

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILE 8672
2052 SCOMM 78: SENATE SPEC. COMM. ON OIL & GAS, 1991-1992 70

Appendix 1 - Proposed Oil Classifications

The characterization of crude oil and products transported through Washington's waters is simplified by recognizing that over 90 percent of all crude imports come from Alaska's North slope.⁵ This means that it is reasonable to expect transported crude and products to have fairly well defined ranges for some of the parameