCENT HARBOR	5	4	3	5	(2) Shellfish vulnerability ranking relatively ranks the vulnerability of shellfish present in a subregion to oil spills, where vulnerability is based on habitat preference, population status, abundance, fecundity, and sensitivity of life stages.																																																		
1403	SARATOGA PASSAGE	5	4	3	5																																																			
1404	HOLMES HARBOR	5	4	3	5	(3) Shellfish seasonal vulnerability scores for each of the marine and estuarine subregions are based on existing information and recommendations of the shellfish subcommittee of the scientific advisory board. For purposes of RCW 90.48.366 shellfish seasonal vulnerability ranking scores (SFVS) for the subregions defined in WAC 173-183-400 are as follows:																																																		
1405	PORT SUSAN	5	4	3	5																																																			
1406	POSSESSION SOUND	5	4	3	5	Table 6. Shellfish Vulnerability Scores (SFVS)																																																		
1501	HOOD CANAL ENTRANCE	2	1	1	2																																																			
1502	PORT LUDLOW	2	1	1	2	<table><tr><th>Region/Subregion</th><th>SP</th><th>SU</th><th>FA</th><th>WI</th></tr><tr><td>101</td><td>4</td><td>4</td><td>4</td><td>4</td></tr><tr><td>102</td><td>5</td><td>5</td><td>5</td><td>5</td></tr><tr><td>103</td><td>3</td><td>3</td><td>3</td><td>3</td></tr><tr><td>104</td><td>4</td><td>4</td><td>4</td><td>4</td></tr><tr><td>105</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>106</td><td>3</td><td>3</td><td>2</td><td>2</td></tr><tr><td>107</td><td>4</td><td>4</td><td>4</td><td>4</td></tr><tr><td>108</td><td>4</td><td>3</td><td>3</td><td>3</td></tr></table>						Region/Subregion	SP	SU	FA	WI	101	4	4	4	4	102	5	5	5	5	103	3	3	3	3	104	4	4	4	4	105	2	2	2	2	106	3	3	2	2	107	4	4	4	4	108	4	3	3	3
Region/Subregion	SP	SU	FA	WI																																																				
101	4	4	4	4																																																				
102	5	5	5	5																																																				
103	3	3	3	3																																																				
104	4	4	4	4																																																				
105	2	2	2	2																																																				
106	3	3	2	2																																																				
107	4	4	4	4																																																				
108	4	3	3	3																																																				
1503	PORT GAMBLE	2	1	1	2																																																			
1504	NORTHERN HOOD CANAL	2	1	1	2																																																			
1505	CENTRAL HOOD CANAL	2	1	1	2																																																			
1506	DABOB BAY	2	1	1	2																																																			
1507	QUILCENE BAY	2	1	1	2																																																			
1508	SOUTHCENTRAL HOOD CANAL	2	1	1	2																																																			
1509	ANNAS BAY	2	1	1	2																																																			
1510	GREAT BEND	2	1	1	2																																																			
1601	N. PUGET SOUND	5	4	3	5																																																			
1602	N. CENTRAL PUGET SOUND	5	4	3	5																																																			
1603	CENTRAL PUGET SOUND	5	4	3	5																																																			
1604	ELLIOT BAY	5	4	3	5																																																			
1605	EAST PASSAGE	4	3	2	3																																																			
1606	COLVOS PASSAGE	4	3	2	3																																																			
1607	COMMENCEMENT BAY	4	3	2	3																																																			
1608	NARROWS	4	3	2	3																																																			
1609	STEILACOOM	4	3	2	3																																																			

<u>Region/Subregion</u>	<u>SP</u>	<u>SU</u>	<u>FA</u>	<u>WI</u>
109	5	5	5	5
110	1	1	1	1
111	1	1	1	1
112	1	1	1	1
2	5	5	5	5
3	5	5	5	5
401	2	1	1	2
402	3	3	3	3
403	4	4	3	4
404	3	3	3	3
405	4	4	3	4
5	5	5	5	5
6	5	5	4	5
7	5	5	4	5
8	4	3	3	4
9	4	3	3	4
1	4	3	3	4
11	4	3	3	4
12	4	3	3	4
1401	2	3	3	2
1402	1	1	1	1
1403	1	1	1	1
1404	1	1	1	1
1405	1	2	2	1
1406	1	2	2	1
1501	2	2	2	2
1502	2	2	2	2
1503	2	2	2	2
1504	3	3	2	2
1505	3	3	2	2
1506	3	3	2	2
1507	3	3	2	2
1508	3	4	3	3
1509	3	4	3	3
1510	3	4	3	3
1601	2	2	2	2
1602	2	2	2	2
1603	2	2	2	2
1604	2	2	2	2
1605	2	2	2	2
1606	2	2	2	2
1607	2	2	2	2
1608	2	1	1	2
1609	5	5	5	5
1610	5	5	5	5
1611	5	5	5	5
1612	5	5	5	5
1613	5	5	5	5
1614	5	5	5	5
1615	5	5	5	5
1616	5	5	4	5
1617	5	5	5	5
1618	1	1	1	1
1619	4	5	4	4
1620	4	5	4	4
1621	4	5	4	4
1622	5	5	4	5
1623	4	5	4	4
1624	4	5	4	4
1625	4	5	4	4

<u>Region/Subregion</u>	<u>SP</u>	<u>SU</u>	<u>FA</u>	<u>WI</u>
1626	4	5	4	4
1627	4	5	4	4
1628	4	3	3	3
1629	4	3	3	3
1630	4	3	3	3
1631	4	3	3	3
1632	4	3	3	3
1633	4	3	3	3
1634	2	2	2	2
1635	2	2	2	2
1636	5	5	5	5

(4) The shellfish vulnerability score for a spill shall be multiplied by 1.5 when any number of individuals of state or federal threatened or endangered shellfish species are exposed to spilled oil.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-440, filed 4/23/92, effective 5/24/92.]

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 7. Vulnerability of Salmon Species and/or Species Yearclass by Habitat and Season

<u>SPECIES/YEARCLASS and SALMON VULNERABILITY HABI- TAT</u>	<u>HABITAT VULNERABILITY SCORE (savs) SEASON</u>			
	<u>SP</u>	<u>SU</u>	<u>FA</u>	<u>WI</u>
<u>Chinook (subyearling)</u>				
Intertidal				
Rocky	1	1	1	1
Cobble	2	2	1	1
Gravel	3	3	2	2
Sand (vegetated)	4	5	3	3
Sand (no vegetation)	3	3	2	2
Mud (vegetated)	4	5	3	3
Mud (no vegetation)	3	3	2	3
Subtidal	2	2	1	1
Pelagic	4	4	3	3
<u>Chinook (yearling)</u>				
Intertidal				
Rocky	1	1	1	1
Cobble	3	3	2	2
Gravel	3	3	3	2
Sand (vegetated)	3	3	2	2
Sand (no vegetation)	3	3	2	2
Mud (vegetated)	3	3	2	2

SPECIES/YEARCLASS and SALMON VULNERABILITY HABITAT

	<u>SP</u>	<u>SU</u>	<u>FA</u>	<u>WI</u>
Mud (no vegetation)	3	3	2	2
Subtidal	2	2	1	1
Pelagic	4	4	3	3
Coho				
Intertidal				
Rocky	1	1	1	1
Cobble	3	2	2	2
Gravel	3	4	2	2
Sand (vegetated)	5	4	3	4
Sand (no vegetation)	3	2	2	3
Mud (vegetated)	5	4	3	4
Mud (no vegetation)	3	4	2	3
Subtidal	2	2	1	1
Pelagic	4	4	3	3
Pink				
Intertidal				
Rocky	1	1	1	1
Cobble	2	1	1	1
Gravel	3	1	1	3
Sand (vegetated)	5	2	2	5
Sand (no vegetation)	3	2	2	3
Mud (vegetated)	5	2	2	5
Mud (no vegetation)	3	1	1	3
Subtidal	2	1	1	1
Pelagic	4	2	2	2
Chum				
Intertidal				
Rocky	1	1	1	1
Cobble	2	1	1	1
Gravel	3	2	2	3
Sand (vegetated)	5	3	2	5
Sand (no vegetation)	3	2	2	3
Mud (vegetated)	5	4	2	5
Mud (no vegetation)	3	2	2	3
Subtidal	2	2	1	1
Pelagic	4	4	2	2
Sockeye				
Intertidal				
Rocky	2	2	1	1
Cobble	2	1	1	1
Gravel	2	1	1	1
Sand (vegetated)	2	1	1	1
Sand (no vegetation)	2	1	1	1
Mud (vegetated)	2	1	1	1
Mud (no vegetation)	3	1	1	1
Subtidal	1	2	1	1
Pelagic	4	4	2	2

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

MARINE/ESTUARINE HABITAT TYPE from WAC 173-183-410(3)	EQUIVALENT SALMON VULNERABILITY HABITAT
Marine Intertidal, exposed and semiexposed rocky shores	Intertidal, rocky
Marine Intertidal, sand-scoured rocky shores	Intertidal, rocky
Marine Intertidal, protected rocky shores	Intertidal, rocky
Estuarine Intertidal, open rocky shores	Intertidal, rocky
Marine Intertidal, semiexposed cobble and mixed-course beaches	Intertidal, cobble
Estuarine Intertidal, open mixed-course beaches	Intertidal, cobble
Marine Intertidal, semiexposed gravel beaches	Intertidal, gravel
Estuarine Intertidal, open gravel beaches	Intertidal, gravel
Marine Intertidal, exposed sandy beaches	Intertidal, sand (presence of vegetation will be determined at the time of the spill)
Marine Intertidal, semiprotected mixed-fine beaches	Intertidal, sand (presence of vegetation will be determined at the time of the spill)
Estuarine Intertidal, open sandy beaches	Intertidal, sand (presence of vegetation will be determined at the time of the spill)
Estuarine Intertidal, sandy low marshes	Intertidal, sand (presence of vegetation will be determined at the time of the spill)
Estuarine Intertidal, mixed-fine beaches and low marshes	Intertidal, sand (presence of vegetation will be determined at the time of the spill)
Marine Intertidal, protected mud flats	Intertidal, mud (presence of vegetation will be determined at the time of the spill)
Estuarine Intertidal, mud flats	Intertidal, mud (presence of vegetation will be determined at the time of the spill)
all Marine and Estuarine Subtidal categories except open water	Subtidal
Marine Subtidal, open water	Pelagic
Estuarine Subtidal, open water	Pelagic

(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 (SAVS_i) as described in subsection (4) of this section; and

(e) The composite salmon vulnerability score for a spill (SAVS_s) 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 (SAVS_i) 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 hab-

itats as determined in subsection (3) of this section, as follows:

$$SAVS_i = (savs_i * PCT-COV_i) + (savs_2 * PCT-COV_2) + \dots + (savs_n * PCT-COV_n)$$

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:

$$SAVS_s = [(SAVS_{Cs} + SAVS_{Cy})/2 + SAVS_C + SAVS_P + SAVS_{Ch} + SAVS_{So}]/5$$

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:

$$SAVS_s = [(SAVS_{Cs} + SAVS_{Cy})/2 + SAVS_C + SAVS_{Ch} + SAVS_{So}]/4$$

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;

(6) If spilled oil enters a river mouth, $SAVS_i$ 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 $SAVS_i$ 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 $SAVS_s$ score is found by rounding the raw $SAVS_s$ 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. 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.

WAC 173-183-460 Marine mammal vulnerability.

(1) Each of the marine and estuarine subregions of state waters designated in WAC 173-183-400(2) is relatively ranked and scored for marine mammal vulnerability to oil spills on a 1 to 5 scale for each season where 5 represents the greatest vulnerability and 1 represents the least vulnerability.

(2) Marine mammal vulnerability ranking scores take into consideration species presence, diversity, population status, breeding vulnerability, presence of young, physiological vulnerability, primary habitat, feeding habitats and abundance.

(3) Marine mammal seasonal vulnerability scores for each of the marine and estuarine subregions of state waters are based on existing information and determinations made by the marine mammals subcommittee of the scientific advisory board. For purposes of RCW 90.48.366, marine mammal vulnerability ranking scores for subregions classified in WAC 173-183-400(2) are as follows:

Table 9. Marine Mammal Vulnerability Scores (MVS)

SUBREGION	SEASON			
	SP	SU	FA	WI
101 NORTHERN OUTER COAST	5	5	5	5
102 KALALOCH	5	5	5	5
103 QUINAULT	5	5	5	5
104 COPALIS BEACH	5	5	5	4
105 GRAYS HARBOR	5	4	5	4
106 TWIN HARBORS BEACH	5	5	5	4
107 WILLAPA BAY	5	5	5	4
108 LONG BEACH	5	5	5	5
109 INNER SHELF	5	5	5	5
110 OUTER SHELF	4	2	3	3
111 SHELF EDGE	4	1	3	3
112 CONTINENTAL SLOPE	1	1	1	1
201 STRAIT OF JUAN DE FUCA- OUTER	4	4	3	2
203 CAPE FLATTERY	4	4	3	2
204 NEAH BAY	4	4	3	2
205 NEAH BAY TO CLALLAM BAY	3	3	2	2
206 CLALLAM BAY	3	3	2	2
207 CLALLAM BAY TO CRESCENT BAY	3	3	2	2
208 CRESCENT BAY	3	3	2	2
209 CRESCENT BAY TO EDIZ HOOK	3	3	2	2
301 STRAIT OF JUAN DE FUCA- INNER	4	4	4	3
302 EDIZ HOOK	4	4	4	3
303 PORT ANGELES	4	4	4	3
304 VOICE OF AMERICA	4	4	4	3
305 DUNGENESS SPIT	4	4	4	3
306 DUNGENESS BAY/HARBOR	4	4	4	3
307 JAMESTOWN	4	4	4	3
308 SEQUIM BAY	4	4	4	3
309 MILLER PENINSULA	4	4	4	3
310 PROTECTION ISLAND	4	4	4	3
311 DISCOVERY BAY	4	4	4	3
312 QUIMPER PENNSULA	4	4	4	3
313 WHIDBEY ISLAND	4	4	4	3
314 SMITH ISLAND	4	4	4	3
315 DECEPTION PASS	4	4	4	3
316 LOPEZ ISLAND (SOUTH SHORE)	4	4	4	3
317 SAN JUAN ISLAND (SOUTH SHORE)	4	4	4	3
401 ADMIRALTY INLET	4	4	4	3
402 SOUTH ADMIRALTY INLET	4	4	4	3
403 PORT TOWNSEND	4	4	4	3
404 OAK BAY	4	4	4	3
405 KILISUT HARBOR	4	4	4	3
501 BELLINGHAM CHANNEL	2	3	2	2
502 GUEMES CHANNEL	2	3	2	2
503 FIDALGO BAY	2	3	2	2
504 PADILLA BAY	2	3	2	2
505 SAMISH BAY	2	3	2	2
506 BELLINGHAM BAY	2	3	2	2
507 HALE PASSAGE	2	3	2	2
601 LUMMI BAY	4	4	4	3
602 CHERRY POINT	4	4	4	3
603 BURCH BAY	4	4	4	3
604 SEMIAHOO SPIT	4	4	4	3

Table 9. Marine Mammal Vulnerability Scores (MVS)

SUBREGION	SEASON			
	SP	SU	FA	WI
605 DRAYTON HARBOR	4	4	4	3
607 SAN JUAN ISLANDS-NORTH- ERN TIER	4	4	4	3
608 GEORGIA STRAIT-EASTERN	4	4	4	3
701 PT. ROBERTS	4	4	4	3
703 GEORGIA STRAIT-WESTERN	4	4	4	3
801 NORTHERN HARO STRAIT	5	4	4	4
802 SOUTHERN HARO STRAIT	5	4	4	4
901 SOUTHERN ROSARIO STRAIT	4	4	3	2
902 CENTRAL ROSARIO STRAIT	4	4	3	2
903 NORTHERN ROSARIO STRAIT	5	4	3	2
1001 PRESIDENT CHANNEL	5	4	4	3
1002 NORTHERN AREAS	5	4	4	3
1101 SPEIDEN CHANNEL	3	3	3	2
1102 NORTHERN SAN JUAN CHAN- NEL	3	3	3	2
1103 SOUTHERN SAN JUAN CHAN- NEL	3	3	3	2
1104 WASP PASS	3	3	3	2
1105 UPRIGHT CHANNEL	3	3	3	2
1106 HARNEY CHANNEL	3	3	3	2
1107 OBSTRUCTION PASS	3	3	3	2
1108 THATCHER PASS	3	3	3	2
1201 MOSQUITO/ROCHE COMPLEX	3	3	3	2
1202 FRIDAY HARBOR	3	3	3	2
1203 GRIFFIN BAY	3	3	3	2
1205 FISHERMAN BAY	3	3	3	2
1206 SWIFTS/SOAL BAYS	3	3	3	2
1207 DEER HARBOR	3	3	3	2
1208 WEST SOUND	3	3	3	2
1209 EAST SOUND	3	3	3	2
1210 LOPEZ SOUND	3	3	3	2
1401 SKAGIT BAY	2	1	1	1
1402 PENN COVE/CRESCENT HAR- BOR	2	1	1	1
1403 SARATOGA PASSAGE	2	1	1	2
1404 HOLMES HARBOR	2	1	1	1
1405 PORT SUSAN	2	1	1	1
1406 POSSESSION SOUND	2	1	1	2
1501 HOOD CANAL ENTRANCE	1	1	1	1
1502 PORT LUDLOW	1	1	1	1
1503 PORT GAMBLE	1	1	1	1
1504 NORTHERN HOOD CANAL	1	1	1	1
1505 CENTRAL HOOD CANAL	1	1	1	1
1506 DABOB BAY	1	1	1	1
1507 QUILCENE BAY	1	1	1	1
1508 SOUTHCENTRAL HOOD CANAL	1	1	1	1
1509 ANNAS BAY	1	1	1	1
1510 GREAT BEND	1	1	1	1
1601 N. PUGET SOUND	3	2	2	2
1602 N. CENTRAL PUGET SOUND	3	2	2	2
1603 CENTRAL PUGET SOUND	2	1	1	1
1604 ELLIOT BAY	2	1	1	1
1605 EAST PASSAGE	2	1	1	1
1606 COLVOS PASSAGE	2	1	1	1
1607 COMMENCEMENT BAY	2	1	1	1
1608 NARROWS	2	1	1	1

Table 9. Marine Mammal Vulnerability Scores (MVS)

SUBREGION	SEASON			
	SP	SU	FA	WI
1609 STEILACOOM	2	1	1	1
1610 NISQUALLY	2	1	1	1
1611 TREBLE-JOHNSON	2	1	1	1
1612 HALE PASSAGE	2	1	1	1
1613 CARR INLET	2	1	1	1
1614 PITT PASSAGE	2	1	1	1
1615 DRAYTON HARBOR	2	1	1	1
1616 CASE INLET	2	1	1	1
1617 HENDERSON INLET	2	1	1	1
1618 DANA PASSAGE	2	1	1	1
1619 BUDD INLET	2	1	1	1
1620 ELD INLET	2	1	1	1
1621 TOTTEN INLET	2	1	1	1
1622 PICKERING PASSAGE	2	1	1	1
1623 PEALE PASSAGE	2	1	1	1
1624 SQUAXIN	2	1	1	1
1625 SKOOKUM INLET	2	1	1	1
1626 HAMMERSLEY INLET	2	1	1	1
1627 OAKLAND BAY	2	1	1	1
1628 AGATE PASSAGE	2	1	1	1
1629 LIBERTY BAY	2	1	1	1
1630 PORT ORCHARD	2	1	1	1
1631 SINCLAIR INLET	2	1	1	1
1632 DYES INLET	2	1	1	1
1633 RICH PASSAGE	2	1	1	1
1634 QUARTERMASTER HARBOR	2	1	1	1
1635 DALCO PASSAGE	2	1	1	1
1636 BALCH PASS	2	1	1	1

(4) The marine mammal vulnerability score for a spill shall be multiplied by 1.5 when any number of state or federal threatened or endangered marine mammal species are exposed to spilled oil.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-460, filed 4/23/92, effective 5/24/92.]

WAC 173-183-470 Marine and estuarine recreation vulnerability. (1) Each of the marine and estuarine subregions of state waters designated in WAC 173-183-400(2) are relatively ranked and scored for recreation vulnerability on a 1 to 5 scale for each season where a score of 5 represents the greatest vulnerability and a score of 1 represents the least vulnerability.

(2) Recreation vulnerability ranking scores take into consideration seasonal level of participation in recreational activities, number of recreation sites and types of recreational amenities available in a subregion.

(3) Recreation vulnerability ranking scores for each of the marine and estuarine subregions of state waters in each season has been determined from existing information and recommendations of the recreation subcommittee of the scientific advisory board. For purposes of RCW 90.48.366, recreation vulnerability ranking scores (RVS) for the subregions designated in WAC 173-183-400(2) are as follows:

Table 10. Marine and Estuarine Recreation Vulnerability Scores (RVS)

SUBREGION	SEASON			
	SP	SU	FA	WI
101 NORTHERN OUTER COAST	5	5	5	5
102 KALALOCH	5	5	5	5
103 QUINAULT	1	1	1	1
104 COPALIS BEACH	5	5	5	5
105 GRAYS HARBOR	4	4	4	3
106 TWIN HARBORS BEACH	5	5	5	5
107 WILIAPA BAY	5	5	5	5
108 LONG BEACH	5	5	5	5
109 INNER SHELF	1	1	1	1
110 OUTER SHELF	1	1	1	1
111 SHELF EDGE	1	1	1	1
112 CONTINENTAL SLOPE	1	1	1	1
201 STRAIT OF JUAN DE FUCA-OUTER	1	1	1	1
203 CAPE FLATTERY	1	1	1	1
204 NEAH BAY	1	1	1	1
205 NEAH BAY TO CLALLAM BAY	5	5	5	4
206 CLALLAM BAY	3	4	3	2
207 CLALLAM BAY TO CRESCENT BAY	5	5	5	4
208 CRESCENT BAY	3	4	3	3
209 CRESCENT BAY TO EDIZ HOOK	4	5	4	3
301 STRAIT OF JUAN DE FUCA-INNER	1	1	1	1
302 EDIZ HOOK	3	4	3	3
303 PORT ANGELES	5	5	5	4
304 VOICE OF AMERICA	2	3	2	2
305 DUNGENESS SPIT	1	1	1	1
306 DUNGENESS BAY/HARBOR	5	5	5	4
307 JAMESTOWN	2	3	2	2
308 SEQUIM BAY	4	5	4	4
309 MILLER PENINSULA	2	3	2	2
310 PROTECTION ISLAND	1	1	1	1
311 DISCOVERY BAY	2	2	2	2
312 QUIMPER PENNSULA	3	3	2	2
313 WHIDBEY ISLAND	2	3	2	2
314 SMITH ISLAND	1	1	1	1
315 DECEPTION PASS	5	5	5	5
316 LOPEZ ISLAND (SOUTH SHORE)	4	5	4	3
317 SAN JUAN ISLAND (SOUTH SHORE)	4	5	4	3
401 ADMIRALTY INLET	5	5	5	4
402 SOUTH ADMIRALTY INLET	5	5	5	4
403 PORT TOWNSEND	3	4	3	3
404 OAK BAY	4	5	4	3
405 KILISUT HARBOR	2	2	2	2
501 BELLINGHAM CHANNEL	5	5	5	4
502 GUEMES CHANNEL	1	1	1	1
503 FIDALGO BAY	4	4	3	3
504 PADILLA BAY	5	5	5	4
505 SAMISH BAY	4	4	3	3
506 BELLINGHAM BAY	5	5	5	4
507 HALE PASSAGE	3	4	3	2
601 LUMMI BAY	1	1	1	1
602 CHERRY POINT	1	1	1	1
603 BURCH BAY	3	4	3	3
604 SEMIAHOO SPIT	3	4	3	3
605 DRAYTON HARBOR	2	2	2	2

Table 10. Marine and Estuarine Recreation Vulnerability Scores (RVS)

SUBREGION		SEASON			
		SP	SU	FA	WI
607	SAN JUAN ISLANDS-NORTHERN TIER	5	5	5	5
608	GEORGIA STRAIT-EASTERN	1	1	1	1
701	PT. ROBERTS	3	3	3	2
703	GEORGIA STRAIT-WESTERN	1	1	1	1
801	NORTHERN HARO STRAIT	5	5	5	4
802	SOUTHERN HARO STRAIT	5	5	5	4
901	SOUTHERN ROSARIO STRAIT	5	5	5	5
902	CENTRAL ROSARIO STRAIT	4	5	4	4
903	NORTHERN ROSARIO STRAIT	4	4	4	3
1001	PRESIDENT CHANNEL	4	5	4	4
1002	NORTHERN AREAS	4	5	4	3
1101	SPEIDEN CHANNEL	3	4	3	2
1102	NORTHERN SAN JUAN CHANNEL	4	5	4	3
1103	SOUTHERN SAN JUAN CHANNEL	5	5	5	4
1104	WASP PASS	5	5	5	4
1105	UPRIGHT CHANNEL	5	5	4	4
1106	HARNEY CHANNEL	4	5	4	3
1107	OBSTRUCTION PASS	2	2	2	2
1108	THATCHER PASS	4	5	4	3
1201	MOSQUITO/ROCHE COMPLEX	3	4	3	3
1202	FRIDAY HARBOR	3	3	3	2
1203	GRIFFIN BAY	4	5	4	4
1205	FISHERMAN BAY	1	1	1	1
1206	SWIFT/SOAL BAYS	1	1	1	1
1207	DEER HARBOR	2	2	2	2
1208	WEST SOUND	3	4	3	2
1209	EAST SOUND	4	5	4	4
1210	LOPEZ SOUND	5	5	5	4
1401	SKAGIT BAY	5	5	5	5
1402	PENN COVE/CRESCENT HARBOR	4	4	3	3
1403	SARATOGA PASSAGE	3	4	3	3
1404	HOLMES HARBOR	2	3	2	2
1405	PORT SUSAN	3	4	3	3
1406	POSSESSION SOUND	4	5	4	3
1501	HOOD CANAL ENTRANCE	4	5	4	3
1502	PORT LUDLOW	4	4	4	3
1503	PORT GAMBLE	1	1	1	1
1504	NORTHERN HOOD CANAL	1	1	1	1
1505	CENTRAL HOOD CANAL	4	4	3	3
1506	DABOB BAY	4	5	4	3
1507	QUILCENE BAY	3	3	2	2
1508	SOUTHCENTRAL HOOD CANAL	4	5	4	3
1509	ANNAS BAY	4	4	4	3
1510	GREAT BEND	3	4	3	3
1601	N. PUGET SOUND	4	4	3	3
1602	N. CENTRAL PUGET SOUND	4	5	4	4
1603	CENTRAL PUGET SOUND	5	5	4	4
1604	ELLIOT BAY	4	5	4	3
1605	EAST PASSAGE	4	5	4	3
1606	COLVOS PASSAGE	3	3	2	2
1607	COMMENCEMENT BAY	2	2	2	2
1608	NARROWS	3	3	3	2
1609	STEILACOOM	3	3	3	2
1610	NISQUALLY	5	5	5	4
1611	TREBLE-JOHNSON	3	3	2	2

Table 10. Marine and Estuarine Recreation Vulnerability Scores (RVS)

SUBREGION		SEASON			
		SP	SU	FA	WI
1612	HALE PASSAGE	2	2	2	2
1613	CARR INLET	4	5	4	4
1614	PITT PASSAGE	2	2	2	2
1615	DRAYTON HARBOR	2	2	2	2
1616	CASE INLET	4	4	3	3
1617	HENDERSON INLET	2	2	2	1
1618	DANA PASSAGE	2	2	2	2
1619	BUDD INLET	3	4	3	3
1620	ELD INLET	2	3	2	2
1621	TOTTEN INLET	1	1	1	1
1622	PICKERING PASSAGE	3	4	3	2
1623	PEALE PASSAGE	3	3	3	2
1624	SQUAXIN	2	2	2	1
1625	SKOOKUM INLET	1	1	1	1
1626	HAMMERSLEY INLET	2	2	2	2
1627	OAKLAND BAY	2	2	1	1
1628	AGATE PASSAGE	2	2	2	2
1629	LIBERTY BAY	2	3	2	2
1630	PORT ORCHARD	3	3	3	2
1631	SINCLAIR INLET	2	3	2	2
1632	DYES INLET	3	3	2	2
1633	RICH PASSAGE	3	4	3	3
1634	QUARTERMASTER HARBOR	2	3	2	2
1635	DALCO PASSAGE	4	5	4	3
1636	BALCH PASS	1	1	1	1

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-470, filed 4/23/92, effective 5/24/92.]

COMPENSATION SCHEDULE FOR SPILLS INTO THE COLUMBIA RIVER ESTUARY

WAC 173-183-500 Vulnerability of the Columbia River estuary environment to oil spills. (1) The purpose of this section is to describe the method of ranking vulnerability of the Columbia River estuary environment to oil spills for purposes of assessing damages using the compensation schedule.

(2) The Columbia River estuary has been distinguished from other estuarine waters of the state because it resides within the jurisdiction of two states, Washington and Oregon.

(3) For purposes of RCW 90.48.366, estuarine waters of the Columbia River are divided into one kilometer square cells. Bird, fish, mammal, invertebrate, habitat, and human use resource sensitivity have been evaluated for each cell by season. Seasonal resource sensitivities are ranked for each cell on a 1 to 5 scale where 5 represents the greatest sensitivity and 1 represents the least sensitivity as designated on the maps attached as Appendix 6 of this chapter.

(4) A vulnerability score (VS) shall be calculated at the time of a spill for each cell and for the most sensitive season impacted by the spill. The VS rates the vulnerability of public resources to the spilled oil.

(a) VS for a particular cell is determined by summing the sensitivity scores assigned to each cell for bird, fish, mammal, invertebrate, habitat, and human use resources as follows:

$$VS_{ij} = BSS_{ij} + FSS_{ij} + MSS_{ij} + ISS_{ij} + HSS_{ij} + HUS_{ij}$$

where VS_{ij} = spill vulnerability score for a particular call and season
 BSS = bird sensitivity score (from Appendix 6 of this chapter)
 FSS = fish sensitivity score (from Appendix 6 of this chapter)
 MSS = mammal sensitivity score (from Appendix 6 of this chapter)
 ISS = invertebrate sensitivity score (from Appendix 6 of this chapter)
 HSS = habitat sensitivity score (from Appendix 6 of this chapter)
 HUS = human use sensitivity score (from Appendix 6 of this chapter)
 i = the cell under consideration
 j = the most sensitive season impacted; fall, winter, spring, or summer

(b) The raw vulnerability score for a spill (SVS) is determined by calculating the average of the vulnerability scores for the cells exposed to the spill as follows:

$$SVS_j = (VS_1 + VS_2 + \dots + VS_x) / x$$

where VS_i = vulnerability score for cell i (from subsection (4)(a) of this section),
 x = number of cells exposed to the spill, and

(5) The final SVS score is found by rounding the raw SVS score calculated from the formula in subsection (4) 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.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-500, filed 4/23/92, effective 5/24/92.]

COMPENSATION SCHEDULE FOR SPILLS INTO FRESHWATER STREAMS, RIVERS, AND LAKES

WAC 173-183-600 Vulnerability of freshwater stream, river, and lake environments to oil spills. (1) The purpose of this section is to describe the method of ranking the vulnerability of state freshwater stream, river, and lake environments, and portions thereof, to oil spills for purposes of applying the compensation schedule.

(2) Vulnerability of freshwater stream, river, and lake environments to oil spills is based on water type classifications and a habitat index.

(3) For each oil spill into a freshwater stream, river, or lake, a spill vulnerability score (SVS) is calculated. The SVS rates the vulnerability of public resources to spilled oil based on the spilled oil's propensity to cause acute toxicity, mechanical injury, and to persist in the environment. SVS is determined by multiplying the freshwater vulnerability score, which is based on the water type classification, by the habitat index score as described by the following formula:

$$\text{Raw Spill Vulnerability Score (SVS)} = \text{FVS} * \text{HI}$$

where FVS = Freshwater vulnerability score (from WAC 173-183-610), and
 HI = Habitat index (from WAC 173-183-620).

(4) The final SVS score is found by rounding the raw SVS score calculated from the formula in subsection (3) 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.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-600, filed 4/23/92, effective 5/24/92.]

WAC 173-183-610 Freshwater vulnerability index.

(1) For purposes of this chapter, freshwater streams, rivers, lakes, and portions thereof, are classified into 5 water types based on the identification system set forth in WAC 222-16-030 which is incorporated by reference.

(a) "Type 1 Water" means all waters, within their ordinary high-water mark, as inventoried as "shorelines of the state" under chapter 90.58 RCW.

(b) "Type 2 Water" shall mean segments of natural waters which are not classified as Type 1 Water and have a high use and are important from a water quality standpoint for:

- (i) Domestic water supplies;
- (ii) Public recreation;
- (iii) Fish spawning, rearing, or migration or wildlife uses; or
- (iv) Are highly significant to protect water quality.

(c) "Type 3 Water" shall mean segments of natural waters which are not classified as Type 1 or 2 Water and have a moderate to slight use and are moderately important from a water quality standpoint for:

- (i) Domestic water supplies;
- (ii) Public recreation;
- (iii) Fish spawning, rearing, or migration or wildlife uses; or
- (iv) Are highly significant to protect water quality.

(d) "Type 4 Water" shall mean segments of natural waters which are not classified as Type 1, 2, or 3. Their significance lies in their influence of water quality downstream in Type 1, 2, or 3 Waters. These may be perennial or intermittent.

(e) "Type 5 Water" means all other waters, in natural water courses, including streams with or without a well-defined channel, areas of perennial or intermittent seepage, ponds, and natural sinks. Drainage ways having short periods of runoff are considered to be Type 5 Waters.

(3) The vulnerability of freshwater environments is based on the stream typing system established in WAC 222-16-030 incorporated by reference. The rating of biological and recreational resources ranges from 1 to 5 where 5 represents the most sensitive category and 1 represents the least sensitive category as follows:

TABLE 11. Freshwater Vulnerability Score (FVS).

FVS	QUALIFICATION
5	"Type 1 waters"
4	"Type 2 waters"
3	"Type 3 waters"
2	"Type 4 waters"
1	"Type 5 waters"

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-610, filed 4/23/92, effective 5/24/92.]

WAC 173-183-620 Habitat index. (1) Most state freshwaters vary to some degree from the natural condition as increased activities within individual watersheds have decreased stream, river, and/or lake habitat quality. In order to account for that degradation prior to assessing damages using the compensation schedule, a habitat index (HI) is calculated to represent existing stream conditions prior to the oil spill.

(2) For each stream, river, or lake impacted by an oil spill where the preassessment screening committee determines that the compensation schedule shall be used, a habitat index (HI) shall be calculated following an oil spill using the following methodology. The HI measures the amount of stream degradation from natural conditions and shall be calculated using the following formula:

$$\text{Habitat Index (HI)} = [(P_1 + P_2 + P_3 + P_4 + P_5 + P_6) + N_p] \times f_1 \times f_2 \times f_3$$

where: P_1 = barriers to natural fish movement
 P_2 = urbanization
 P_3 = condition of riparian vegetation
 P_4 = condition of flood plain
 P_5 = land use of watershed
 P_6 = flow alteration
 N_p = number of P parameters used to calculate HI
 f_1 = channel modifications
 f_2 = impoundment
 f_3 = water quality

(3) The RDA committee shall determine which of the habitat quality parameters described in subsection (2) of this section are applicable to the particular spill under consideration. If a parameter is not applicable to the spill under consideration, the parameter shall not be included in the formula provided in subsection (2) of this section.

(4) Habitat quality parameters (P).

(a) Barriers to natural fish movement (P_1). Barriers, to some degree, limit the free passage of fish upstream thus limiting the ability of streams to recover. The scoring of this parameter is based on the influence of barriers in the natural dispersal of fish populations as follows:

Table 12. Scoring of Barriers to Natural Fish Movement (P_1).

RATING QUALIFICATION	
10	No manmade obstructions to free upstream passage of fish
8	No dams or other structures causing a vertical drop of more than 1 foot during low flow
5	No dams or other structures causing a vertical drop of more than 3 foot during low flow
3	No dams or other structures causing a vertical drop of more than 10 foot during low flow
0	One to several dams or other structures each causing a drop of more than 10 feet during low flow

(b) Urbanization (P_2). Urban development has historically had negative habitat effects on freshwater ecosystems. The percent of urban development in a watershed directly influences siltation, riparian abuse, and water quality deterioration. The scoring of this parameter is based on the percent of urbanization in the stream watershed.

Table 13. Scoring of Urbanization (P_2).

RATING QUALIFICATION	
10	Less than 5 percent of the watershed in urban development
8	Five to 10 percent of the watershed in urban development
5	Ten to 40 percent of the watershed in urban development
3	Forty to 70 percent of the watershed in urban development
0	Seventy to 100 percent of the watershed in urban development

(c) Condition of riparian vegetation (P_3). Riparian vegetation is important to seventy percent of the animal and bird species in Washington for some part of their life cycle. It also exerts thermal regulatory and thermal controls for the aquatic system. The scoring of this parameter is based on the percent of banks that are protected by effective riparian vegetation.

Table 14. Scoring of Condition of Riparian Vegetation (P_3).

RATING QUALIFICATION	
10	Ninety to 100 percent of the banks are protected by appropriate perennial vegetation
8	Sixty to 90 percent of the banks are protected by appropriate perennial vegetation
5	Forty to 60 percent of the banks are protected by appropriate perennial vegetation
3	Ten to 40 percent of the banks are protected by appropriate perennial vegetation
0	Zero to 10 percent of the banks are protected by appropriate perennial vegetation

(d) Condition of the flood plain (P_4). The condition of the flood plain forecasts the amount of sedimentation and erosion in the watershed and as such is a primary predictor of stream degradation. The rating of this parameter is as follows:

Table 15. Scoring of the Condition of the Flood Plain (P_4).

RATING QUALIFICATION	
10	Little or no evidence of active or recent erosion of the flood plain during floods
5	All segments show evidence of occasional erosion of the flood plain. Stream channel essentially intact
0	Flood plain severely eroded and degraded, stream channel poorly defined with much lateral erosion and much reduced flow capacity

(e) Land use of the watershed (P_5). Land use practices exert a great deal of influence on the quality of the aquatic habitat. The rating of this parameter is as follows:

Table 16. Scoring of Land Use of the Watershed (P_5).

RATING QUALIFICATION	
10	More than 80 percent of the watershed protected by timber, improved pasture, terraces, or other conservation practices
8	Sixty to 80 percent of the watershed protected by timber, improved pasture, terraces, or other conservation practices

RATING QUALIFICATION

5	Forty to 60 percent of the watershed protected by timber, improved pasture, terraces, or other conservation practices
3	Twenty to 40 percent of the watershed protected by timber, improved pasture, terraces, or other conservation practices
1	Zero to 20 percent of the watershed protected by timber, improved pasture, terraces, or other conservation practices

(f) Flow alteration (P_6). Alteration of the natural flow regime can frequently alter habitat conditions that are necessary for certain behavioral and ecological needs of species. The rating of this parameter is as follows:

Table 17. Scoring for Flow Alteration (P_6).

RATING QUALIFICATION

10	Less than 1 percent of the watershed controlled by impoundments and/or less than 50 percent of the watershed controlled by farm ponds
8	One to 30 percent of the watershed controlled by impoundments and/or less than 50 percent of the watershed controlled by farm ponds
5	Thirty to 60 percent of the watershed controlled by impoundments and/or less than 50 percent of the watershed controlled by farm ponds
3	Sixty to 95 percent of the watershed controlled by impoundments and/or less than 50 percent of the watershed controlled by farm ponds
0	Ninety-five to 100 percent of the watershed controlled by impoundments and/or less than 50 percent of the watershed controlled by farm ponds

(5) Habitat alteration functions (F). Each habitat alteration function has the power to reduce the habitat quality rating, dependent on the type and extent of alteration. Functions are expressed on a scale of 0 to 1.0.

(a) Channel modification (F_1). Channel modification can have a dramatic effect of the ability of a stream to provide for a diversity of habitats. This parameter is rated as follows:

$$\text{Channel Modification } (F_1) = 1.0 - (SM * FR)$$

where F_1 = Channel modification rate
 SM = Percent stream reach modified, expressed as a decimal
 FR = Percent fish reduction, expressed as a decimal

Table 18. Scoring for Percent Fish Reduction (FR).

CHANNEL MODIFICATION	% FISH REDUCTION
Clearing, Snagging	25
Channel realignment	80
Channel paving	95

(b) Water quality (F_2). Water quality exerts a variety of detrimental and/or beneficial on the aquatic ecosystem. This parameter is rated as follows:

Table 19. Scoring for Water Quality (F_2).

RATING QUALIFICATION

1.0	Stream water unpolluted. No pollutants detected by standard methods
0.8	Occasional above normal levels of one or more water pollutants usually present, but detectable only by analysis
0.5	Occasional visible signs of oversupply of nutrients or other pollutants detected by analysis
0.4	Occasional fish kills averaging about every 4 years or more
0.2	Occasional fish kills occurring more often than every 4 years
0.0	Grossly polluted waters with fish kills occurring annually or more frequently

(c) Streambed condition (F_3). The condition of the substrate habitat can be altered in such a way as to reduce the effective habitat available to the aquatic community as a whole. This parameter is ranked as follows:

Table 20. Scoring of Streambed Condition.

RATING QUALIFICATION

1.0	No apparent unstable material in channel with substrate of bedrock, boulders, rubble, gravel or firm alluvium
0.9	Traces of unstabilized silt, sand, or gravel in quiet areas or large pools with firm substrate
0.8	Quiet areas covered with unstable materials, deep pools restricted to areas of greatest scour
0.7	Pools shallow, filled with silt, sand or gravel, riffles contain noticeable silt deposits
0.5	Streambed completely covered by varying thicknesses of transported material such as silt, sand and gravel
0.0	Stream channel nearly or completely filled with unconsolidated, transported material; no surface flow except during floods

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-620, filed 4/23/92, effective 5/24/92.]

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

COMPENSATION SCHEDULE FOR SPILLS INTO FRESHWATER WETLANDS

WAC 173-183-700 Vulnerability of freshwater wetland environments to oil spills. (1) The purpose of this section is to describe the method of ranking the vulnerability of freshwater wetland environments to oil spills for purposes of assessing damages by applying the compensation schedule.

(2) Vulnerability of freshwater wetland environments to oil spills is based on a wetlands classification which rates the vulnerability of a wetland to spilled oil. Wetland environments are classified into five categories which represent the sensitivity of habitat, plants, animals, and recreational use to oil spills. For purposes of this chapter, the wetlands vulnerability score shall be equal to the spill vulnerability score as follows:

Spill Vulnerability Score (SVS) = WVS

where WVS = wetlands vulnerability score (from WAC 173-183-710).

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-700, filed 4/23/92, effective 5/24/92.]

WAC 173-183-710 Wetlands vulnerability classification. (1) Freshwater wetland environments and portions thereof, are classified into 4 types based on the identification system set forth below.

(a) Category I wetlands. The following types of wetlands are classed as category I wetlands:

(i) Documented habitat for threatened or endangered plant, animal, or fish species recognized by federal or state agencies; or

(ii) Documented Natural Heritage wetland sites or high quality native wetland communities which qualify as Natural Heritage wetland sites; or

(iii) Documented habitat of regional (Pacific Coast) or national significance for migratory birds; or

(iv) Regionally rare wetland communities; or

(v) Wetlands with irreplaceable ecological functions; or

(vi) Documented wetlands of local significance.

(b) Category II wetlands. The following types of wetlands are classed as category II wetlands:

(i) Documented habitat recognized by federal and state agencies for sensitive plant, animal, or fish species; or

(ii) Documented priority habitats and species recognized by state agencies; or

(iii) Wetlands with significant functions which may not be adequately replicated through creation or restoration; or

(iv) Wetlands with significant habitat value; or

(v) Documented wetlands of local significance.

(c) Category III wetlands. The following types of wetlands are classed as category III when they satisfy no category I, II, or IV criteria.

(d) Category IV wetlands. The following types of wetlands are classed as category IV wetlands:

(i) Wetlands less than one acre in size and hydrologically isolated and comprised of one vegetated class that is dominated (more than eighty percent areal cover) by one species from the list in Table 21; or

(ii) Wetlands less than two acres and hydrologically isolated with one vegetative class and more than ninety percent of the areal cover is any combination of species from the list in Table 22.

Table 21. List of invasive/exotic plant species for rating Category IV wetlands.

<u>Common name</u>	<u>Scientific name</u>
Soft Rush	<i>Juncus effusus</i>
Reed	<i>Phragmites communis</i>
Buttercup	<i>Ranunculus repens</i>
Reed Canary Grass	<i>Phalaris arundinaceae</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Townsend's cordgrass	<i>Spartina townsendii</i>
Nonnative blackberry	<i>Rubus discolor, laciniatus, vestitus, macrophyllus</i>
Velvet grass	<i>Holcus lanatus, mollis</i>
Fescue	<i>Festuca arundinaceae, pratensis</i>
Quackgrass	<i>Agropyron repena</i>

[Ch. 173-183 WAC—p. 22]

Table 21. List of invasive/exotic plant species for rating Category IV wetlands.

<u>Common name</u>	<u>Scientific name</u>
Meadow foxtail	<i>Alopercurus pratensis, aequalis</i>
Orchardgrass	<i>Dactylis glomerata</i>
Ryegrass	<i>Lolium parenne, multiflorum, temulentum</i>
Timothy	<i>Phleum pratense</i>
Bluegrass	<i>Poa compressa, palustris, pratensis</i>
Bromes	<i>Bromus tectorum, rigidus, brizaformis, geoalinus, japonicus, mollis, commutatus, inarmis, craccatus</i>
Sandbur	<i>Cauchrus longispinus</i>
Crab Grass	<i>Digitaria sanguinalis</i>
Barnyard grass	<i>Echinochloa crusgalli</i>
Green Bristlegrass	<i>Setaria viridius</i>
Foxtail Barley	<i>Hordeum jubatum</i>
Dogtail	<i>Cynosurus cristatus, achinatus</i>
Russian Thistle	<i>Salsola kali</i>
Knotweeds	<i>Polygonum aviculare, concoloculus, cuspidatum, lapathifolium, persicaria</i>
Tumblemustards	<i>Sisymbrium altissimum, loesclii, officinale</i>
Scotch broom	<i>Cytisus scoparius</i>
Sweet clover	<i>Melilotus alba, officinalis</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Alfalfa	<i>Medicago sativa</i>
Clover	<i>Trifolium dubium, pratense, repens, arvense, subterraneum, hybridum</i>
Spurge	<i>Euphorbia pepius, caula</i>
St. John's wort	<i>Hypericum parfoliatum</i>
Teasel	<i>Dipsacus sylvestris</i>
Pineapple weed	<i>Marricaria matricartioides</i>
Tansy	<i>Tanacetum vulgare</i>
Thistles	<i>Cirsium vulgare, arvense</i>
Burdock	<i>Arctium minus</i>
Knapweeds	<i>Centaurea solstitialis, repens, cyanus, maculosa</i>
Cultivated species; wheat, corn, barley, triticum, rye	

Table 22. List of native species for rating of Category IV wetlands.

<u>Common name</u>	<u>Scientific name</u>
Hard hack	<i>Spirea douglasii</i>
Cattail	<i>Typha latifolia</i>
Soft rush	<i>Juncus effusus</i>

(2) Freshwater wetland environment vulnerability score (WVS). The vulnerability of freshwater wetland environments is based on the stream typing system established in WAC 222-16-030 incorporated by reference. The rating of the freshwater wetland environment vulnerability ranges from 1 to 5, where 5 represents the most sensitive category and 1 represents the least sensitive category as follows:

(3/10/09)

Table 23. Freshwater Wetlands Vulnerability Score (WVS).

WVS	QUALIFICATION
5	Category I wetlands
4	Category II wetlands
3	Category III wetlands
1	Category IV wetlands

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-710, filed 4/23/92, effective 5/24/92.]

CALCULATION OF DAMAGES USING THE COMPENSATION SCHEDULE

WAC 173-183-800 Calculation of damages using the compensation schedule general. The purpose of WAC 173-183-800 to 173-183-850 are to describe:

- (1) The responsibilities of the OSC and RDA committee chair in applying the compensation schedule; and
- (2) The procedures for determining public resource damages using the compensation schedule.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-800, filed 4/23/92, effective 5/24/92.]

WAC 173-183-810 On-scene coordinator responsibilities. (1) The OSC or department responder, or his or her designee, shall make the following determinations:

- (a) Quantity and type of oil spilled;
- (b) Extent and location of the spill; and
- (c) The amount of oil cleaned up on a daily basis, and in total.

(2) The potentially liable party (PLP) may hire an independent expert to determine the volume of oil spilled and cleaned up, including the volume cleaned up within the first six hours after spill initiation. The volume determinations made by the independent expert shall be used in calculations of damages under the compensation schedule if the independent expert selected is acceptable to both the PLP and the department. Determinations by the mutually agreed upon independent expert of the quantity of oil spilled and cleaned up shall be provided to the RDA committee chair within sixty days of the spill under consideration.

(3) The OSC or department responder shall provide the information enumerated in subsection (1) of this section to the RDA committee chair in a timely manner.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-810, filed 4/23/92, effective 5/24/92.]

WAC 173-183-820 RDA committee chair responsibilities. (1) The RDA committee chair shall, in consultation with the OSC and RDA committee, determine the following:

(a) For spills into marine or estuarine environments excluding the Columbia River estuary:

- (i) The acute toxicity, mechanical injury and persistence oil class rankings for the spilled oil as provided in WAC 173-183-340;
- (ii) Subregion(s) exposed to the spilled oil;
- (iii) Habitat types exposed to the spilled oil as classified in WAC 173-183-410 for spills of 1,000 gallons or more;
- (iv) Percent coverage of each habitat type within the area of spill exposure for spills of 1,000 gallons or more;

(v) Percent coverage of habitat types present within the subregion(s) exposed to spilled oil for spills of less than 1,000 gallons.

(vi) A spill's habitat vulnerability scores (HVS) for acute toxicity, mechanical injury, and persistence as determined by the procedures outlined in WAC 173-183-400; and

(vii) The spill vulnerability scores (SVS_{AT}, SVS_{MI}, SVS_{PER}) for the most vulnerable season affected by the spill using the formula provided in WAC 173-183-400.

(b) For spills in the estuarine waters of the Columbia River:

(i) The acute toxicity, mechanical injury, and persistence oil class rankings for the spilled oil as provided in WAC 173-183-340;

(ii) The cell(s) exposed to the spilled oil; and

(iii) The spill vulnerability score (SVS) for the most vulnerable season affected by the spilled oil using the procedures provided in WAC 173-183-500.

(c) For spills in freshwater streams, rivers, and lakes:

(i) The acute toxicity, mechanical injury and persistence oil class rankings for the spilled oil as provided in WAC 173-183-340;

(ii) Freshwater vulnerability score as described in WAC 173-183-610;

(iii) Freshwater habitat index as described in WAC 173-183-620; and

(iv) Spill vulnerability score (SVS) as outlined in WAC 173-183-600 for each stream, river, and/or lake environment exposed to the spill; and

(d) For spills in freshwater wetlands:

(i) The acute toxicity, mechanical injury, and persistence oil class rankings for the spilled oil as provided in WAC 173-183-340;

(ii) Freshwater wetland vulnerability score as described in WAC 173-183-710;

(iii) Spill vulnerability score (SVS) as outlined in WAC 173-183-700 for each wetland exposed to the spill.

(2) For spills that enter more than one environment, the RDA committee chair shall, in consultation with the OSC and RDA committee, make the determinations enumerated under subsection (1)(a) through (d) of this section.

[Statutory Authority: Chapter 90.48 RCW. 03-11-010 (Order 03-03), § 173-183-820, filed 5/12/03, effective 6/12/03; 92-10-005 (Order 91-13), § 173-183-820, filed 4/23/92, effective 5/24/92.]

WAC 173-183-830 Calculation of damages for spills into marine and estuarine waters, except the Columbia River estuary. (1) The formula provided in subsection (2) of this section shall be used to determine damages liability for spills into marine and estuarine waters, except the estuarine waters of Columbia River. The value of the variables used in the formula shall be determined by:

(a) The OSC as enumerated in WAC 173-183-810(1);

(b) The mutually agreed upon independent expert, if applicable, as described in WAC 173-183-810(2); and

(c) The RDA committee chair as enumerated in WAC 173-183-820 (1)(a).

(2) In making the determination of percent-coverage of habitat types, the RDA committee chair may assume that the habitat-type visible at low tide extends out to the 20 meter depth contour.

(3) Damages liability shall be calculated using the following formula:

Damages (\$) =

$$\text{gallons spilled} * 0.208 * [(OIL_{AT} * SVS_{ATj}) + (OIL_{MI} * SVS_{MIj}) + (OIL_{PER} * SVS_{PERj})]$$

where: gallons spilled = the number of gallons of oil spilled as determined by the procedures outlined in WAC 173-183-810;
 SVS_{ij} = spill vulnerability score (from WAC 173-183-400(3));
 OIL_{AT} = Acute Toxicity Score for Oil (from WAC 173-183-340);
 OIL_{MI} = Mechanical Injury Score for Oil (from WAC 173-183-340); and
 OIL_{PER} = Persistence Score for Oil (from WAC 173-183-340).
i = acute toxicity, mechanical injury and persistence effect of oil
j = the most sensitive season affected by the spill
 0.208 = multiplier to adjust the damages calculated to the \$1-100 per gallon range.

Formula results shall be rounded to the nearest 0.01 to determine damages liability as follows: Decimals less than 0.005 shall be rounded down, and decimals equal to or greater than 0.005 shall be rounded up.

[Statutory Authority: RCW 90.48.366, 90.56.050, and 90.48.035. 09-07-029 (Order 08-14), § 173-183-830, filed 3/10/09, effective 4/10/09. Statutory Authority: Chapter 90.48 RCW. 03-11-010 (Order 03-03), § 173-183-830, filed 5/12/03, effective 6/12/03; 92-10-005 (Order 91-13), § 173-183-830, filed 4/23/92, effective 5/24/92.]

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

WAC 173-183-840 Calculation of damages for spills into the Columbia River estuary. (1) The formula provided in subsection (2) of this section shall be used to determine damages liability for spills into the estuarine waters of Columbia River. The value of the variables used in the formula shall be determined by:

- (a) The OSC as enumerated in WAC 173-183-810(1);
- (b) The mutually agreed upon independent expert, if applicable, as described in WAC 173-183-810(2); and
- (c) The RDA committee chair as enumerated in WAC 173-183-820 (1)(b).

(2) Damages liability shall be calculated using the following formula:

Damages (\$) =

$$\text{gallons spilled} * 0.508 * SVS_j * (OIL_{AT} + OIL_{MI} + OIL_{PER})$$

where: gallons spilled = the number of gallons of oil spilled as determined by procedures outlined in WAC 173-183-810
 SVS_j = spill vulnerability score (from WAC 173-183-500(3));
j = the most sensitive season affected by the spill
 OIL_{AT} = Acute Toxicity Score for Oil (from WAC 173-183-360);

OIL_{MI} = Mechanical Injury Score for Oil (from WAC 173-183-360); and

OIL_{PER} = Persistence Score for Oil (from WAC 173-183-360).

0.508 = multiplier to adjust the damages calculated to the \$1-100 per gallon range.

Formula results shall be rounded to the nearest 0.01 to determine damages liability as follows: Decimals less than 0.005 shall be rounded down, and decimals equal to or greater than 0.005 shall be rounded up.

[Statutory Authority: RCW 90.48.366, 90.56.050, and 90.48.035. 09-07-029 (Order 08-14), § 173-183-840, filed 3/10/09, effective 4/10/09. Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-840, filed 4/23/92, effective 5/24/92.]

WAC 173-183-850 Calculation of damages for spills in freshwater streams, rivers, and lakes. (1) The formula provided in subsection (2) of this section shall be used to determine damages liability for spills into freshwater streams, rivers, and lakes. The value of the variables used in the formula shall be determined by:

- (a) The OSC as enumerated in WAC 173-183-810(1);
 - (b) The mutually agreed upon independent expert, if applicable, as described in WAC 173-183-810(2); and
 - (c) The RDA committee chair as enumerated in WAC 173-183-820 (1)(c).
- (2) Damages liability shall be calculated using the following formula:

Damages (\$) =

$$\text{gallons spilled} * 0.162 * SVS * (OIL_{AT} + OIL_{MI} + OIL_{PER})$$

where: gallons spilled = the number of gallons of oil spilled as determined by the procedures outlined in WAC 173-183-810;
 SVS = Spill vulnerability score [from WAC 173-183-600(3)];
 OIL_{AT} = Acute Toxicity Score for Oil [from WAC 173-183-340];
 OIL_{MI} = Mechanical Injury Score for Oil [from WAC 173-183-340]; and
 OIL_{PER} = Persistence Score for Oil [from WAC 173-183-340].
 0.162 = multiplier to adjust damages calculated to the \$1-100 per gallon range;

Formula results shall be rounded to the nearest 0.01 to determine damages liability as follows: Decimals less than 0.005 shall be rounded down, and decimals equal to or greater than 0.005 shall be rounded up.

[Statutory Authority: RCW 90.48.366, 90.56.050, and 90.48.035. 09-07-029 (Order 08-14), § 173-183-850, filed 3/10/09, effective 4/10/09. Statutory Authority: Chapter 90.48 RCW. 03-11-010 (Order 03-03), § 173-183-850, filed 5/12/03, effective 6/12/03; 92-10-005 (Order 91-13), § 173-183-850, filed 4/23/92, effective 5/24/92.]

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

WAC 173-183-860 Calculation of damages for spills into freshwater wetlands. (1) The formula provided in subsection (2) of this section shall be used to determine damages

liability for spills into freshwater wetlands. The value of the variables used in the formula shall be determined by:

- (a) The OSC as enumerated in WAC 173-183-810(1);
- (b) The mutually agreed upon independent expert, if applicable, as described in WAC 173-183-810(2); and
- (c) The RDA committee chair as enumerated in WAC 173-183-820 (1)(d).

(2) Damages liability shall be calculated using the following formula:

Damages (\$) =

$$\text{gallons spilled} * 1.620 * \text{SVS} * (\text{OIL}_{\text{AT}} + \text{OIL}_{\text{MI}} + \text{OIL}_{\text{PER}})$$

 where: gallons spilled = the number of gallons of oil spilled as determined by procedures outlined in WAC 173-183-810;
 SVS = Spill vulnerability score [from WAC 173-183-700(3)];
 OIL_{AT} = Acute Toxicity Score for Oil [from WAC 173-183-340];
 OIL_{MI} = Mechanical Injury Score for Oil [from WAC 173-183-340]; and
 OIL_{PER} = Persistence Score for Oil [from WAC 173-183-340].
 1.620 = multiplier to adjust damages calculated to the \$1-100 per gallon range;

Formula results shall be rounded to the nearest 0.01 to determine damages liability as follows: Decimals less than 0.005 shall be rounded down, and decimals equal to or greater than 0.005 shall be rounded up.

[Statutory Authority: RCW 90.48.366, 90.56.050, and 90.48.035. 09-07-029 (Order 08-14), § 173-183-860, filed 3/10/09, effective 4/10/09. Statutory Authority: Chapter 90.48 RCW. 03-11-010 (Order 03-03), § 173-183-860, filed 5/12/03, effective 6/12/03; 92-10-005 (Order 91-13), § 173-183-860, filed 4/23/92, effective 5/24/92.]

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

WAC 173-183-865 Calculation of damages for spills entering more than one type of receiving environment. For spills that enter more than one type of receiving environment, as classified in WAC 173-183-400, 173-183-500, 173-183-600, and 173-183-700, damages liability shall be determined as follows:

(1) Damages shall be calculated using the procedures enumerated in WAC 173-183-800 through 173-183-890 for each of the receiving environment types exposed to spilled oil;

(2) Total damages liability shall be equal to the greatest of the damages calculated for the receiving environment types exposed to spilled oil as determined in subsection (1) of this section.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-865, filed 4/23/92, effective 5/24/92.]

WAC 173-183-870 Modification of damages based on actions taken by the PLP. (1) Damages calculated under WAC 173-183-830 through 173-183-860 may be reduced by the amounts specified in subsections (2) through (5) of this section, as determined by the RDA committee, in the following cases:

(3/10/09)

(a) Where the potentially liable party takes an action that results in no spill exposure and no injury to the following special features: Seal and sea lion haulouts, public recreational areas, smelt, sand lance, and herring spawning areas, salmon concentration areas, hardshell and softshell clam beds, and seabird breeding colonies;

(b) Where the potentially liable party takes an action that restores, rehabilitates, or enhances resources injured by the spill; and

(c) Where the potentially liable party immediately booms spilled oil that has not come into contact with the shore, in areas where water depth is greater than twenty meters, and immediately removes the spilled oil that has been contained in booming.

(2) When the conditions specified under subsection (1)(a) of this section are met, compensation shall be reduced by the amount that the special feature that was protected contributed to the amount of damages calculated under WAC 173-183-830 through 173-183-860. Decisions on how much the protected special feature contributed to the amount of damages calculated under the compensation schedule shall be made by the RDA committee.

(3) When conditions specified under subsection (1)(b) of this section are met, amount of damages calculated under WAC 173-183-830 through 173-183-860 may be reduced. Decisions on reduction of damages shall be made by the RDA committee.

(4) When the conditions specified under subsection (1)(c) of this section are met, the damages calculated under WAC 173-183-830 through 173-183-860 shall be reduced as described by the following steps:

(a) Two separate damages calculations shall be made using the applicable damage liability formula(s) provided in WAC 173-183-830 through 173-183-860. The number of gallons used in the first formula shall be the number of gallons immediately removed from the receiving environment as described in subsection (1)(c) of this section. The number of gallons used the second formula shall be the number of gallons spilled but not immediately removed from the receiving environment. The values of all other formula variables shall be as defined for the applicable formulas in WAC 173-183-830 through 173-183-860, except as described in subsection (4)(b) of this section;

(b) The values of the mechanical injury (OIL_{MI}) and persistence (OIL_{PER}) scores for oils shall be reduced by ten percent in the first formula; and

(c) Damages derived from the first and second formulas shall be added together to calculate the reduced damages liability.

(5) In no case shall the modifications to compensation enumerated in subsections (1) through (4) of this section result in a reduction of damages to less than one dollar per gallon of oil spilled.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-870, filed 4/23/92, effective 5/24/92.]

WAC 173-183-880 Damage claim. (1) The department shall provide documentation to the liable party that details the information and calculations that were used to assess damages under the compensation schedule. This documentation

shall be provided to the liable party along with the damages liability claim.

(2) The liable party shall pay the full amount specified in the damages liability claim to the department within thirty days of receipt.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-880, filed 4/23/92, effective 5/24/92.]

WAC 173-183-890 Substitution of damages. The department may negotiate with a potentially liable party to perform restoration and enhancement projects or studies which may substitute for all or part of the damages determined through application of the procedures in WAC 173-183-300 through 173-183-870.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-890, filed 4/23/92, effective 5/24/92.]

WAC 173-183-900 Annual report. The department shall submit an annual report to the appropriate standing committees of the legislature that addresses each spill for which the RDA committee was convened. The following information shall be included in the report for each spill addressed: The outcome of the preassessment screening, and compensation claims imposed or damage assessment studies conducted, and the revenues to and expenditures from the coastal protection fund.

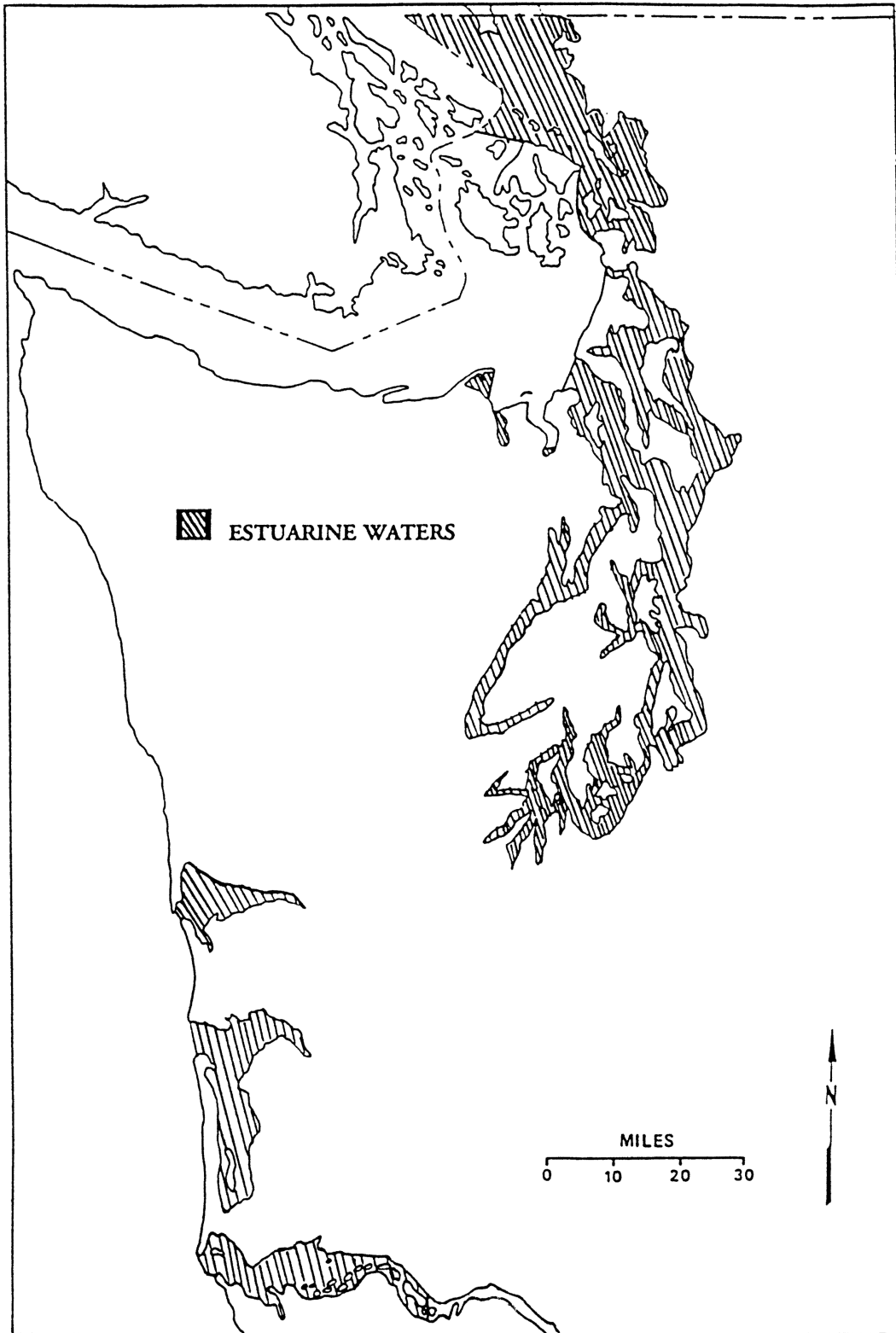
[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-900, filed 4/23/92, effective 5/24/92.]

WAC 173-183-910 Severability. If any provision of this rule or its application to any person or circumstance is held invalid, the remainder of the rule or application of the provision to other persons or circumstances is not affected.

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-910, filed 4/23/92, effective 5/24/92.]

WAC 173-183-920 Appendices.

APPENDIX 1: ESTUARINE WATERS OF THE STATE



APPENDIX 2: SPECIES AND SPECIES GROUPS INCLUDED IN THE MARINE FISH VULNERABILITY RANKING

Common Name	Scientific Name
Pacific sleeper shark	<i>Somniosus pacificus</i>
Spiny dogfish	<i>Squalus acanthias</i>
Skates	Rajidae
Spotted ratfish	<i>Hyrodolaguscolleri</i>
Green sturgeon	<i>Acipensermedirostris</i>
White sturgeon	<i>Acipensertransmontanus</i>
Pacific herring	<i>Clupeapallasii</i>
Northern anchovy	<i>Engraulismordax</i>
Surf smelt	<i>Hypomesuspretiosus</i>
Night smelt	<i>Spirinchusstarksi</i>
Long fin smelt	<i>Spirinchusthaleichthys</i>
Eulachon	<i>Thaleichthyspacificus</i>
Pacific cod	<i>Gadusmacrocephalus</i>
Pacific tomcod	<i>Microgadusproximus</i>
Walleye pollock	<i>Theragrachalcogramma</i>
Whiting	<i>Merlucciusproductus</i>
Plainfin midshipman	<i>Porichthysnotatus</i>
Tubesnout	<i>Aulorhynchusfavidus</i>
Three-spine stickleback	<i>Gasterosteusaculeatus</i>
Pacific Ocean perch	<i>Sebastesalutus</i>
Brown rockfish	<i>Sebastesauriculatus</i>
Silvergray rockfish	<i>Sebastesbrevispinis</i>
Copper rockfish	<i>Sebastescaurinus</i>
Puget Sound rockfish	<i>Sebastesemphaeus</i>
Widow rockfish	<i>Sebastesentomelas</i>
Yellowtail rockfish	<i>Sebastesflavidus</i>
Quillback rockfish	<i>Sebastesmaliger</i>
Black rockfish	<i>Sebastesmelanops</i>
Blue rockfish	<i>Sebastesmystinus</i>
China rockfish	<i>Sebastesnebulosus</i>
Bocaccio	<i>Sebastespaucispinis</i>
Canary rockfish	<i>Sebastespinniger</i>
Yelloweye rockfish	<i>Sebastesruberrimus</i>
Shortspine thornyhead	<i>Sebastolobusalascanus</i>
Longspine thornyhead	<i>Sebastolobusaltivelis</i>
Sablefish	<i>Anoplopomafimbria</i>
Kelp Greenling	<i>Hexagrammosdecegrammus</i>
Lingcod	<i>Ophiodonelongatus</i>
Red Irish lord	<i>Hemilepidotus</i>
Pacific staghorn sculpin	<i>Leptocottusarmatus</i>
Cabazon	<i>Scorpaenichthysmarmoratus</i>
Redtail surfperch	<i>Amphistichusrhodotus</i>
Shiner surfperch	<i>Cymatogasteraggregata</i>
Pile surfperch	<i>Damalichthysvacca</i>
Striped surfperch	<i>Embiotocalateralis</i>
Eelpouts	Zoarcidae
Snake prickleback	<i>Lumpenussagitta</i>
Gunnels	Pholididae
Wolf-eel	<i>Anarrhichthysocellatus</i>
Pacific sand lance	<i>Ammodyteshexapterus</i>
Pacific sand dab	<i>Citharichthysordidus</i>
Speckled sand dab	<i>Citharichthysstigmaeus</i>
Arrowtooth flounder	<i>Atheresthesstomias</i>
Petrale sole	<i>Eposettajordani</i>
Rex sole	<i>Glyptocephaluszachirus</i>
Pacific halibut	<i>Hippoglossusstenolepis</i>

Common Name	Scientific Name
Rock sole	<i>Lepidopsettabilineata</i>
Dover sole	<i>Microstomuspacificus</i>
English sole	<i>Parophrysvelutulus</i>
Starry Flounder	<i>Platichthysstellatus</i>
Sand sole	<i>Psettichthysmelanostictus</i>

APPENDIX 3: SPECIES INCLUDED IN THE SALMON VULNERABILITY RANKING

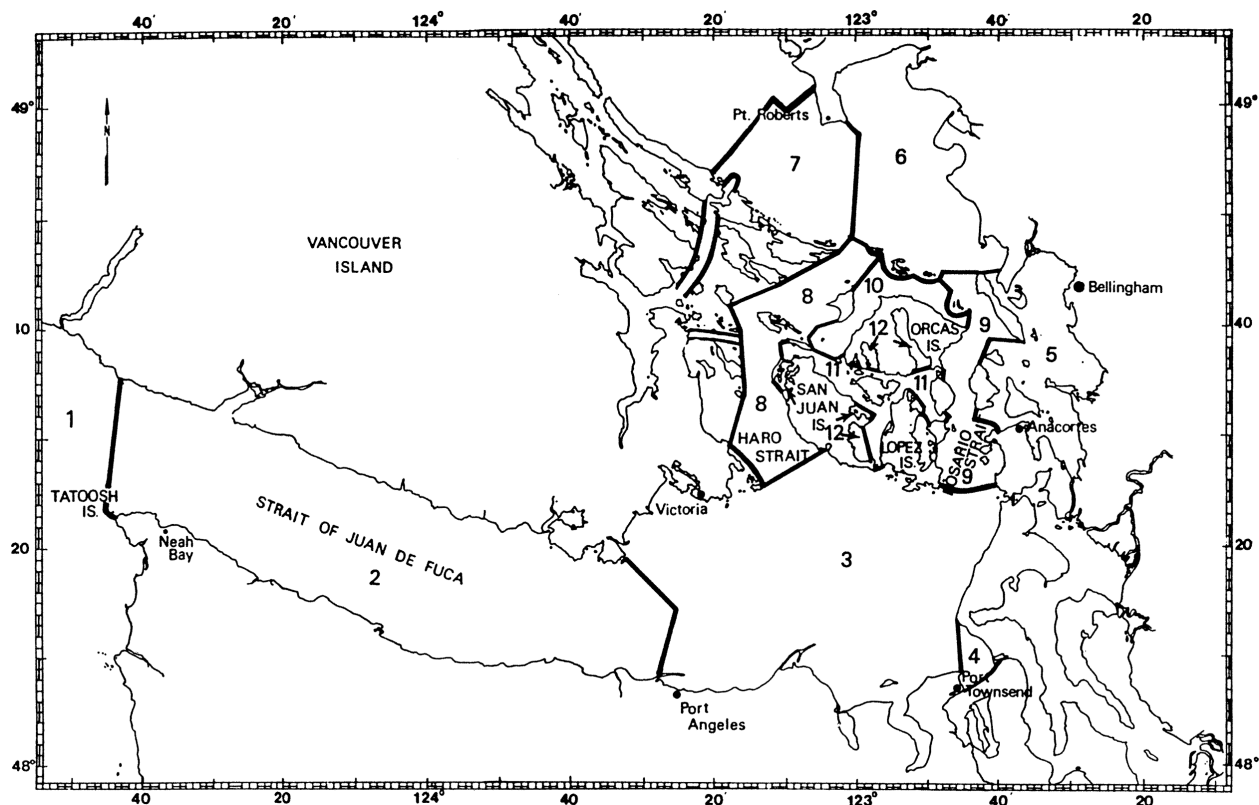
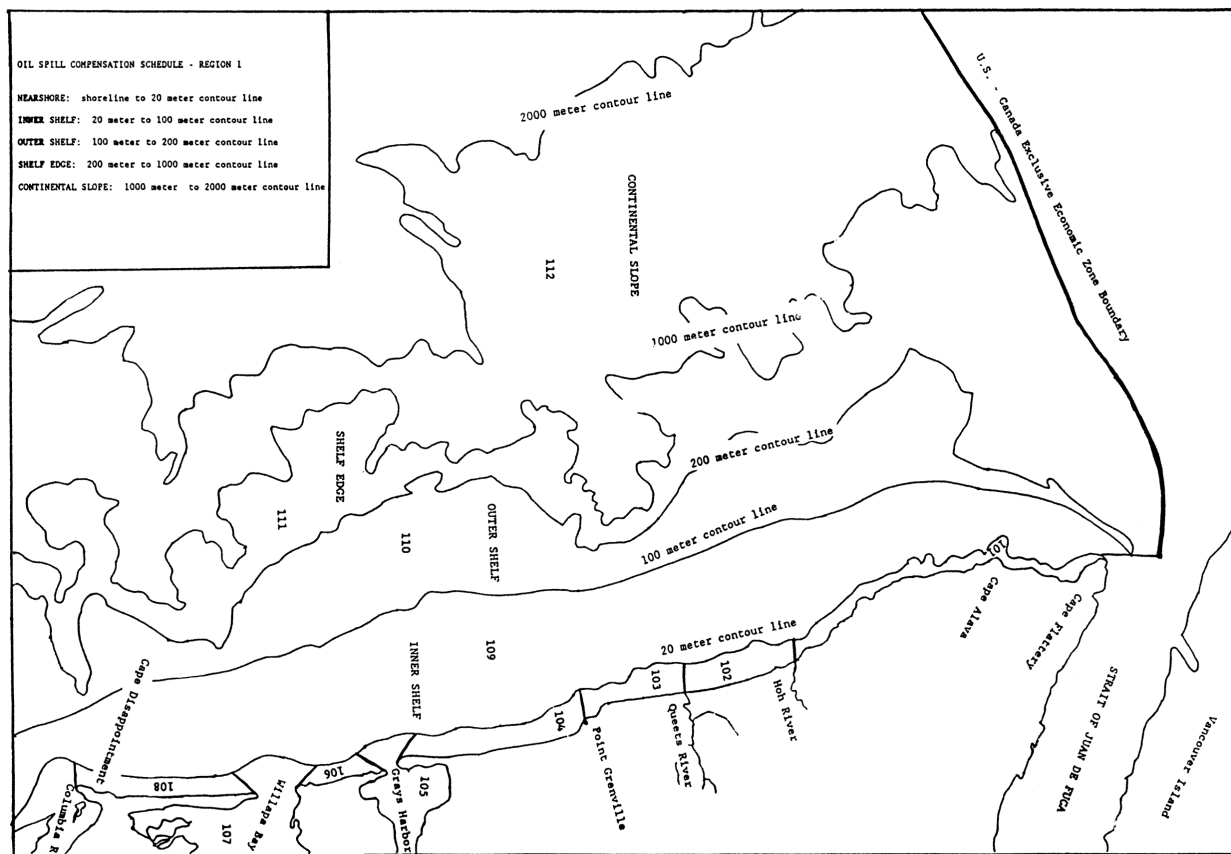
Common Name	Scientific Name
Chinook	<i>Oncorhynchus tshawytscha</i>
Coho	<i>O. kisutch</i>
Pink	<i>O. gorbushca</i>
Chum	<i>O. keta</i>
Sockeye	<i>O. nerka</i>

APPENDIX 4: SPECIES INCLUDED IN THE SHELLFISH VULNERABILITY RANKING

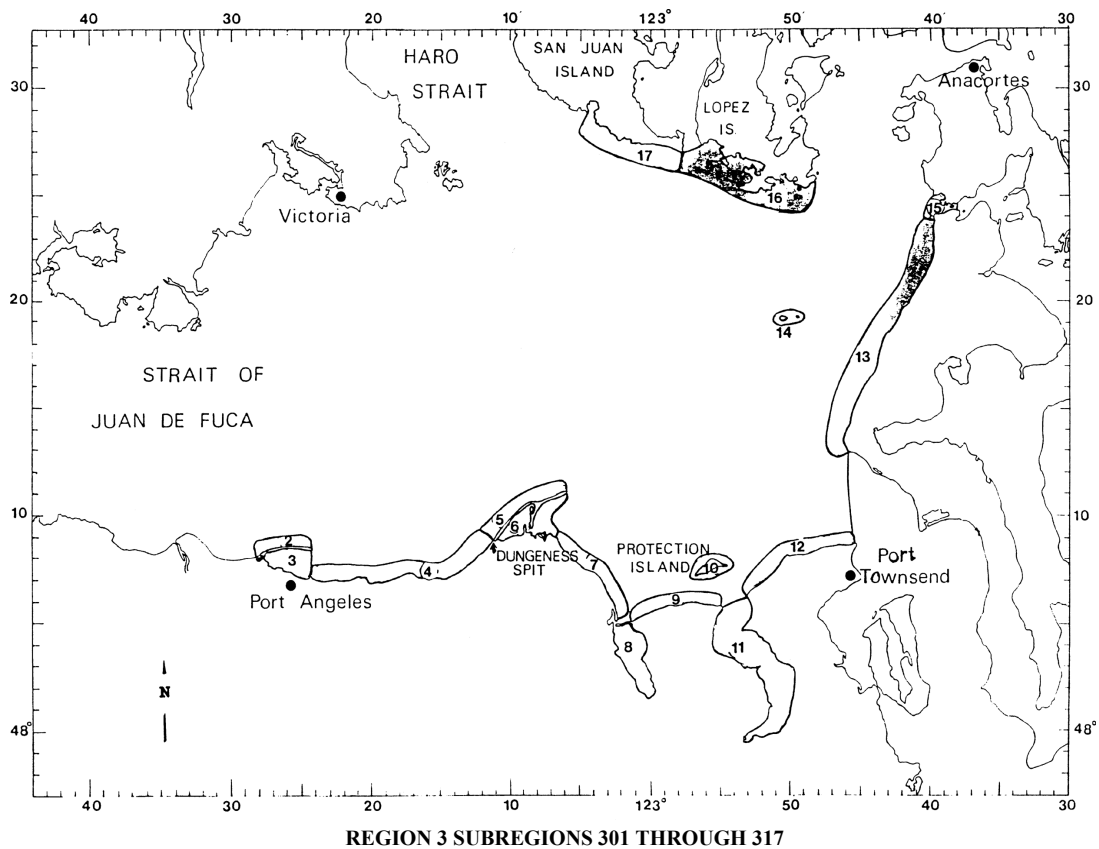
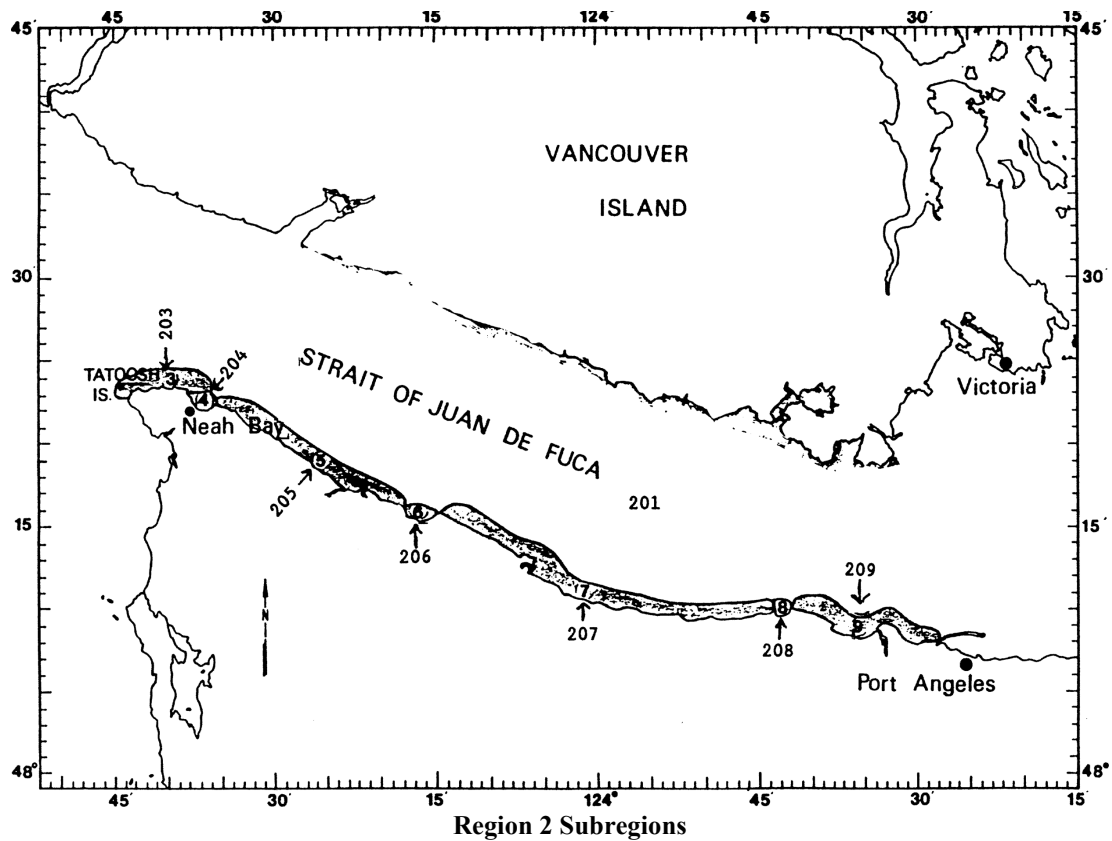
Common Name	Scientific Name
Pacific Oyster	<i>Crassostrea gigas</i>
Olympia Oyster	<i>Ostrea lurida</i>
Pacific Razor Clam	<i>Siliqua patula</i>
Geoduck	<i>Panope generosa</i>
Butter Clam	<i>Saxidomus giganteus</i>
Native Little Neck	<i>Protothaca staminea</i>
Manila Clam	<i>Venerupis japonica</i>
Gaper Clam	<i>Tresus nuttalli</i>
Horse Clam	<i>T. capax</i>
Eastern Soft Shell	<i>Mya arenaria</i>
Cockles	<i>Clinocardium nuttalli</i>
Pink Scallop	<i>Chlamys rubida</i>
Spiny Scallop	<i>C. hastata</i>
Rock Scallop	<i>Hinnites multirugous</i>
Weather-vane Scallop	<i>Pecten caurinus</i>
Bay Mussel	<i>Mytilus spp.</i>
California Mussel	<i>M. californianus</i>
Goose(neck) Barnacle	<i>Pollicipes polymerus</i>
Squid	<i>Loligo opalescens</i>
Octopus	<i>Octopus dofleini</i>
Northern Abalone	<i>Haliotis kamschatkana</i>
Limpets	subsistence harvest species
Whelks	subsistence harvest species
Moon Snail	<i>Polinices</i>
Chitons	subsistence harvest species
Sea Cucumber	<i>Parastichopus californicus</i>
Red Sea Urchin	<i>Strongylocentrotus franciscanus</i>
Green Sea Urchin	<i>S. droebachiensis</i>
Purple Sea Urchin	<i>S. purpuratus</i>
Dungeness Crab	<i>Cancer magister</i>
Red (Rock) Crab	<i>C. productus</i>
Spot Shrimp	<i>Pandalus platyceros</i>
Coon Stripe Shrimp	<i>P. danae</i>
Side Shrimp	<i>Pandalopsis dispar</i>
Pink Shrimp	<i>Pandalus jordani</i> & <i>P. borealis</i>
Ghost Shrimp	<i>Callinassa spp.</i>
Mud Shrimp	<i>Upogebia pugettensis</i>
Humpback Shrimp	<i>Pandalus hypsinotus</i>

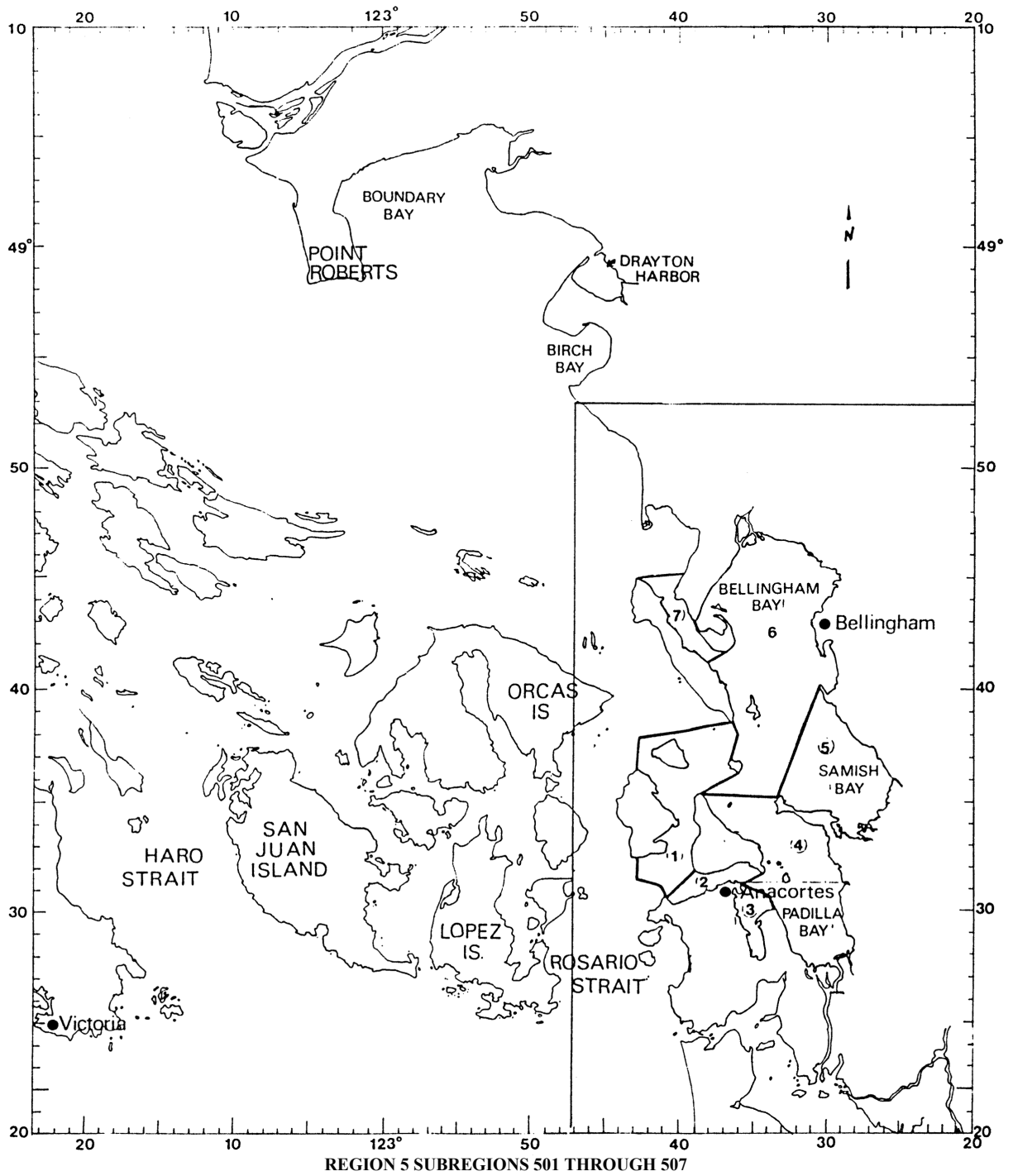
APPENDIX 5: COMPENSATION SCHEDULE REGIONS AND SUBREGIONS

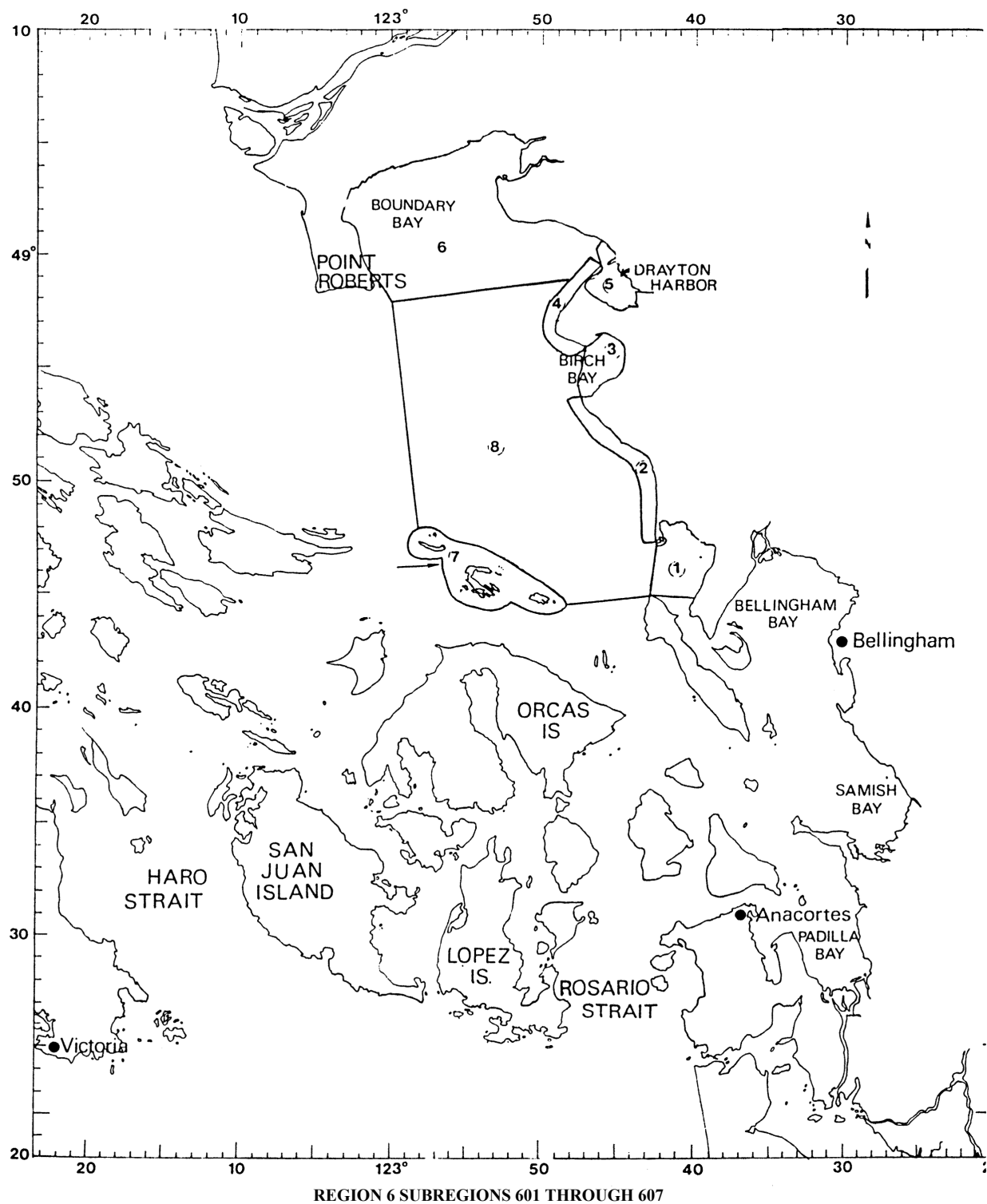
Region 1 Subregions

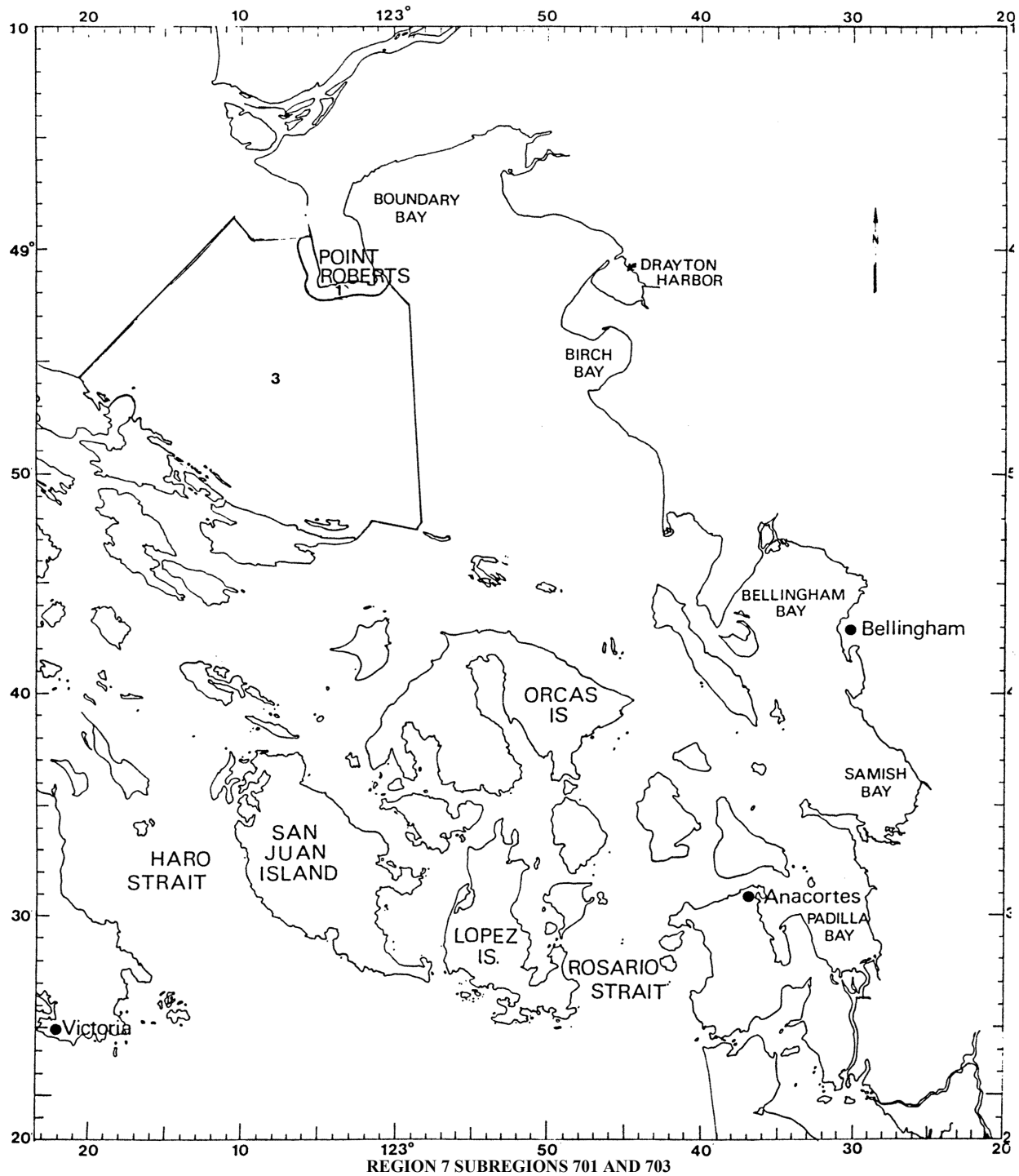


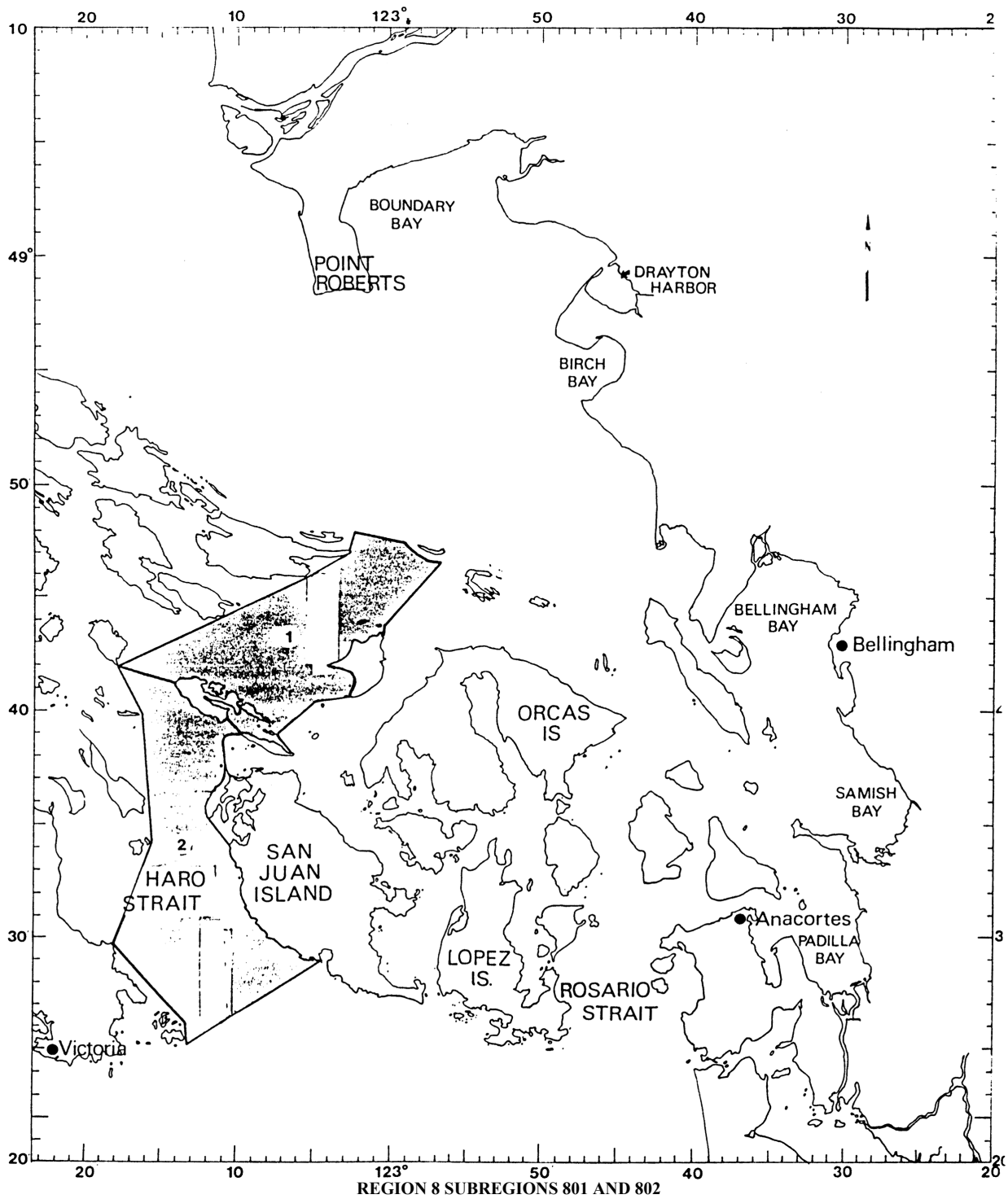
Northern Puget Sound, Strait of Juan de Fuca and Outer Coast Compensation Schedule Regions

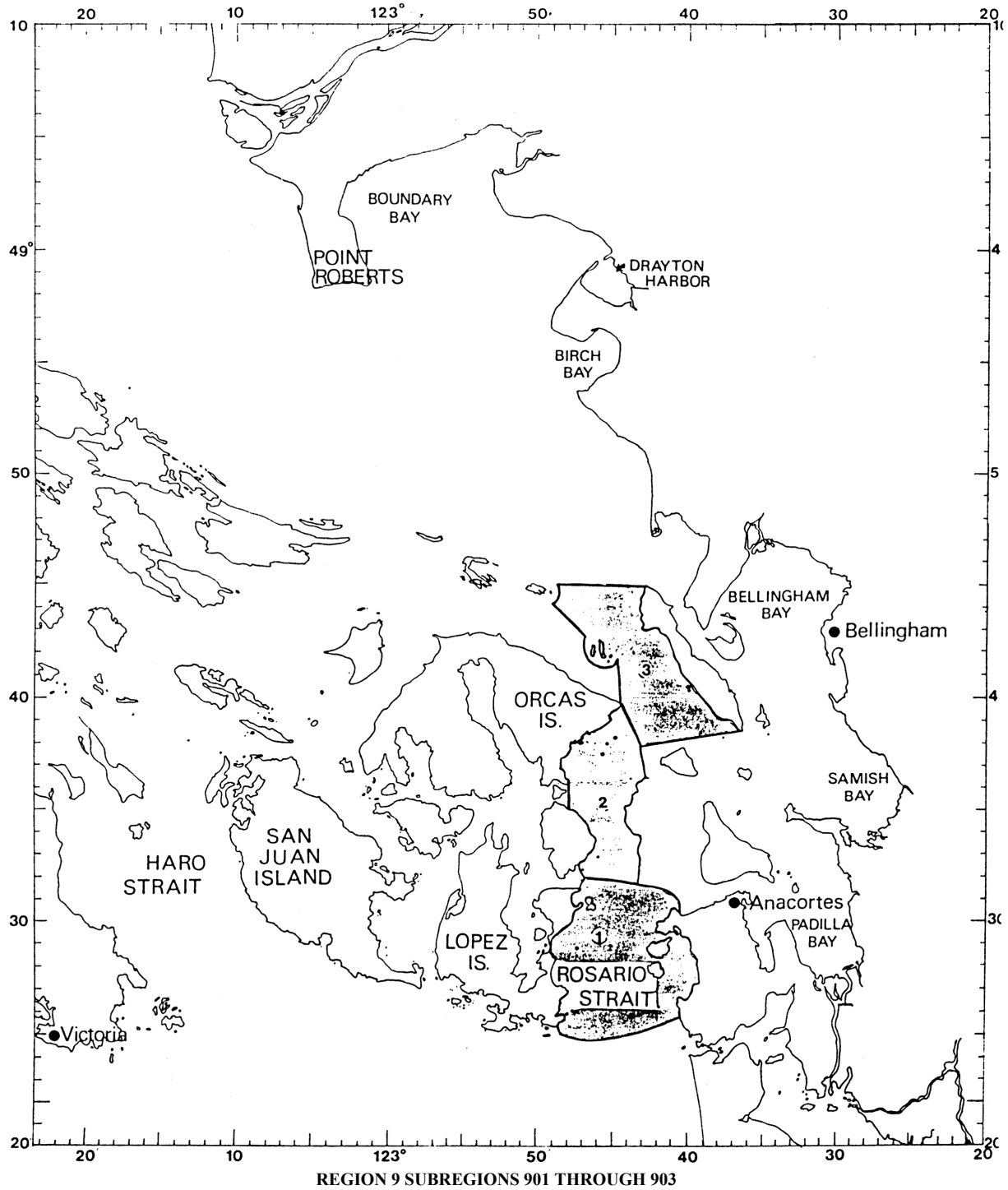


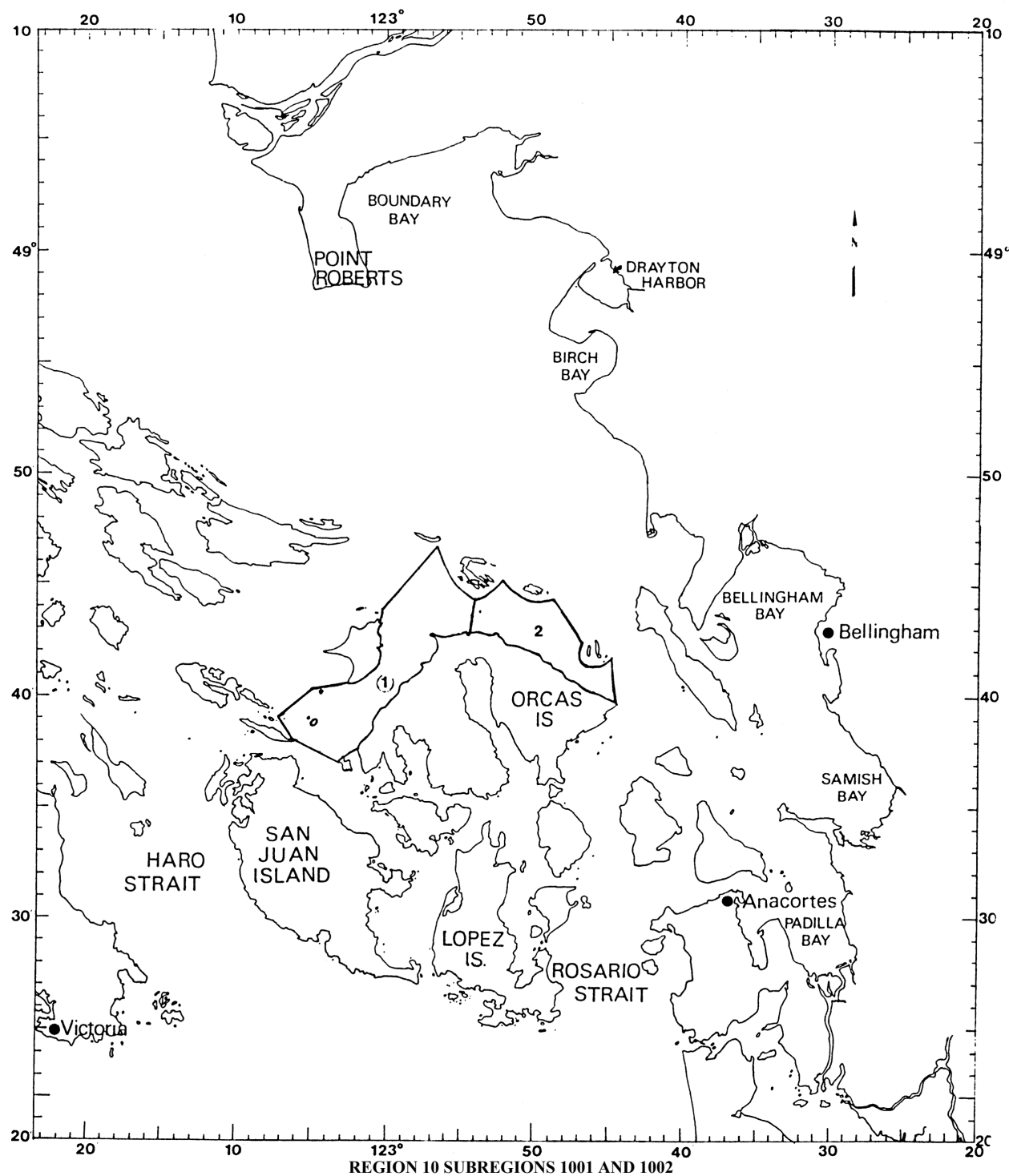


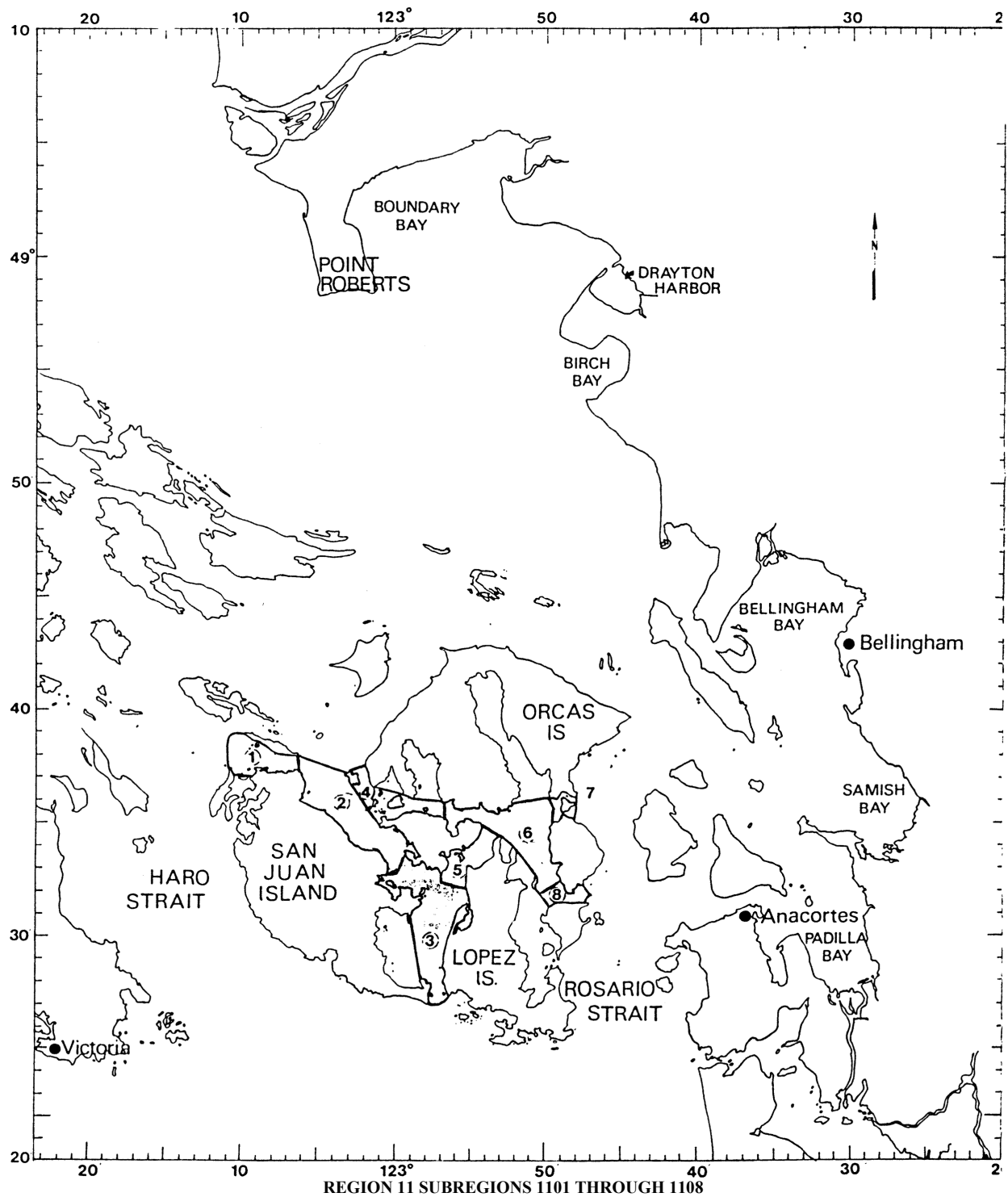


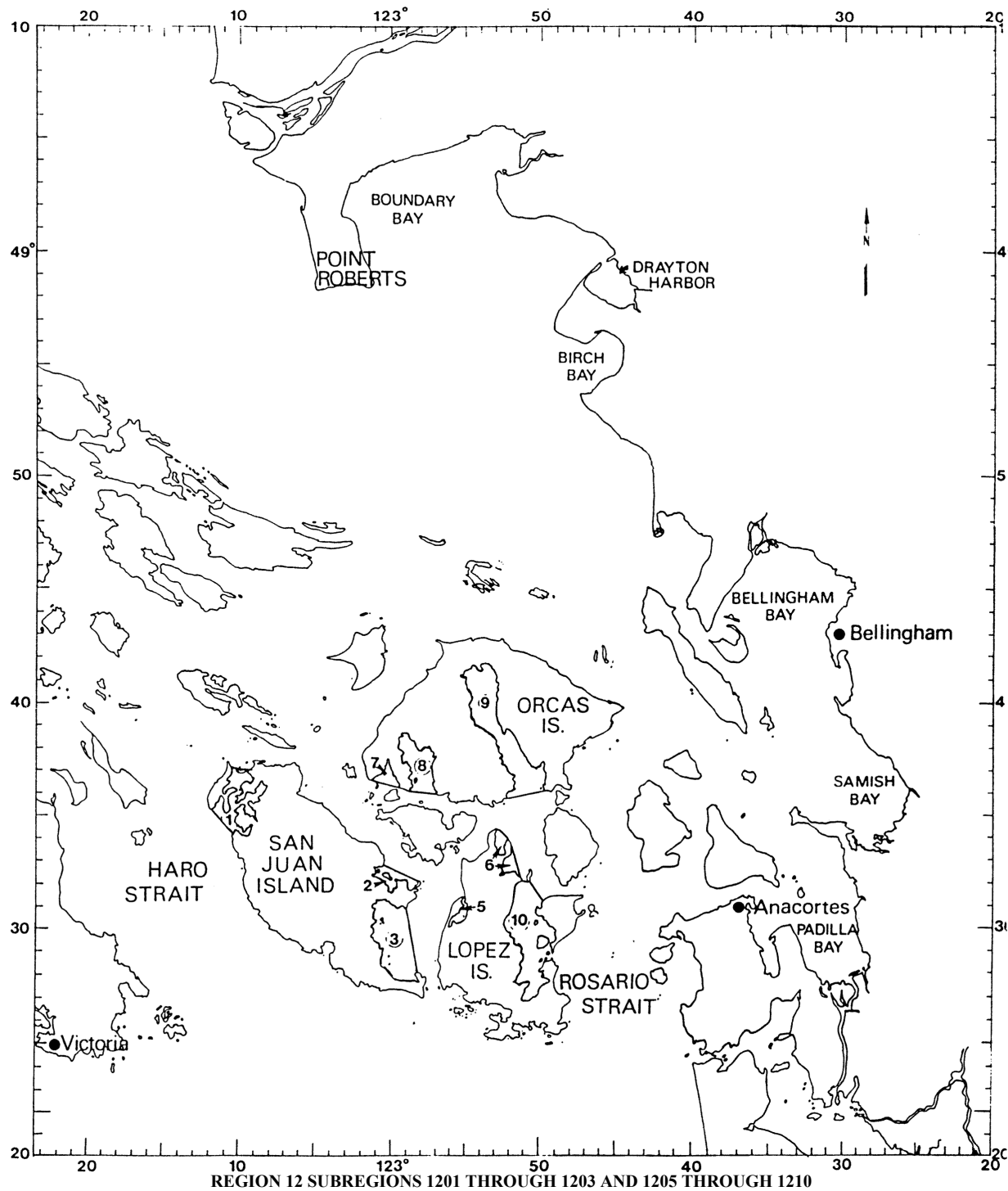


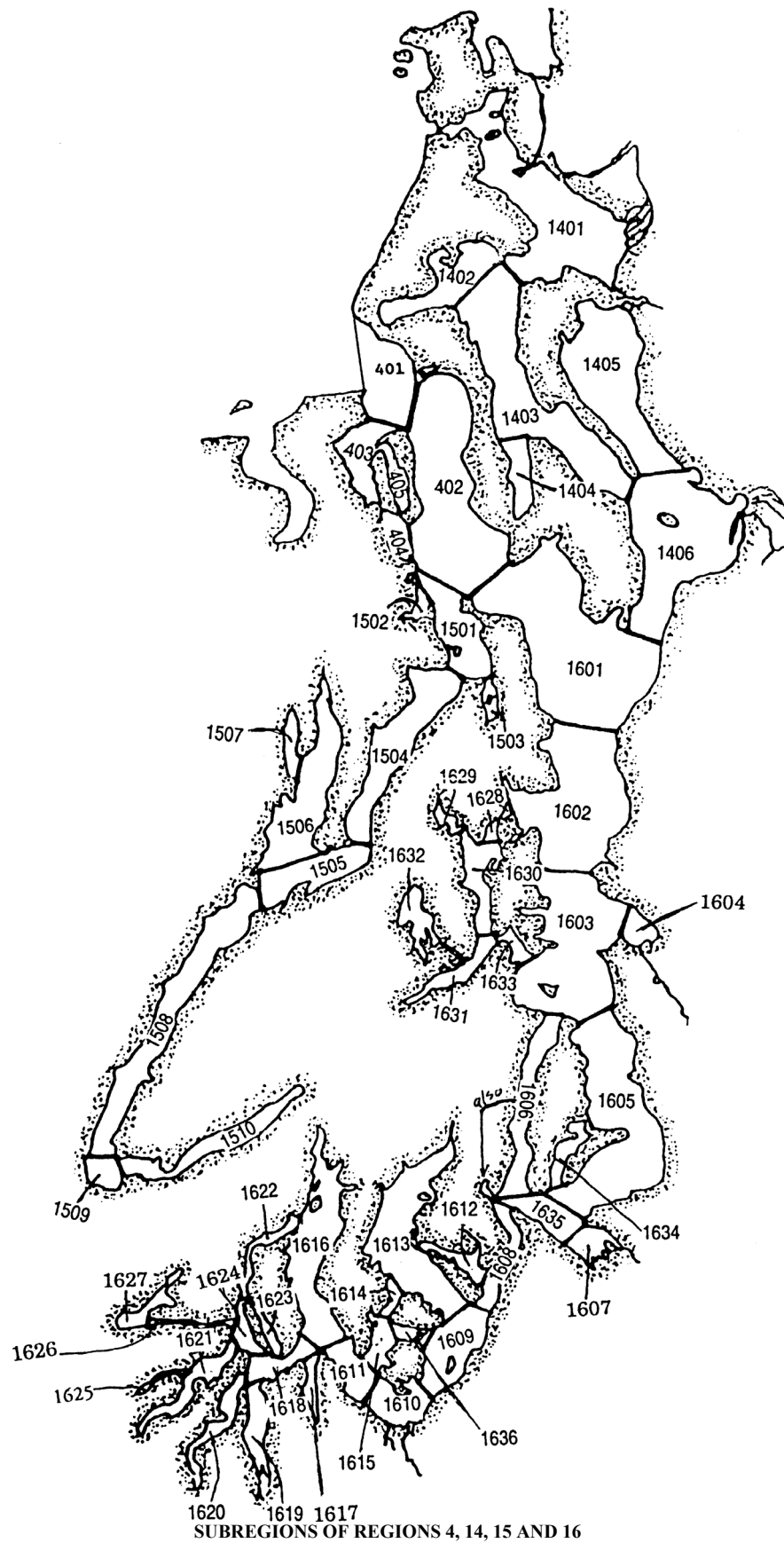










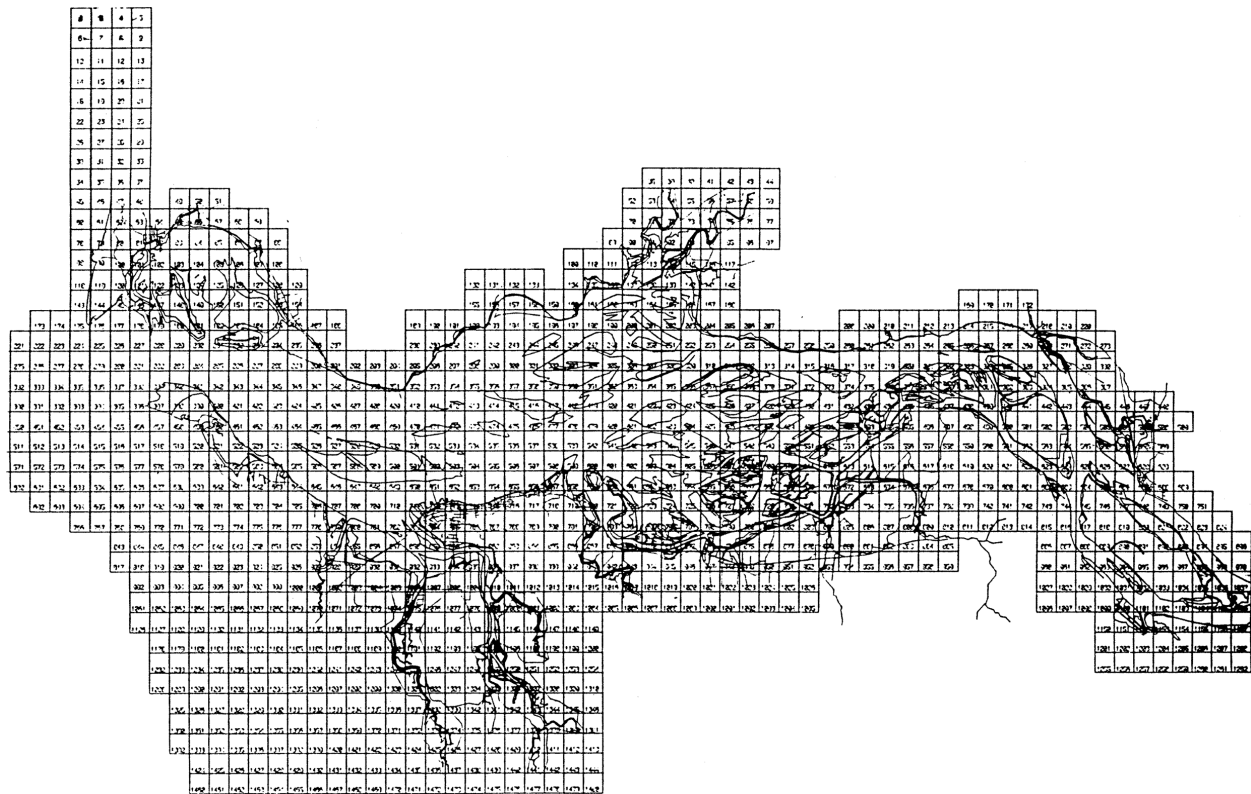


1620 1619 1617
SUBREGIONS OF REGIONS 4, 14, 15 AND 16

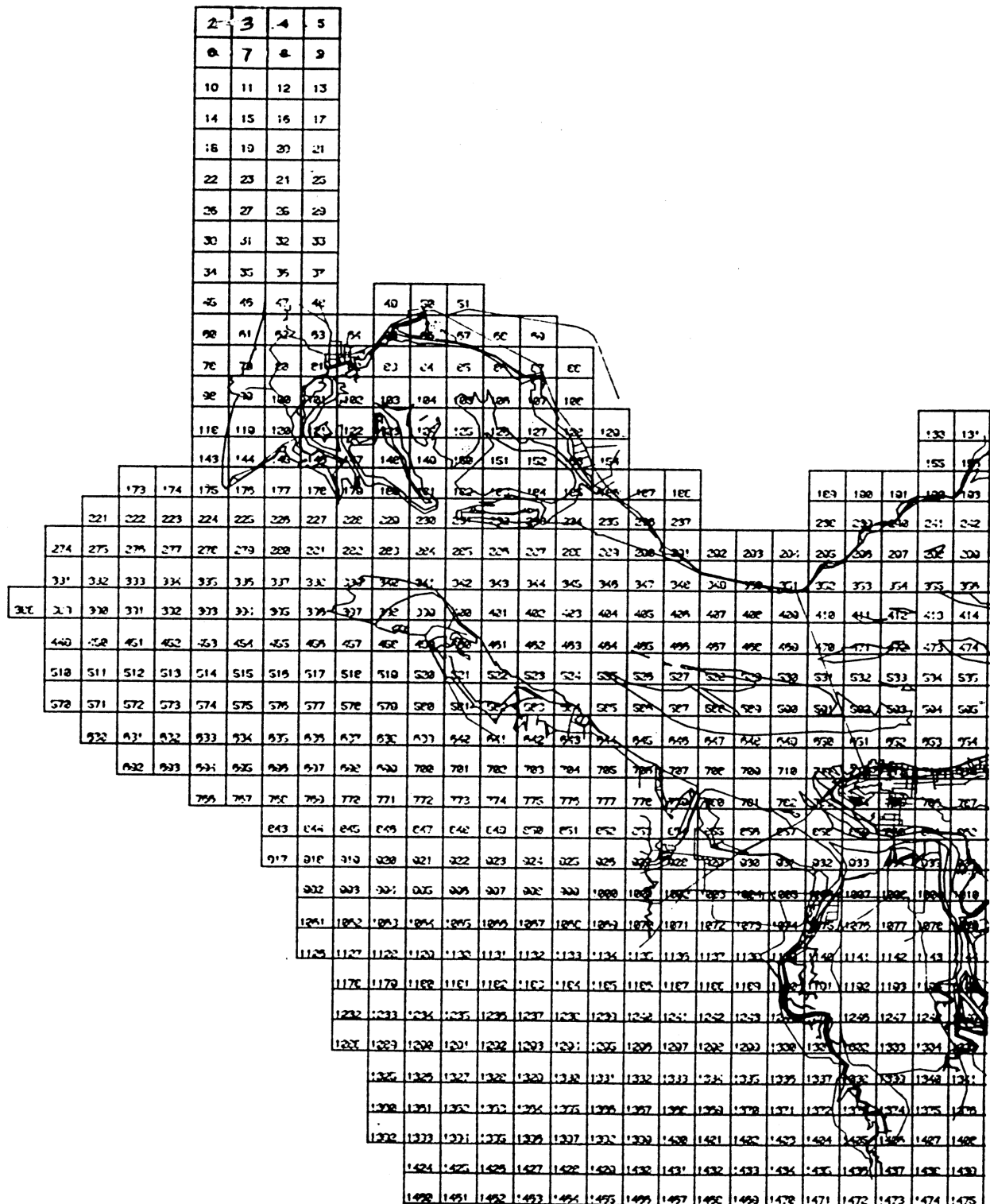
APPENDIX 6: COLUMBIA RIVER ESTUARY SEASONAL RESOURCE SENSITIVITIES BY ONE SQUARE KILOMETER GRID CELL

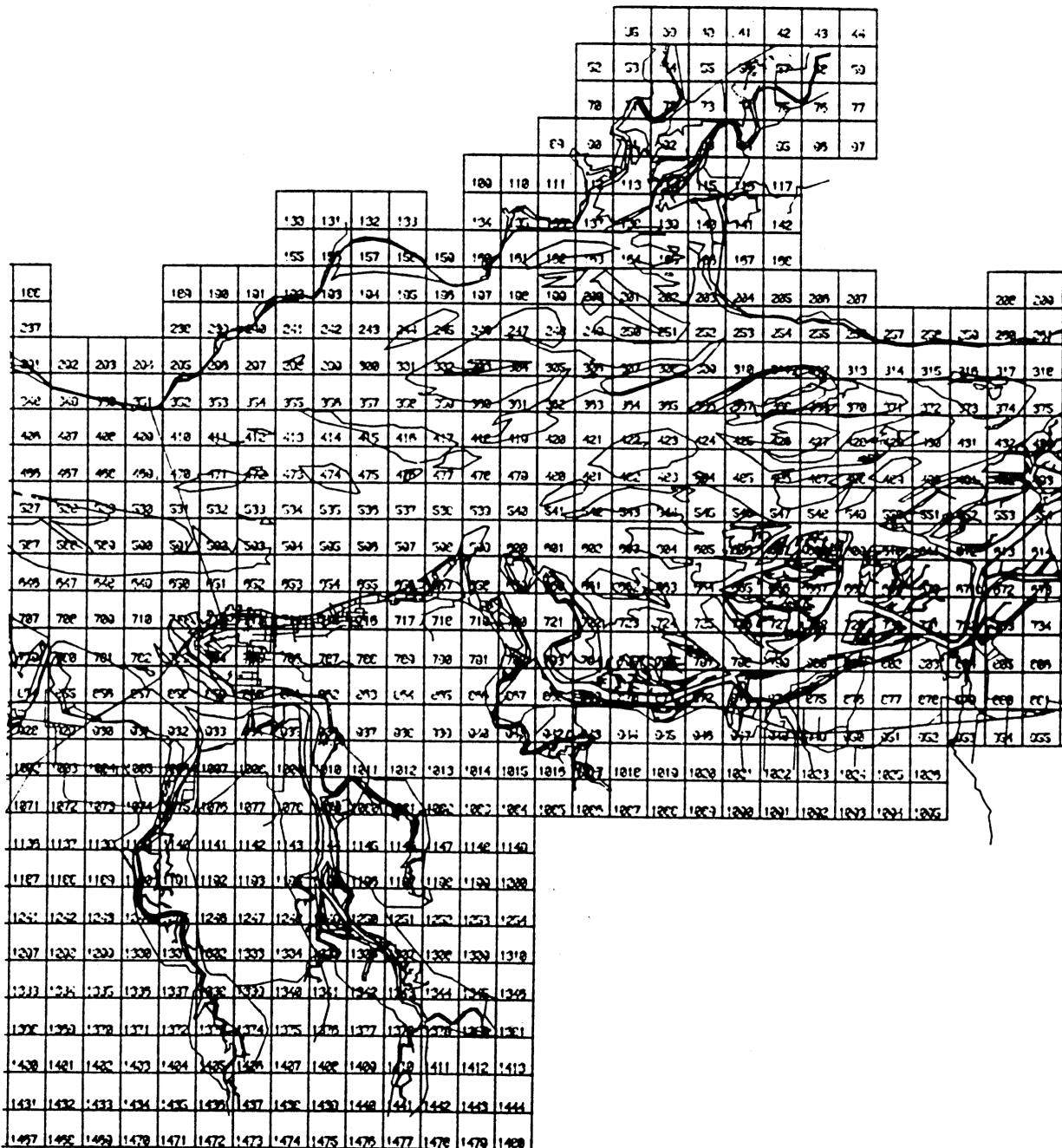
Columbia River Estuary Grid-Cell Identification (CGRID-ID)

REFERENCE MAP (enlarged maps and sensitivity rankings follow)

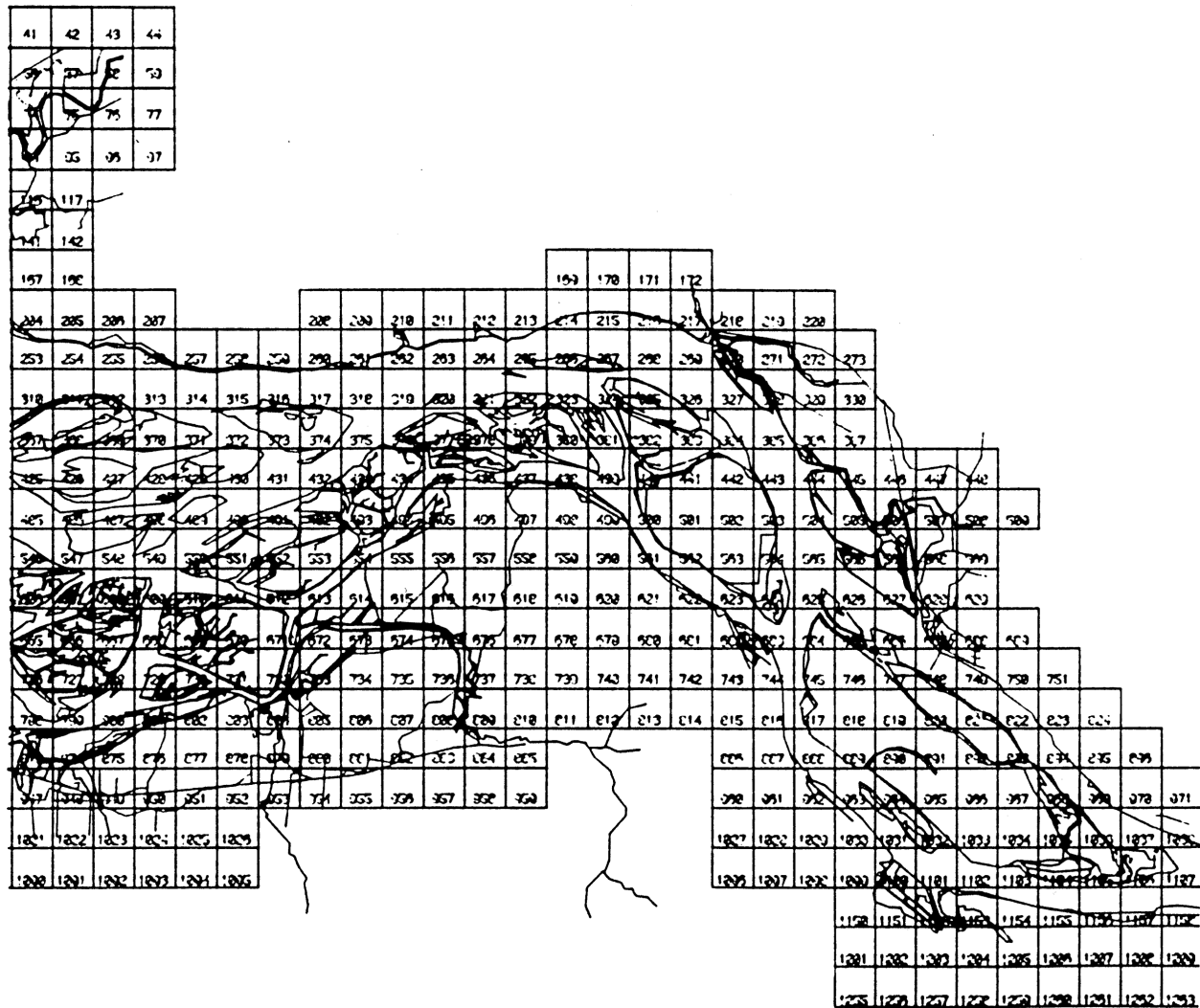


Columbia River Estuary Grid-Cell Identification (CGRID-ID) Reference Map





Columbia River Estuary Grid-Cell Identification (CGRID-ID) Reference Map



APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
0	1111	1111	1111	1111	1111	1111	1111
1	2222	1111	1111	2222	1111	1111	1111
2	2222	1111	1111	2222	1111	1111	1111
3	1111	1111	1111	1111	1111	1111	1111
4	2222	1111	1111	2222	1111	1111	1111
5	2222	1111	1111	2222	1111	1111	1111
6	1111	1111	1111	1111	1111	1111	1111
7	2222	1111	1111	2222	1111	1111	1111
8	2222	1111	1111	2222	1111	1111	1111
9	2222	1111	1111	2222	1111	1111	1111
10	2222	1111	1111	2222	1111	1111	1111
11	2222	1111	1111	2222	1111	1111	1111
12	2222	1111	1111	2222	1111	1111	1111
13	2222	1111	1111	2222	1111	1111	1111
14	2222	1111	1111	2222	1111	1111	1111
15	2222	1111	1111	2222	1111	1111	1111
16	2222	1111	1111	2222	1111	1111	1111
17	2222	1111	1111	2222	1111	1111	1111
18	2222	1111	1111	2222	1111	1111	1111
19	2222	1111	1111	2222	1111	1111	1111
20	2222	1111	1111	2222	1111	1111	1111
21	2222	1111	1111	2222	1111	1111	1111
22	2222	1111	1111	2222	1111	1111	1111
23	2222	1111	1111	2222	1111	1111	1111
24	2222	1111	1111	2222	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
25	2222	1111	1111	2222	1111	1111	1111
26	2222	1111	1111	2222	1111	1111	1111
27	2222	1111	1111	2222	1111	1111	1111
28	4444	1111	1111	1111	1111	4444	1111
29	1111	1111	1111	1111	1111	1111	1111
30	1111	1111	1111	1111	1111	1111	1111
31	1111	1111	1111	1111	1111	1111	1111
32	1111	1111	1111	1111	1111	1111	1111
33	1111	1111	1111	1111	1111	1111	1111
34	4422	1111	4422	2222	1111	1111	1111
35	4422	1111	4422	2222	1111	1111	1111
36	4422	1111	4422	1111	1111	1111	1111
37	4444	1111	1111	1111	1111	4444	1111
38	5555	1111	1111	1111	1111	5555	1111
39	1111	1111	1111	1111	1111	1111	1111
40	5555	1111	1111	1111	2222	5555	1111
41	5555	1111	1111	1111	1111	5555	1111
42	5555	1111	1111	1111	1111	5555	1111
43	1111	1111	1111	1111	1111	1111	1111
44	4422	1111	4422	2222	1111	1111	1111
45	4422	1111	4422	2222	1111	1111	1111
46	4432	1111	4432	1111	1111	1111	1111
47	4422	1111	4422	1111	1111	1111	1111
48	4433	1111	4433	1111	1111	1111	1111
49	5555	1111	4433	1111	1111	5555	1111
50	5555	1111	4433	1111	1111	5555	1111
51	5555	1111	4433	1111	1111	5555	1111
52	5555	1111	1131	1111	2222	5555	1111
53	5555	1111	4444	1111	2222	5555	1111
54	5555	1111	1131	1111	2222	5555	1111
55	5555	1111	1111	1111	2222	5555	1111
56	5555	1111	1111	1111	1111	5555	1111
57	5555	1111	1111	1111	1111	5555	1111
58	1111	1111	1111	1111	1111	1111	1111
59	4422	1111	4422	2222	1111	1111	1111
60	4422	1111	4422	2222	1111	1111	1111
61	4432	1111	4432	1111	1111	1111	1111
62	4433	1111	4433	1111	1111	3333	1111
63	5555	1111	4433	1111	1111	5555	1111
64	5555	1111	4433	1111	1111	5555	1111
65	4444	1111	4433	1111	1111	4444	1111
66	5555	1111	4433	1111	1111	5555	1111
67	5555	1111	4433	1111	1111	5555	1111
68	5555	1111	4422	1111	1111	5555	1111
69	5555	1111	1144	1111	1111	5555	1111
70	5555	1111	4444	1111	1111	5555	1111
71	5555	1111	4444	1111	1111	5555	1111
72	5555	1111	4444	1111	2222	5555	1111
73	5555	1111	1111	1111	2222	5555	1111
74	1111	1111	1111	1111	1111	1111	1111
75	4422	1111	4422	2222	1111	1111	1111
76	4422	1111	4422	2222	1111	1111	1111
77	5555	1111	4433	1111	1111	5555	1111
78	5555	1111	4433	1111	1111	5555	1111
79	5555	1111	4433	1111	1111	5555	1111
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81	4444	1111	4433	1111	1111	4444	1111
82	4444	1111	4433	1111	1111	4444	1111
83	5555	1111	4433	1111	1111	5555	1111
84	5555	1111	4433	1111	1111	5555	1111
85	4422	1111	4422	1111	1111	1111	1111
86	5555	1111	1131	1111	1111	5555	1111
87	5555	1111	1144	1111	1111	5555	1111
88	5555	1111	4444	1111	1111	5555	1111
89	5555	1111	4444	1111	1111	5555	1111
90	5555	1111	4444	1111	1111	5555	1111
91	5555	1111	1131	1111	1111	5555	1111
92	4422	1111	4422	2222	1111	1111	1111
93	4422	1111	4422	2222	1111	1111	1111
94	5555	1111	4433	1111	1111	5555	1111
95	5555	1111	4433	1111	1111	5555	1111
96	5555	1111	4433	1111	1111	5555	1111
97	5555	1111	4433	1111	1111	5555	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
98	4444	1111	4433	1111	1111	4444	1111
99	4444	1111	4433	1111	1111	4444	1111
100	4444	1111	4433	1111	1111	4444	1111
101	5555	1111	4433	1111	2222	5555	1111
102	5555	1111	4433	1111	1111	5555	1111
103	4422	1111	4422	1111	1111	1111	1111
104	4422	1111	4422	1111	1111	1111	1111
105	5555	1111	1131	1111	1111	5555	1111
106	5555	1111	1131	1111	1111	5555	1111
107	5555	1111	1144	1111	1111	5555	1111
108	4444	1111	1144	1111	1111	4444	1111
109	5555	1111	4444	1111	1111	5555	1111
110	5555	1111	4444	1111	1111	5555	1111
111	5555	1111	1144	1111	1111	5555	1111
112	4422	1111	4422	2222	1111	1111	1111
113	5555	1111	4422	1111	1111	5555	1111
114	5555	1111	5533	1111	1111	5555	1111
115	5555	1111	5533	1111	1111	5555	1111
116	5555	1111	4433	1111	1111	5555	1111
117	5555	1111	4433	1111	1111	5555	1111
118	4444	1111	4433	1111	1111	4444	1111
119	4444	1111	4433	1111	1111	4444	1111
120	4444	1111	4433	1111	1111	4444	1111
121	4444	1111	4433	1111	2222	4444	1111
122	5555	1111	4433	1111	2222	5555	1111
123	5555	1111	4433	1111	1111	5555	1111
124	5555	1111	4433	1111	1111	5555	1111
125	5555	1111	4433	1111	1111	5555	1111
126	5555	1111	1111	1111	1111	5555	1111
127	5555	1111	1131	1111	2222	5555	1111
128	5555	1111	1131	1111	2222	5555	1111
129	3333	1111	1131	1111	1111	3333	1111
130	3333	1111	1131	1111	1111	3333	1111
131	3333	1111	1131	1111	1111	3333	1111
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133	5555	1111	4444	1111	1111	5555	1111
134	1144	1111	1144	1111	1111	1111	1111
135	4433	1111	4433	1111	1111	1111	1111
136	4433	1111	4433	1111	1111	1111	1111
137	2222	1111	1111	2222	1111	1111	1111
138	2222	1111	1111	2222	1111	1111	1111
139	5555	1111	4422	2222	1111	5555	1111
140	5555	1111	4422	1111	1111	5555	1111
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142	5533	1111	5533	1111	1111	3333	1111
143	4433	1111	4433	1111	1111	3333	1111
144	5555	1111	4433	1111	1111	5555	1111
145	5555	1111	4433	1111	1111	5555	1111
146	4433	1111	4433	1111	1111	3333	1111
147	4433	1111	4433	1111	1111	3333	1111
148	4433	1111	4433	1111	2222	3333	1111
149	5555	1111	4433	1111	2222	5555	1111
150	5555	1111	4433	1111	2222	5555	1111
151	4444	1111	4433	1111	1111	4444	1111
152	5555	1111	4433	1111	2222	5555	1111
153	4444	1111	4433	1111	1111	4444	1111
154	4444	1111	4433	1111	1111	4444	1111
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156	5555	1111	1131	1111	2222	5555	1111
157	3333	1111	1131	1111	2222	3333	1111
158	3333	1111	1131	1111	1111	3333	1111
159	3333	1111	1131	1111	1111	3333	1111
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162	5555	1111	4444	1111	1111	5555	1111
163	4433	1111	4432	1111	1111	3333	1111
164	1131	1111	1131	1111	1111	1111	1111
165	4433	1111	4433	1111	1111	3333	1111
166	4433	1111	4433	1111	1111	3333	1111
167	4433	1111	4433	1111	1111	3333	1111
168	4433	1111	4433	1111	1111	3333	1111
169	2222	1111	1111	2222	1111	1111	1111
170	2222	1111	1111	2222	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
171	2222	1111	1111	2222	1111	1111	1111
172	4433	1111	4422	2222	1111	3333	1111
173	4422	1111	4422	2222	1111	1111	1111
174	4422	1111	4422	2222	1111	1111	1111
175	4433	1111	4433	1111	1111	3333	1111
176	4433	1111	4433	1111	1111	3333	1111
177	4433	1111	4433	1111	1111	3333	1111
178	5555	1111	4433	1111	1111	5555	1111
179	5555	1111	4433	1111	1111	5555	1111
180	5555	1111	5533	1111	1111	5555	1111
181	5555	1111	5533	1111	2222	5555	1111
182	4444	1111	4433	1111	2222	4444	1111
183	4433	1111	4433	1111	2222	3333	1111
194	5555	1111	4433	1111	2222	5555	1111
185	5555	1111	4433	1111	1111	5555	1111
186	4444	1111	4433	1111	1111	4444	1111
187	4433	1111	4433	1111	1111	1111	1111
188	4433	1111	4433	1111	1111	1111	1111
189	4433	1111	4433	1111	1111	1111	1111
190	4444	1111	4433	1111	1111	4444	1111
191	4444	1111	1111	1111	1111	4444	1111
192	4444	1111	1131	1111	1111	4444	1111
193	4444	1111	1131	1111	1111	4444	1111
194	4444	1111	1131	1111	1111	4444	1111
195	3333	1111	1131	1111	1111	3333	1111
196	3333	1111	1131	1111	1111	3333	1111
197	3333	1111	1131	1111	1111	3333	1111
198	4444	1111	4433	1111	1111	4444	1111
199	4433	1111	4432	1111	1111	3333	1111
200	4433	1111	4432	1111	1111	3333	1111
201	3333	1111	1131	1111	1111	3333	1111
202	4433	1111	4432	1111	1111	3333	1111
203	4433	1111	4433	1111	1111	3333	1111
204	4433	1111	4433	1111	1111	3333	1111
205	5555	1111	4433	1111	1111	5555	1111
206	4433	1111	4433	1111	1111	3333	1111
207	5555	1111	4433	1111	1111	5555	1111
208	4433	1111	4433	1111	1111	3333	1111
209	5555	1111	4433	1111	1111	5555	1111
210	5555	1111	4433	1111	1111	5555	1111
211	4433	1111	4433	1111	1111	1111	1111
212	5555	1111	4433	1111	1111	5555	1111
213	5555	1111	1111	1111	1111	5555	1111
214	5555	1111	1111	1111	1111	5555	1111
215	3333	1111	1111	1111	1111	3333	1111
216	2222	1111	1111	2222	1111	1111	1111
217	2222	1111	1111	2222	1111	1111	1111
218	2222	1111	1111	2222	1111	1111	1111
219	2222	1111	1111	2222	1111	1111	1111
220	4422	1111	4422	2222	1111	1111	1111
221	4422	1111	4422	2222	1111	1111	1111
222	4422	1111	4422	2222	1111	1111	1111
223	4422	1111	4422	2222	1111	1111	1111
224	4422	1111	4422	2222	1111	1111	1111
225	4422	1111	4422	2222	1111	1111	1111
226	4422	1111	4422	2222	1111	1111	1111
227	4422	1111	4422	2222	1111	1111	1111
228	4433	1111	4433	2222	1111	1111	1111
229	4433	1111	4433	2222	2222	1111	1111
230	4433	1111	4433	1111	2222	3333	1111
231	4433	1111	4433	1111	2222	3333	1111
232	5555	1111	4433	1111	2222	5555	1111
233	4433	1111	4432	1111	2222	3333	1111
234	5555	1111	4433	1111	1111	5555	1111
235	4433	1111	4433	1111	1111	1111	1111
236	4433	1111	4433	1111	1111	3333	1111
237	4433	1111	4433	1111	1111	1111	1111
238	4444	1111	4433	1111	1111	4444	1111
239	4444	1111	4433	1111	1111	4444	1111
240	4444	1111	4422	1111	1111	4444	1111
241	4444	1111	4422	1111	1111	4444	1111
242	4444	1111	4422	1111	2222	4444	1111
243	4444	1111	4432	1111	2222	4444	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
244	4444	1111	4433	1111	2222	4444	1111
245	5544	1111	5533	1111	1111	4444	1111
246	5544	1111	5533	1111	1111	4444	1111
247	5544	1111	5532	1111	1111	4444	1111
248	5544	1111	5532	1111	1111	4444	1111
249	5555	1111	4432	1111	1111	5555	1111
250	5555	1111	4432	1111	1111	5555	1111
251	4432	1111	4432	1111	1111	1111	1111
252	4433	1111	4433	1111	1111	3333	1111
253	4433	1111	4433	1111	1111	3333	1111
254	4433	1111	4433	1111	1111	3333	1111
255	4433	1111	4433	1111	1111	3333	1111
256	4433	1111	4433	1111	1111	3333	1111
257	4433	1111	4433	1111	1111	1111	1111
258	4433	1111	4433	1111	1111	3333	1111
259	5555	1111	4433	1111	1111	5555	1111
260	5555	1111	4433	1111	1111	5555	1111
261	5555	1111	4433	1111	1111	5555	1111
262	5555	1111	4433	1111	1111	5555	1111
263	5555	1111	4433	1111	1111	5555	1111
264	5555	1111	4433	1111	1111	5555	1111
265	5555	1111	5533	1111	1111	5555	1111
266	5555	1111	5533	1111	1111	5555	1111
267	5555	1111	1111	1111	1111	5555	1111
268	2222	1111	1111	2222	1111	1111	1111
269	2222	1111	1111	2222	1111	1111	1111
270	2222	1111	1111	2222	1111	1111	1111
271	2222	1111	1111	2222	1111	1111	1111
272	4422	1111	4422	2222	1111	1111	1111
273	4422	1111	4422	2222	1111	1111	1111
274	4422	1111	4422	2222	1111	1111	1111
275	4422	1111	4422	2222	1111	1111	1111
276	4433	1111	4422	2222	1111	3333	1111
277	4433	1111	4422	2222	1111	3333	1111
278	4433	1111	4422	2222	1111	3333	1111
279	4422	1111	4422	2222	1111	1111	1111
280	4422	1111	4422	2222	1111	1111	1111
281	4432	1111	4432	2222	1111	1111	1111
282	4432	1111	4432	2222	2222	1111	1111
283	4432	1111	4432	1111	2222	1111	1111
284	4433	1111	4433	1111	2222	2222	1111
285	4433	1111	4433	1111	2222	3333	1111
286	4433	1111	4433	1111	1111	3333	1111
287	4433	1111	4433	1111	1111	3333	1111
288	4433	1111	4433	1111	1111	3333	1111
289	5555	1111	4433	1111	1111	5555	1111
290	4433	1111	4433	1111	1111	1111	1111
291	4433	1111	4433	1111	1111	1111	1111
292	4433	1111	4433	1111	1111	3333	1111
293	4433	1111	4433	1111	1111	1111	1111
294	4433	1111	4433	1111	1111	1111	1111
295	4444	1111	4433	1111	1111	4444	1111
296	4444	1111	4422	1111	1111	4444	1111
297	4444	1111	4422	1111	1111	4444	1111
298	4444	1111	4422	1111	2222	4444	1111
299	4444	1111	4432	1111	2222	4444	1111
300	5544	1111	5533	1111	1111	4444	1111
301	5544	1111	5533	1111	1111	4444	1111
302	5544	1111	5533	1111	1111	4444	1111
303	5544	1111	5532	1111	1111	4444	1111
304	5544	1111	5533	1111	1111	4444	1111
305	5555	1111	5533	1111	1111	5555	1111
306	5555	1111	4432	1111	1111	5555	1111
307	5555	1111	4432	1111	1111	5555	1111
308	4433	1111	4433	1111	1111	3333	1111
309	4433	1111	4433	1111	1111	3333	1111
310	5555	1111	4433	1111	1111	5555	1111
311	5555	1111	4433	1111	2222	5555	1111
312	5555	1111	4433	1111	2222	5555	1111
313	5555	1111	4433	1111	1111	5555	1111
314	5555	1111	4433	1111	1111	5555	1111
315	5555	1111	4433	1111	1111	5555	1111
316	5555	1111	4433	1111	1111	5555	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
317	5555	1111	4433	1111	1111	5555	1111
318	5555	1111	4433	1111	1111	5555	1111
319	5555	1111	4433	1111	1111	5555	1111
320	5555	1111	4433	1111	1111	5555	1111
321	5555	1111	4433	1111	1111	5555	1111
322	5555	1111	5533	1111	1111	5555	1111
323	4444	1111	1132	1111	1111	4444	1111
324	2222	1111	1111	2222	1111	1111	1111
325	2222	1111	1111	2222	1111	1111	1111
326	2222	1111	1111	2222	1111	1111	1111
327	2222	1111	1111	2222	1111	1111	1111
328	2222	1111	1111	2222	1111	1111	1111
329	4422	1111	4422	2222	1111	1111	1111
330	4433	2222	4422	2222	1111	3333	1111
331	4433	2222	4422	2222	1111	3333	1111
332	4433	2222	4422	2222	1111	3333	1111
333	4433	2222	4422	2222	1111	3333	1111
334	4444	4444	4433	1111	1111	3333	1111
335	4444	4444	4444	1111	1111	3333	1111
336	4444	4444	4444	2222	1111	3333	1111
337	4422	1111	4422	2222	1111	1111	1111
338	4422	1111	4422	2222	1111	1111	1111
339	4432	1111	4432	1111	1111	1111	1111
340	4432	1111	4432	1111	2222	1111	1111
341	4433	1111	4433	1111	2222	1111	1111
342	4433	1111	4433	1111	2222	1111	1111
343	4433	1111	4433	1111	1111	1111	1111
344	4433	1111	4433	1111	1111	1111	1111
345	4433	1111	4433	1111	1111	3333	1111
346	4433	1111	4433	1111	1111	1111	1111
347	4433	1111	4433	1111	1111	3333	1111
348	4433	1111	4433	1111	1111	3333	1111
349	4433	1111	4433	1111	1111	3333	1111
350	4433	1111	4433	1111	1111	3333	1111
351	4433	1111	4433	1111	1111	3333	1111
352	4433	1111	4433	1111	1111	3333	1111
353	4433	1111	4422	1111	1111	3333	1111
354	4444	1111	1111	1111	1111	4444	1111
355	4444	1111	1111	1111	1111	4444	1111
356	4444	1111	1111	1111	1111	4444	1111
357	4433	1111	4433	1111	1111	3333	1111
358	5533	1111	5533	1111	1111	3333	1111
359	4433	1111	4433	1111	1111	3333	1111
360	4433	1111	4422	1111	1111	3333	1111
361	4444	1111	4422	1111	1111	4444	1111
362	5555	1111	4422	1111	1111	5555	1111
363	4433	1111	4422	1111	1111	3333	1111
364	5555	1111	4422	1111	1111	5555	1111
365	5555	1111	4433	1111	1111	5555	1111
366	5555	1111	4433	1111	1111	5555	1111
367	5555	1111	4433	1111	1111	5555	1111
368	5555	1111	4433	1111	2222	5555	1111
369	5555	1111	4433	1111	1111	5555	1111
370	5555	1111	4433	1111	1111	5555	1111
371	5555	1111	4433	1111	1111	5555	1111
372	5555	1111	4433	1111	1111	5555	1111
373	5555	1111	4433	1111	1111	5555	1111
374	5555	1111	4433	1111	1111	5555	1111
375	5555	1111	4433	1111	1111	5555	1111
376	5555	1111	4433	5555	1111	5555	1111
377	5555	1111	4433	5555	1111	5555	1111
378	5555	1111	4433	5555	1111	5555	1111
379	5555	1111	1111	1111	1111	5555	1111
380	5555	1111	5533	1111	1111	5555	1111
381	5555	1111	5533	1111	1111	5555	1111
382	2222	1111	1111	2222	1111	1111	1111
383	2222	1111	1111	2222	1111	1111	1111
384	2222	1111	1111	2222	1111	1111	1111
385	2222	1111	1111	2222	1111	1111	1111
386	4422	1111	4422	2222	1111	1111	1111
387	4422	2222	4422	2222	1111	1111	1111
388	4422	2222	4422	2222	1111	1111	1111
389	4422	2222	4422	2222	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
390	4433	2222	4422	2222	1111	3333	1111
391	5555	4444	4433	2222	1111	5555	1111
392	5555	4444	4444	1111	1111	5555	1111
393	5555	4444	4444	1111	1111	5555	1111
394	4444	2222	4444	1111	1111	3333	1111
395	4422	2222	4422	1111	1111	1111	1111
396	4422	1111	4422	1111	1111	1111	1111
397	4432	1111	4432	1111	1111	1111	1111
398	4433	1111	4433	1111	1111	3333	1111
399	4433	1111	4433	1111	1111	1111	1111
400	4433	1111	4433	1111	1111	1111	1111
401	4433	1111	4433	1111	1111	1111	1111
402	4433	1111	4433	1111	1111	1111	1111
403	4433	1111	4433	1111	1111	3333	1111
404	4433	1111	4433	1111	1111	3333	1111
405	4433	1111	4433	1111	1111	3333	1111
406	4433	1111	4433	1111	1111	3333	1111
407	4433	1111	4433	1111	1111	3333	1111
408	4433	1111	4433	1111	1111	3333	1111
409	4433	1111	4433	1111	1111	3333	1111
410	3333	1111	1111	1111	1111	3333	1111
411	3333	1111	1111	1111	1111	3333	1111
412	1111	1111	1111	1111	1111	1111	1111
413	3333	1111	1111	1111	1111	3333	1111
414	3333	1111	1111	1111	1111	3333	1111
415	3333	1111	1111	1111	1111	3333	1111
416	4433	1111	4422	1111	1111	3333	1111
417	4433	1111	4422	1111	1111	3333	1111
418	4433	1111	4422	1111	1111	3333	1111
419	4444	1111	4422	1111	1111	4444	1111
420	5555	1111	4422	1111	1111	5555	1111
421	5555	1111	4422	1111	1111	5555	1111
422	5555	1111	4433	1111	1111	5555	1111
423	5555	1111	4433	1111	1111	5555	1111
424	5555	1111	4433	1111	1111	5555	1111
425	5555	1111	4433	1111	1111	5555	1111
426	5555	1111	4433	1111	1111	5555	1111
427	5555	1111	4433	1111	1111	5555	1111
428	5555	1111	4433	1111	1111	5555	1111
429	4433	1111	4433	1111	1111	1111	1111
430	4444	4444	4433	1111	1111	1111	1111
431	5555	1111	4433	1111	1111	5555	1111
432	5555	1111	5533	1111	1111	5555	1111
433	5555	1111	4433	5555	1111	5555	1111
434	4433	1111	4433	1111	1111	3333	1111
435	5555	1111	1111	5555	1111	3333	1111
436	5555	1111	1111	5555	1111	5555	1111
437	5555	1111	5533	1111	1111	5555	1111
438	5555	1111	5533	1111	1111	5555	1111
439	5555	1111	5533	1111	1111	5555	1111
440	5555	1111	4432	1111	1111	5555	1111
441	4444	1111	1131	1111	1111	4444	1111
442	2222	1111	1111	2222	1111	1111	1111
443	2222	1111	1111	2222	1111	1111	1111
444	2222	1111	1111	2222	1111	1111	1111
445	2222	1111	1111	2222	1111	1111	1111
446	4422	1111	4422	2222	1111	1111	1111
447	4422	1111	4422	2222	1111	1111	1111
448	4422	1111	4422	2222	1111	1111	1111
449	4422	1111	4422	2222	1111	1111	1111
450	4422	1111	4422	2222	1111	1111	1111
451	4422	1111	4422	2222	1111	1111	1111
452	5555	4444	5544	2222	1111	5555	1111
453	5555	4444	5544	1111	2222	5555	1111
454	4444	2222	4444	1111	2222	4444	1111
455	4433	2222	4433	1111	1111	3333	1111
456	4422	2222	4422	1111	1111	1111	1111
457	4433	1111	4422	1111	1111	3333	1111
458	4433	1111	4433	1111	1111	3333	1111
459	4433	1111	4433	1111	1111	3333	1111
460	4433	1111	4433	1111	1111	3333	1111
461	4433	1111	4433	1111	1111	3333	1111
462	4433	1111	4433	1111	1111	3333	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
463	4433	1111	4433	1111	1111	3333	1111
464	4433	1111	4433	1111	2222	3333	1111
465	4433	1111	4433	1111	2222	3333	1111
466	4433	1111	4433	1111	1111	1111	1111
467	4433	1111	4433	1111	1111	3333	1111
468	4433	1111	4433	1111	1111	3333	1111
469	4433	1111	4433	1111	1111	1111	1111
470	4433	1111	4433	1111	2222	1111	1111
471	4433	1111	4433	1111	2222	2222	1111
472	4433	1111	4433	1111	2222	1111	1111
473	4444	1111	1111	1111	1111	4444	1111
474	4444	1111	1111	1111	1111	4444	1111
475	4444	1111	1111	1111	1111	4444	1111
476	5555	1111	4422	1111	1111	5555	1111
477	5555	1111	4422	1111	1111	5555	1111
478	5555	1111	4422	1111	1111	5555	1111
479	5555	1111	4422	1111	1111	5555	1111
480	4444	1111	4422	1111	1111	4444	1111
481	4433	1111	4422	1111	1111	3333	1111
482	5555	1111	4433	1111	1111	5555	1111
483	5555	1111	4433	1111	1111	5555	1111
494	5555	1111	5533	1111	1111	5555	1111
485	5555	1111	4433	1111	1111	5555	1111
496	5555	1111	4433	1111	1111	5555	1111
487	5555	1111	5533	1111	1111	5555	1111
488	5555	1111	4433	1111	1111	5555	1111
489	4433	1111	4433	1111	1111	1111	1111
490	4433	1111	4433	1111	1111	1111	1111
491	4433	1111	4433	1111	1111	1111	1111
492	4433	1111	4433	1111	1111	1111	1111
493	5555	1111	4433	5555	1111	5555	1111
494	5555	1111	4433	5555	1111	5555	1111
495	5555	1111	1111	5555	1111	3333	1111
496	5555	1111	1122	5555	1111	5555	1111
497	5555	1111	5533	1111	1111	5555	1111
498	5555	1111	5533	1111	1111	5555	1111
499	5555	2222	5533	1111	1111	5555	1111
500	5555	1111	4432	1111	1111	5555	1111
501	2222	1111	1111	2222	1111	1111	1111
502	2222	1111	1111	2222	1111	1111	1111
503	2222	1111	1111	2222	1111	1111	1111
504	2222	1111	1111	2222	1111	1111	1111
505	4422	1111	4422	2222	1111	1111	1111
506	4422	1111	4422	2222	1111	1111	1111
507	4422	1111	4422	2222	1111	1111	1111
508	4422	1111	4422	2222	1111	1111	1111
509	4422	1111	4422	2222	1111	1111	1111
510	4422	1111	4422	2222	1111	1111	1111
511	5544	4444	5544	2222	1111	2222	1111
512	5555	4444	5544	2222	2222	5555	1111
513	5555	4444	4433	1111	2222	5555	1111
514	5555	4444	4433	1111	1111	5555	1111
515	5555	4444	4433	1111	1111	5555	1111
516	4433	1111	4422	1111	1111	3333	1111
517	4433	1111	4433	1111	2222	3333	1111
518	5533	1111	5533	1111	2222	3333	1111
519	4433	1111	4433	1111	2222	3333	1111
520	4433	1111	4433	1111	2222	3333	1111
521	4433	1111	4433	1111	2222	3333	1111
522	4433	1111	4433	1111	2222	3333	1111
523	4433	1111	4433	1111	2222	3333	1111
524	4433	1111	4433	1111	2222	3333	1111
525	4433	1111	4433	1111	1111	1111	1111
526	4433	1111	4433	1111	1111	1111	1111
527	4433	1111	4433	1111	1111	1111	1111
528	4433	1111	4433	1111	2222	1111	1111
529	4444	1111	4433	1111	2222	4444	1111
530	5533	1111	5533	1111	2222	3333	1111
531	4444	1111	4433	1111	2222	4444	1111
532	1111	1111	1111	1111	1111	1111	1111
533	1111	1111	1111	1111	1111	1111	1111
534	4444	1111	1111	1111	1111	4444	1111
535	5555	1111	4422	1111	1111	5555	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
536	5555	1111	4422	1111	1111	5555	1111
537	5555	1111	4422	1111	1111	5555	1111
538	5555	1111	4433	1111	1111	5555	1111
539	5555	1111	4433	1111	1111	5555	1111
540	5555	1111	4432	1111	1111	5555	1111
541	5555	1111	4433	1111	1111	5555	1111
542	5555	1111	4433	1111	1111	5555	1111
543	5555	1111	4433	1111	1111	5555	1111
544	5555	1111	4433	1111	1111	5555	1111
545	5555	1111	4433	1111	1111	5555	1111
546	4433	1111	4433	1111	1111	1111	1111
547	4433	1111	4433	1111	1111	1111	1111
548	4433	1111	4433	1111	1111	1111	1111
549	4433	1111	4433	1111	1111	1111	1111
550	4433	1111	4433	1111	1111	1111	1111
551	4433	1111	4433	1111	1111	1111	1111
552	4433	1111	4433	1111	1111	3333	1111
553	5555	1111	4433	1111	1111	5555	1111
554	5555	1111	4433	5555	1111	5555	1111
555	5555	1111	4433	5555	1111	5555	1111
556	5555	1111	4433	5555	1111	5555	1111
557	5555	1111	5533	5555	1111	5555	1111
558	5555	1111	5533	5555	1111	5555	1111
559	4444	1111	4432	1111	1111	4444	1111
560	2222	1111	1111	2222	1111	1111	1111
561	2222	1111	1111	2222	1111	1111	1111
562	2222	1111	1111	2222	1111	1111	1111
563	4422	1111	4422	2222	1111	1111	1111
564	4422	1111	4422	2222	1111	1111	1111
565	4422	1111	4422	2222	1111	1111	1111
566	4422	1111	4422	2222	1111	1111	1111
567	4422	1111	4422	2222	1111	1111	1111
568	4422	1111	4422	2222	1111	1111	1111
569	4422	2222	4422	2222	1111	1111	1111
570	5544	4444	5544	2222	1111	2222	1111
571	5555	4444	4433	1111	1111	5555	1111
572	5555	4444	4433	1111	1111	5555	1111
573	4444	4444	4422	1111	1111	4444	1111
574	4444	4444	4422	1111	1111	3333	1111
575	4433	1111	4433	1111	2222	3333	1111
576	4433	1111	4433	1111	2222	3333	1111
577	4433	1111	4433	1111	2222	3333	1111
578	4433	1111	4433	1111	2222	3333	1111
579	4433	1111	4433	1111	2222	3333	1111
580	4433	1111	4433	1111	2222	3333	1111
581	4433	1111	4433	1111	2222	3333	1111
582	4433	1111	4433	1111	2222	3333	1111
583	4433	1111	4433	1111	2222	1111	1111
594	4433	1111	4433	1111	2222	1111	1111
585	4433	1111	4433	1111	2222	3333	1111
586	5555	1111	4433	1111	2222	5555	1111
587	5555	4444	4433	1111	1111	5555	1111
588	4433	1111	4433	1111	1111	3333	1111
589	5555	1111	4433	1111	1111	5555	1111
590	5555	1111	4433	1111	2222	5555	1111
591	4433	1111	4433	1111	1111	3333	1111
592	5555	1111	4433	1111	1111	5555	1111
593	5555	1111	4433	1111	1111	5555	1111
594	5555	1111	4433	1111	1111	5555	1111
595	5555	1111	4433	1111	1111	5555	1111
596	5555	1111	4433	1111	1111	5555	1111
597	5555	1111	4433	1111	1111	5555	1111
598	5555	1111	4433	1111	1111	5555	1111
599	5555	1111	4433	1111	1111	5555	1111
600	5555	1111	4433	1111	1111	5555	1111
601	5555	1111	5533	5555	1111	5555	1111
602	5555	1111	5533	1111	1111	5555	1111
603	5555	1111	4433	1111	1111	5555	1111
604	5555	1111	4433	1111	1111	5555	1111
605	5555	1111	5533	1111	1111	5555	1111
606	5555	1111	4433	1111	1111	5555	1111
607	4433	1111	4433	1111	1111	1111	1111
608	4433	1111	4433	1111	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
609	4433	1111	4433	1111	1111	1111	1111
610	4433	1111	4433	1111	1111	1111	1111
611	4433	1111	4433	1111	1111	1111	1111
612	5555	4444	5533	1111	1111	5555	1111
613	5555	1111	4433	1111	1111	5555	1111
614	5555	1111	1133	5555	1111	5555	1111
615	5555	1111	1133	5555	1111	5555	1111
616	5555	1111	5533	5555	1111	5555	1111
617	5544	2222	5533	1111	1111	4444	1111
618	1131	1111	1131	1111	1111	1111	1111
619	2222	1111	1111	2222	1111	1111	1111
620	2222	1111	1111	2222	1111	1111	1111
621	4422	1111	4422	2222	1111	1111	1111
622	4422	1111	4422	2222	1111	1111	1111
623	4422	1111	4422	2222	1111	1111	1111
624	4422	1111	4422	2222	1111	1111	1111
625	4422	1111	4422	2222	1111	1111	1111
626	4422	1111	4422	2222	1111	1111	1111
627	4422	1111	4422	2222	1111	1111	1111
628	5544	4444	5544	2222	1111	2222	1111
629	5544	4444	5544	1111	1111	2222	1111
630	4444	4444	4422	1111	1111	1111	1111
631	4444	4444	4422	1111	1111	1111	1111
632	4444	4444	4422	1111	1111	3333	1111
633	5555	4444	4433	1111	1111	5555	1111
634	4444	1111	4433	1111	1111	4444	1111
635	4433	1111	4433	1111	1111	3333	1111
636	4433	1111	4433	1111	1111	3333	1111
637	4433	1111	4433	1111	1111	3333	1111
638	4444	4444	4433	1111	2222	3333	1111
639	4444	4444	4433	1111	2222	3333	1111
640	4444	4444	4433	1111	1111	3333	1111
641	5555	4444	4433	1111	1111	5555	1111
642	5555	4444	4433	1111	1111	5555	1111
643	4444	4444	4433	1111	1111	4444	1111
644	5555	4444	4433	1111	1111	5555	1111
645	5555	1111	4433	1111	1111	5555	1111
646	5555	1111	5533	1111	1111	5555	1111
647	5555	1111	4433	1111	2222	5555	1111
648	5555	1111	4433	1111	2222	5555	1111
649	5555	1111	4433	1111	1111	5555	1111
650	5555	1111	4433	1111	1111	5555	1111
651	5555	1111	4433	1111	1111	5555	1111
652	5555	1111	4433	1111	1111	5555	1111
653	5555	1111	4433	1111	1111	5555	1111
654	5555	1111	4433	1111	1111	5555	1111
655	5555	1111	4433	1111	1111	5555	1111
656	5555	1111	4433	1111	1111	5555	1111
657	5555	1111	4433	1111	1111	5555	1111
658	5555	1111	5533	5555	1111	5555	1111
659	5555	1111	5533	5555	1111	5555	1111
660	5555	1111	4433	1111	1111	5555	1111
661	5555	1111	4433	1111	1111	5555	1111
662	4433	1111	4433	1111	1111	1111	1111
663	5555	4444	4433	1111	1111	5555	1111
664	5555	1111	4433	1111	1111	5555	1111
665	4433	1111	4433	1111	1111	1111	1111
666	4433	1111	4433	1111	1111	1111	1111
667	4433	1111	4433	1111	1111	1111	1111
668	4433	1111	4433	1111	1111	1111	1111
669	4433	1111	4433	1111	1111	1111	1111
670	5555	1111	4433	1111	1111	5555	1111
671	5555	1111	4433	1111	1111	5555	1111
672	3333	1111	1133	1111	1111	3333	1111
673	5555	1111	1133	5555	1111	5555	1111
674	5555	1111	1133	5555	1111	5555	1111
675	5555	1111	1111	5555	1111	5555	1111
676	1131	1111	1131	1111	1111	1111	1111
677	1111	1111	1111	1111	1111	1111	1111
678	4444	1111	4433	1111	1111	4444	1111
679	4444	1111	4433	1111	1111	4444	1111
680	2222	1111	1111	2222	1111	1111	1111
681	2222	1111	1111	2222	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
682	2222	1111	1111	2222	1111	1111	1111
683	2222	1111	1111	2222	1111	1111	1111
684	2222	1111	1111	2222	1111	1111	1111
685	2222	1111	1111	2222	1111	1111	1111
686	2222	1111	1111	2222	1111	1111	1111
687	2222	2222	1111	2222	1111	1111	1111
688	5544	4444	5544	2222	1111	2222	1111
689	4444	4444	1111	1111	1111	1111	1111
690	4444	4444	1111	1111	1111	1111	1111
691	4422	1111	4422	1111	1111	1111	1111
692	5555	1111	4433	1111	1111	5555	1111
693	5555	1111	4433	1111	1111	5555	1111
694	5555	1111	4433	1111	1111	5555	1111
695	4433	1111	4433	1111	1111	3333	1111
696	4433	1111	4433	1111	1111	3333	1111
697	4444	4444	4433	1111	1111	4444	1111
698	4444	1111	4433	1111	1111	4444	1111
699	4433	1111	4433	1111	1111	1111	1111
700	4433	1111	4433	1111	1111	1111	1111
701	4433	1111	4433	1111	1111	1111	1111
702	4433	1111	4433	1111	1111	1111	1111
703	4433	1111	4433	1111	1111	1111	1111
704	4433	1111	4433	1111	1111	1111	1111
705	5533	1111	5533	1111	1111	1111	1111
706	5555	1111	4433	1111	1111	5555	1111
707	5555	1111	4433	1111	1111	5555	1111
708	5555	1111	4433	1111	1111	5555	1111
709	5555	1111	4433	1111	1111	5555	1111
710	5555	1111	4433	1111	1111	5555	1111
711	5555	1111	4433	1111	1111	5555	1111
712	5555	1111	4433	1111	1111	5555	1111
713	5555	1111	4433	1111	1111	5555	1111
714	5555	1111	4433	1111	1111	5555	1111
715	5555	1111	4433	1111	1111	5555	1111
716	5555	1111	5533	1111	1111	5555	1111
717	5555	1111	4433	1111	1111	5555	1111
718	5555	4444	5533	5555	1111	5555	1111
719	5555	1111	4433	1111	1111	5555	1111
720	4433	1111	4433	1111	1111	1111	1111
721	4433	1111	4433	1111	1111	1111	1111
722	5555	1111	4433	1111	1111	5555	1111
723	5555	1111	4433	1111	1111	5555	1111
724	4433	1111	4433	1111	1111	1111	1111
725	4433	1111	4433	1111	1111	1111	1111
726	4433	1111	4433	1111	1111	1111	1111
727	4433	1111	4433	1111	1111	1111	1111
728	4433	1111	4433	1111	1111	1111	1111
729	1111	1111	1111	1111	1111	1111	1111
730	3333	1111	1133	1111	1111	3333	1111
731	5555	1111	1133	1111	1111	5555	1111
732	1133	1111	1133	1111	1111	1111	1111
733	5555	1111	1111	5555	1111	5555	1111
734	5555	1111	1111	5555	1111	5555	1111
735	5555	1111	1111	5555	1111	5555	1111
736	5555	1111	1111	1111	1111	5555	1111
737	1111	1111	1111	1111	1111	1111	1111
738	4433	1111	4433	1111	1111	2222	1111
739	4433	1111	4433	1111	1111	2222	1111
740	5555	1111	4433	1111	1111	5555	1111
741	5555	1111	5533	1111	1111	5555	1111
742	5555	1111	4433	1111	1111	5555	1111
743	4444	1111	4433	1111	1111	4444	1111
744	4444	1111	4433	1111	1111	4444	1111
745	4444	1111	4433	1111	1111	4444	1111
746	4444	1111	4433	1111	1111	4444	1111
747	4444	1111	4433	1111	1111	4444	1111
748	4444	1111	4433	1111	1111	4444	1111
749	4444	1111	4433	1111	1111	4444	1111
750	4433	1111	4433	1111	1111	1111	1111
751	4444	1111	4433	1111	1111	4444	1111
752	2222	1111	1111	2222	1111	1111	1111
753	2222	1111	1111	2222	1111	1111	1111
754	2222	1111	1111	2222	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
755	2222	1111	1111	2222	1111	1111	1111
756	2222	1111	1111	2222	1111	1111	1111
757	2222	1111	1111	2222	1111	1111	1111
758	5544	4444	5544	2222	1111	2222	1111
759	5544	4444	5544	1111	1111	1111	1111
760	4444	4444	1144	1111	1111	1111	1111
761	4444	1111	4444	1111	1111	1111	1111
762	4422	1111	4422	1111	1111	1111	1111
763	5555	1111	4422	1111	1111	5555	1111
764	5555	1111	4422	1111	1111	5555	1111
765	4444	1111	4422	1111	1111	4444	1111
766	4444	1111	4432	1111	1111	4444	1111
767	4444	1111	4432	1111	1111	4444	1111
768	5555	4444	4432	1111	1111	5555	1111
769	5555	4444	4432	1111	1111	5555	1111
770	5555	1111	4433	1111	1111	5555	1111
771	5555	1111	5533	1111	1111	5555	1111
772	5533	1111	5533	1111	1111	1111	1111
773	5522	1111	5522	1111	1111	1111	1111
774	4433	1111	4433	1111	1111	1111	1111
775	4444	4444	4433	1111	1111	4444	1111
776	5555	1111	4433	1111	1111	5555	1111
777	5555	1111	4433	1111	1111	5555	1111
778	5555	1111	4433	1111	1111	5555	1111
779	5555	1111	4433	1111	1111	5555	1111
780	5555	1111	4433	1111	1111	5555	1111
781	5555	1111	4433	1111	1111	5555	1111
782	5555	1111	4433	1111	1111	5555	1111
783	5555	1111	4433	1111	1111	5555	1111
784	5555	1111	5533	1111	1111	5555	1111
785	5555	1111	5533	1111	1111	5555	1111
786	4433	1111	4433	1111	1111	1111	1111
787	5555	1111	4433	1111	1111	5555	1111
788	5555	1111	4433	1111	1111	5555	1111
789	4433	1111	4433	1111	1111	1111	1111
790	4433	1111	4433	1111	1111	1111	1111
791	4433	1111	4433	1111	1111	1111	1111
792	5555	1111	4433	1111	1111	5555	1111
793	5555	1111	4433	1111	1111	5555	1111
794	4433	1111	4433	1111	1111	1111	1111
795	1111	1111	1111	1111	1111	1111	1111
796	4444	4444	1133	1111	1111	4444	1111
797	5555	1111	1133	1111	1111	5555	1111
798	4444	1111	1111	1111	1111	4444	1111
799	4444	1111	1111	1111	1111	4444	1111
800	5555	1111	1111	1111	1111	5555	1111
801	5555	1111	1111	1111	1111	5555	1111
802	5555	1111	4422	1111	1111	5555	1111
803	5555	1111	1111	1111	1111	5555	1111
804	1111	1111	1111	1111	1111	1111	1111
805	4433	1111	4433	1111	1111	1111	1111
806	4433	1111	4433	1111	1111	2222	1111
807	4433	1111	4433	1111	1111	2222	1111
808	4433	1111	4433	1111	1111	2222	1111
809	4444	1111	4433	1111	1111	4444	1111
810	5555	1111	4433	1111	1111	5555	1111
811	5555	1111	4433	1111	1111	5555	1111
812	5555	1111	4433	1111	1111	5555	1111
813	5555	1111	4433	1111	1111	5555	1111
814	5555	1111	4433	1111	1111	5555	1111
815	4433	1111	4433	1111	1111	2222	1111
816	4433	1111	4433	1111	1111	2222	1111
817	4433	1111	4433	1111	1111	2222	1111
818	4433	2222	4433	1111	1111	3333	1111
819	4444	1111	4433	1111	1111	4444	1111
820	4444	1111	4433	1111	1111	4444	1111
821	4444	1111	4433	1111	1111	4444	1111
822	4444	1111	4433	1111	1111	4444	1111
823	2222	1111	1111	2222	1111	1111	1111
824	2222	1111	1111	2222	1111	1111	1111
825	2222	1111	1111	2222	1111	1111	1111
826	2222	1111	1111	2222	1111	1111	1111
827	2222	1111	1111	2222	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
828	2222	1111	1111	2222	1111	1111	1111
829	5544	2222	5544	2222	1111	2222	1111
830	5544	4444	5544	2222	1111	2222	1111
831	4444	4444	1144	1111	1111	1111	1111
832	4444	1111	4444	1111	1111	1111	1111
833	5555	1111	4422	1111	1111	5555	1111
834	5555	2222	4422	1111	1111	5555	1111
835	5555	1111	4422	1111	1111	5555	1111
936	5555	1111	4422	1111	1111	5555	1111
837	5555	1111	4432	1111	1111	5555	1111
838	5555	1111	4432	1111	1111	5555	1111
839	4444	1111	4432	1111	1111	4444	1111
840	5555	4444	4432	1111	1111	5555	1111
841	5555	1111	4433	1111	1111	5555	1111
842	5555	1111	4433	1111	1111	5555	1111
843	5533	1111	5533	1111	1111	1111	1111
844	5522	1111	5522	1111	1111	1111	1111
845	4422	1111	4422	1111	1111	1111	1111
846	5555	1111	4422	1111	1111	5555	1111
847	4444	1111	4422	1111	2222	4444	1111
848	5555	1111	4422	1111	1111	5555	1111
849	5555	1111	4433	1111	1111	5555	1111
850	4433	1111	4433	1111	1111	1111	1111
851	5555	1111	4433	1111	1111	5555	1111
852	4433	1111	4433	1111	1111	1111	1111
853	5555	1111	4433	1111	1111	5555	1111
854	5555	1111	4433	1111	1111	5555	1111
855	5555	2222	4433	1111	1111	5555	1111
856	4433	1111	4433	1111	1111	1111	1111
857	4433	1111	4433	1111	1111	1111	1111
858	4433	1111	4433	1111	1111	1111	1111
859	4433	1111	4433	1111	1111	1111	1111
860	4433	1111	4433	1111	1111	1111	1111
861	4433	1111	4433	1111	1111	1111	1111
862	4433	1111	4433	1111	1111	1111	1111
863	4433	1111	4433	1111	1111	1111	1111
864	4433	1111	4433	1111	1111	1111	1111
865	4433	1111	4433	1111	1111	1111	1111
866	1111	1111	1111	1111	1111	1111	1111
867	1111	1111	1111	1111	1111	1111	1111
868	5555	1111	1111	1111	1111	5555	1111
869	5555	1111	4422	1111	1111	5555	1111
870	5555	1111	4422	1111	1111	5555	1111
871	4444	1111	1111	1111	1111	4444	1111
872	1111	1111	1111	1111	1111	1111	1111
873	5555	1111	4422	1111	1111	5555	1111
874	5555	1111	5533	1111	1111	5555	1111
875	5555	1111	1131	1111	1111	5555	1111
876	4433	1111	4433	1111	2222	1111	1111
877	4433	1111	4433	1111	1111	1111	1111
878	4444	1111	4433	1111	1111	4444	1111
879	4444	1111	4433	1111	1111	4444	1111
880	4444	1111	4433	1111	1111	4444	1111
881	4444	1111	4433	1111	1111	4444	1111
882	4433	1111	4433	1111	1111	1111	1111
883	4433	1111	4433	1111	1111	1111	1111
884	5555	1111	4433	1111	1111	5555	1111
885	5555	1111	4433	1111	1111	5555	1111
886	5555	1111	4433	1111	1111	5555	1111
887	5555	1111	4433	1111	1111	5555	1111
888	4444	1111	4433	1111	1111	4444	1111
889	4444	1111	4433	1111	1111	4444	1111
890	4444	1111	4433	1111	1111	4444	1111
891	5555	1111	5533	1111	1111	5555	1111
892	5555	1111	5533	1111	1111	5555	1111
893	5555	1111	5533	1111	1111	5555	1111
894	4444	1111	4433	1111	1111	4444	1111
895	2222	1111	1111	2222	1111	1111	1111
896	2222	1111	1111	2222	1111	1111	1111
897	2222	1111	1111	2222	1111	1111	1111
898	2222	1111	1111	2222	1111	1111	1111
899	2222	1111	1111	2222	1111	1111	1111
900	2244	1111	1144	2222	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
901	5544	4444	5544	2222	1111	2222	1111
902	1144	1111	1144	1111	1111	1111	1111
903	4444	4444	4444	1111	1111	1111	1111
904	4444	4444	4422	1111	1111	4444	1111
905	4422	1111	4422	1111	1111	1111	1111
906	4422	1111	4422	1111	1111	1111	1111
907	4422	1111	4422	1111	1111	1111	1111
908	4422	2222	4422	1111	1111	1111	1111
909	5555	4444	4422	1111	1111	5555	1111
910	5555	1111	4422	1111	1111	5555	1111
911	4432	1111	4432	1111	1111	1111	1111
912	5555	1111	4432	1111	1111	5555	1111
913	5555	1111	4432	1111	1111	5555	1111
914	5555	1111	4422	1111	2222	5555	1111
915	4422	1111	4422	1111	1111	1111	1111
916	4422	1111	4422	1111	1111	1111	1111
917	4422	1111	4422	1111	1111	1111	1111
918	4444	1111	4422	1111	1111	4444	1111
919	5555	1111	4422	1111	1111	5555	1111
920	5555	1111	1111	1111	1111	5555	1111
921	4433	1111	4433	1111	1111	1111	1111
922	5533	1111	5533	1111	1111	1111	1111
923	4433	1111	4433	1111	1111	1111	1111
924	1111	1111	1111	1111	1111	1111	1111
925	1111	1111	1111	1111	1111	1111	1111
926	1111	1111	1111	1111	1111	1111	1111
927	1111	1111	1111	1111	1111	1111	1111
928	4433	1111	4433	1111	1111	1111	1111
929	4433	1111	4433	1111	1111	1111	1111
930	1111	1111	1111	1111	1111	1111	1111
931	1111	1111	1111	1111	1111	1111	1111
932	1111	1111	1111	1111	1111	1111	1111
933	5555	1111	1111	1111	1111	5555	1111
934	5555	1111	4422	1111	1111	5555	1111
935	5555	1111	4422	1111	1111	5555	1111
936	4444	1111	1111	1111	1111	4444	1111
937	5555	1111	1111	5555	1111	1111	1111
938	5555	1111	5533	5555	1111	5555	1111
939	5555	1111	5533	1111	1111	5555	1111
940	4444	1111	4433	1111	2222	4444	1111
941	4444	1111	4433	1111	2222	4444	1111
942	4444	1111	4433	1111	1111	4444	1111
943	4444	1111	4433	1111	1111	4444	1111
944	4444	1111	4433	1111	1111	4444	1111
945	4444	1111	4433	1111	1111	4444	1111
946	4444	1111	4433	1111	1111	4444	1111
947	4444	1111	4433	1111	1111	4444	1111
948	4433	1111	4433	1111	1111	1111	1111
949	4433	1111	4433	1111	1111	1111	1111
950	4433	1111	4433	1111	1111	1111	1111
951	4444	1111	4433	1111	1111	4444	1111
952	4433	1111	4433	1111	1111	1111	1111
953	4433	1111	4433	1111	1111	1111	1111
954	4433	1111	4433	1111	1111	1111	1111
955	4433	1111	4433	1111	1111	1111	1111
956	4444	1111	4433	1111	1111	4444	1111
957	5555	1111	4433	1111	1111	5555	1111
958	5544	1111	5533	1111	1111	4444	1111
959	5555	1111	5533	1111	1111	5555	1111
960	4433	1111	4433	1111	1111	1111	1111
961	2222	1111	1111	2222	1111	1111	1111
962	2222	1111	1111	2222	1111	1111	1111
963	2222	1111	1111	2222	1111	1111	1111
964	2222	1111	1111	2222	1111	1111	1111
965	2222	1111	1111	2222	1111	1111	1111
966	2222	1111	1111	2222	1111	1111	1111
967	5544	4444	5544	2222	1111	2222	1111
968	5544	4444	5544	1111	1111	1111	1111
969	4422	1111	4422	1111	1111	1111	1111
970	5533	1111	5533	1111	1111	1111	1111
971	4422	1111	4422	1111	1111	1111	1111
972	4422	1111	4422	1111	1111	1111	1111
973	4422	1111	4422	1111	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
974	5555	1111	4422	1111	1111	5555	1111
975	5555	1111	4422	1111	1111	5555	1111
976	4422	1111	4422	1111	1111	1111	1111
977	4422	1111	4422	1111	1111	1111	1111
978	5555	1111	4432	1111	1111	5555	1111
979	5555	1111	4432	1111	1111	5555	1111
980	5555	4444	4432	1111	2222	5555	1111
981	5555	1111	4422	1111	1111	5555	1111
982	5555	1111	4422	1111	1111	5555	1111
983	4422	1111	4422	1111	1111	1111	1111
984	4422	1111	4422	1111	1111	1111	1111
985	4422	1111	4422	1111	1111	1111	1111
986	5555	1111	1111	1111	1111	5555	1111
987	4444	1111	4433	1111	1111	4444	1111
988	4433	1111	4433	1111	1111	1111	1111
989	4433	1111	4433	1111	1111	1111	1111
990	1111	1111	1111	1111	1111	1111	1111
991	1111	1111	1111	1111	1111	1111	1111
992	1111	1111	1111	1111	1111	1111	1111
993	1111	1111	1111	1111	1111	1111	1111
994	4433	1111	4433	1111	1111	1111	1111
995	4433	1111	4433	1111	1111	1111	1111
996	1111	1111	1111	1111	1111	1111	1111
997	1111	1111	1111	1111	1111	1111	1111
998	1111	1111	1111	1111	1111	1111	1111
999	1111	1111	1111	1111	1111	1111	1111
1000	5555	1111	1111	1111	1111	5555	1111
1001	5555	1111	4422	1111	1111	5555	1111
1002	4444	1111	1111	1111	1111	4444	1111
1003	5555	1111	5533	5555	1111	5555	1111
1004	5555	1111	5533	5555	1111	5555	1111
1005	5555	1111	5533	1111	1111	5555	1111
1006	5555	1111	4433	1111	2222	5555	1111
1007	4444	1111	4433	1111	2222	4444	1111
1008	4433	1111	4433	1111	2222	3333	1111
1009	4444	1111	4433	1111	1111	4444	1111
1010	4444	1111	4433	1111	1111	4444	1111
1011	4444	1111	4433	1111	1111	4444	1111
1012	4444	1111	4433	1111	1111	4444	1111
1013	5555	1111	4433	1111	1111	5555	1111
1014	4444	1111	4433	1111	1111	4444	1111
1015	4433	1111	4433	1111	1111	1111	1111
1016	4433	1111	4433	1111	1111	1111	1111
1017	4433	1111	4433	1111	1111	1111	1111
1018	4433	1111	4433	1111	1111	1111	1111
1019	5544	1111	5533	1111	1111	4444	1111
1020	5555	1111	4433	1111	1111	5555	1111
1021	4433	1111	4433	1111	1111	2222	1111
1022	4433	1111	4433	1111	1111	2222	1111
1023	4433	1111	4433	1111	1111	1111	1111
1024	2222	1111	1111	2222	1111	1111	1111
1025	2222	1111	1111	2222	1111	1111	1111
1026	2222	1111	1111	2222	1111	1111	1111
1027	2222	1111	1111	2222	1111	1111	1111
1028	2222	1111	1111	2222	1111	1111	1111
1029	2222	1111	1111	2222	1111	1111	1111
1030	2222	2222	1111	2222	1111	1111	1111
1031	5544	4444	5544	2222	1111	2222	1111
1032	4422	1111	4422	1111	1111	1111	1111
1033	4422	1111	4422	1111	1111	1111	1111
1034	4422	1111	4422	1111	1111	1111	1111
1035	4422	1111	4422	1111	1111	1111	1111
1036	4422	1111	4422	1111	1111	1111	1111
1037	5555	4444	4422	1111	1111	5555	1111
1038	5555	1111	4422	1111	1111	5555	1111
1039	4422	1111	4422	1111	1111	1111	1111
1040	4422	1111	4422	1111	1111	1111	1111
1041	4432	1111	4432	1111	1111	1111	1111
1042	5555	1111	4432	1111	1111	5555	1111
1043	4432	1111	4432	1111	1111	1111	1111
1044	5555	1111	4432	1111	1111	5555	1111
1045	5555	1111	4422	1111	1111	5555	1111
1046	4422	1111	4422	1111	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
1047	4422	1111	4422	1111	1111	1111	1111
1048	5555	1111	1111	1111	1111	5555	1111
1049	5555	1111	1111	1111	1111	5555	1111
1050	5555	1111	1111	5555	1111	5555	1111
1051	5555	1111	1111	5555	1111	5555	1111
1052	5555	1111	1111	5555	1111	2222	1111
1053	5555	1111	1111	5555	1111	5555	1111
1054	5555	1111	1111	5555	1111	5555	1111
1055	5555	1111	4433	5555	2222	5555	1111
1056	4433	1111	4433	1111	2222	2222	1111
1057	4444	1111	4433	1111	2222	4444	1111
1058	4444	1111	4433	1111	1111	4444	1111
1059	4444	1111	4433	1111	1111	4444	1111
1060	4444	1111	4433	1111	1111	4444	1111
1061	5555	1111	4433	1111	1111	5555	1111
1062	5555	1111	5533	1111	1111	5555	1111
1063	4433	1111	4433	1111	1111	1111	1111
1064	4433	1111	4433	1111	1111	1111	1111
1065	4433	1111	4433	1111	1111	1111	1111
1066	4433	1111	4433	1111	1111	1111	1111
1067	4444	1111	4433	1111	1111	4444	1111
1068	5555	1111	4433	1111	1111	5555	1111
1069	5555	1111	4433	1111	1111	5555	1111
1070	4444	1111	4433	1111	1111	4444	1111
1071	4433	1111	4433	1111	1111	2222	1111
1072	2222	1111	1111	2222	1111	1111	1111
1073	2222	1111	1111	2222	1111	1111	1111
1074	2222	1111	1111	2222	1111	1111	1111
1075	2222	1111	1111	2222	1111	1111	1111
1076	2222	1111	1111	2222	1111	1111	1111
1077	2222	1111	1111	2222	1111	1111	1111
1078	5544	2222	5544	2222	1111	2222	1111
1079	4422	1111	4422	1111	1111	1111	1111
1080	4422	1111	4422	1111	1111	1111	1111
1081	4422	1111	4422	1111	1111	1111	1111
1082	4422	1111	4422	1111	1111	1111	1111
1083	5555	1111	4422	1111	1111	5555	1111
1084	5555	1111	4422	1111	1111	5555	1111
1085	4422	1111	4422	1111	1111	1111	1111
1086	4422	1111	4422	1111	1111	1111	1111
1087	4422	1111	4422	1111	1111	1111	1111
1088	4444	1111	4432	1111	1111	4444	1111
1089	5555	1111	4432	1111	1111	5555	1111
1090	4432	1111	4432	1111	1111	1111	1111
1091	5555	1111	4422	1111	1111	5555	1111
1092	5555	1111	4422	1111	1111	5555	1111
1093	4422	1111	4422	1111	1111	1111	1111
1094	4422	1111	4422	1111	1111	1111	1111
1095	1111	1111	1111	1111	1111	1111	1111
1096	1111	1111	1111	1111	1111	1111	1111
1097	5555	1111	1111	1111	1111	5555	1111
1098	5555	4444	1111	1111	1111	5555	1111
1099	5555	1111	1111	5555	1111	4444	1111
1100	5555	1111	1111	5555	1111	1111	1111
1101	5555	1111	1111	5555	1111	1111	1111
1102	5555	1111	4433	5555	1111	1111	1111
1103	4433	1111	4433	1111	1111	1111	1111
1104	4433	1111	4433	1111	1111	1111	1111
1105	4444	1111	4433	1111	1111	4444	1111
1106	4444	1111	4433	1111	1111	4444	1111
1107	4433	1111	4433	1111	1111	3333	1111
1108	5555	1111	4433	1111	1111	5555	1111
1109	5555	1111	4433	1111	1111	5555	1111
1110	4444	1111	4433	1111	1111	4444	1111
1111	4433	1111	4433	1111	1111	1111	1111
1112	4433	1111	4433	1111	1111	1111	1111
1113	4433	1111	4433	1111	1111	1111	1111
1114	5555	1111	4433	1111	1111	5555	1111
1115	5555	1111	4433	1111	1111	5555	1111
1116	5555	1111	4433	1111	1111	5555	1111
1117	4444	1111	4433	1111	1111	4444	1111
1118	4433	1111	4433	1111	1111	2222	1111
1119	4433	1111	4433	1111	1111	2222	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
1120	2222	1111	1111	2222	1111	1111	1111
1121	2222	1111	1111	2222	1111	1111	1111
1122	2222	1111	1111	2222	1111	1111	1111
1123	2222	1111	1111	2222	1111	1111	1111
1124	2222	1111	1111	2222	1111	1111	1111
1125	2222	1111	1111	2222	1111	1111	1111
1126	5544	2222	5544	2222	1111	2222	1111
1127	5544	4444	5544	1111	1111	1111	1111
1128	4422	1111	4422	1111	1111	1111	1111
1129	4422	1111	4422	1111	1111	1111	1111
1130	4422	1111	4422	1111	1111	1111	1111
1131	4422	1111	4422	1111	1111	1111	1111
1132	5555	1111	4422	1111	1111	5555	1111
1133	5555	1111	4422	1111	1111	5555	1111
1134	4422	1111	4422	1111	1111	1111	1111
1135	4422	1111	4422	1111	1111	1111	1111
1136	4432	1111	4432	1111	1111	1111	1111
1137	5555	1111	4433	1111	1111	5555	1111
1138	5555	1111	4433	1111	2222	5555	1111
1139	5555	1111	4433	1111	1111	5555	1111
1140	5555	1111	4422	1111	1111	5555	1111
1141	4422	1111	4422	1111	1111	1111	1111
1142	4422	1111	4422	1111	1111	1111	1111
1143	1111	1111	1111	1111	1111	1111	1111
1144	1111	1111	1111	1111	1111	1111	1111
1145	1111	1111	1111	1111	1111	1111	1111
1146	1111	1111	1111	1111	1111	1111	1111
1147	1111	1111	1111	1111	1111	1111	1111
1148	1111	1111	1111	1111	1111	1111	1111
1149	1111	1111	1111	1111	1111	1111	1111
1150	4433	1111	4433	1111	1111	1111	1111
1151	4433	1111	4433	1111	1111	1111	1111
1152	4433	1111	4433	1111	1111	1111	1111
1153	4433	1111	4433	1111	1111	1111	1111
1154	4433	1111	4433	1111	1111	1111	1111
1155	4433	1111	4433	1111	1111	1111	1111
1156	4444	1111	4433	1111	1111	4444	1111
1157	4444	1111	4433	1111	1111	4444	1111
1158	4444	1111	4433	1111	1111	4444	1111
1159	4433	1111	4433	1111	1111	1111	1111
1160	4433	1111	4433	1111	1111	1111	1111
1161	4433	1111	4433	1111	1111	1111	1111
1162	4444	1111	4433	1111	1111	4444	1111
1163	4444	1111	4433	1111	1111	4444	1111
1164	4444	1111	4433	1111	1111	4444	1111
1165	4444	1111	4433	1111	1111	4444	1111
1166	5555	1111	4433	1111	1111	5555	1111
1167	4433	1111	4433	1111	1111	2222	1111
1168	4433	1111	4433	1111	1111	1111	1111
1169	4444	1111	4433	1111	1111	4444	1111
1170	4433	1111	4433	1111	1111	1111	1111
1171	4444	1111	4433	1111	1111	4444	1111
1172	2222	1111	1111	2222	1111	1111	1111
1173	2222	1111	1111	2222	1111	1111	1111
1174	2222	1111	1111	2222	1111	1111	1111
1175	2222	1111	1111	2222	1111	1111	1111
1176	2222	1111	1111	2222	1111	1111	1111
1177	2222	1111	1111	2222	1111	1111	1111
1178	2222	2222	1111	2222	1111	2222	1111
1179	5544	2222	5544	2222	1111	2222	1111
1180	4422	1111	4422	1111	1111	1111	1111
1181	4422	1111	4422	1111	1111	1111	1111
1182	4422	1111	4422	1111	1111	1111	1111
1183	4422	1111	4422	1111	1111	1111	1111
1184	4422	1111	4422	1111	1111	1111	1111
1185	5555	1111	4422	1111	1111	5555	1111
1186	4422	1111	4422	1111	1111	1111	1111
1187	4422	1111	4422	1111	1111	1111	1111
1188	4432	1111	4432	1111	1111	1111	1111
1189	5555	1111	4433	1111	2222	5555	1111
1190	5555	1111	5533	1111	2222	5555	1111
1191	5555	1111	4433	1111	2222	5555	1111
1192	4422	1111	4422	1111	1111	1111	1111

APPENDIX 6. COLUMBIA RIVER ESTUARY RESOURCE SENSITIVITY RANKINGS BY SEASON

Grid-Cell#	FINAL (Sp,Su,F,W)	HUMAN USE (Sp,Su,F,W)	BIRD (Sp,Su,F,W)	MAMMAL (Sp,Su,F,W)	FISH (Sp,Su,F,W)	HABITAT (Sp,Su,F,W)	INVERT (Sp,Su,F,W)
1193	4422	1111	4422	1111	1111	1111	1111
1194	4422	1111	4422	1111	1111	1111	1111
1195	4422	1111	4422	1111	1111	1111	1111
1196	4433	1111	4433	1111	1111	1111	1111
1197	5555	1111	4433	1111	1111	5555	1111
1198	5555	1111	4433	1111	1111	5555	1111
1199	5555	1111	4433	1111	1111	5555	1111
1200	4433	1111	4433	1111	1111	1111	1111
1201	4433	1111	4433	1111	1111	1111	1111
1202	4433	1111	4433	1111	1111	1111	1111
1203	4433	1111	4433	1111	1111	1111	1111
1204	4433	1111	4433	1111	1111	1111	1111
1205	4444	1111	4433	1111	1111	4444	1111
1206	5555	2222	4433	1111	1111	5555	1111
1207	5555	1111	4433	1111	1111	5555	1111
1208	2222	1111	1111	2222	1111	1111	1111
1209	2222	1111	1111	2222	1111	1111	1111
1210	2222	1111	1111	2222	1111	1111	1111
1211	2222	1111	1111	2222	1111	1111	1111
1212	2222	1111	1111	2222	1111	1111	1111
1213	2222	2222	1111	2222	1111	1111	1111
1214	5544	4444	5544	2222	1111	2222	1111
1215	4444	4444	4422	1111	1111	1111	1111
1216	4422	1111	4422	1111	1111	1111	1111
1217	4422	1111	4422	1111	1111	1111	1111
1218	4422	1111	4422	1111	1111	1111	1111
1219	4422	1111	4422	1111	1111	1111	1111
1220	5555	1111	4422	1111	2222	5555	1111
1221	5555	1111	4422	1111	2222	5555	1111
1222	4422	1111	4422	1111	1111	1111	1111
1223	4432	1111	4432	1111	1111	1111	1111
1224	4433	1111	4433	1111	1111	1111	1111
1225	5555	1111	4433	1111	2222	5555	1111
1226	5555	1111	4433	1111	1111	5555	1111
1227	5555	1111	4432	1111	1111	5555	1111
1228	4422	1111	4422	1111	1111	1111	1111
1229	4422	1111	4422	1111	1111	1111	1111
1230	5555	1111	4433	1111	1111	5555	1111
1231	4433	1111	4433	1111	1111	2222	1111
1232	4433	1111	4433	1111	1111	1111	1111
1233	4433	1111	4433	1111	1111	1111	1111
1234	4433	2222	4433	1111	1111	1111	1111
1235	4444	1111	4433	1111	1111	4444	1111
1236	5555	1111	4433	1111	1111	5555	1111
1237	5555	1111	4433	1111	1111	5555	1111
1238	5555	1111	4433	1111	1111	5555	1111
1239	2222	1111	1111	2222	1111	1111	1111
1240	2222	1111	1111	2222	1111	1111	1111
1241	2222	1111	1111	2222	1111	1111	1111
1242	2222	1111	1111	2222	1111	1111	1111
1243	2222	1111	1111	2222	1111	1111	1111
1244	2222	1111	1111	2222	1111	1111	1111
1245	5544	2222	5544	2222	1111	2222	1111
1246	4444	4444	4422	1111	1111	1111	1111
1247	4444	4444	4422	1111	1111	1111	1111
1248	4422	1111	4422	1111	1111	1111	1111
1249	4422	1111	4422	1111	1111	1111	1111
1250	4422	1111	4422	1111	1111	1111	1111
1251	5555	1111	4422	1111	1111	5555	1111
1252	5555	1111	4422	1111	1111	5555	1111
1253	5555	1111	4422	1111	1111	5555	1111
1254	4422	1111	4422	1111	1111	1111	1111

[Statutory Authority: Chapter 90.48 RCW. 92-10-005 (Order 91-13), § 173-183-920, filed 4/23/92, effective 5/24/92.]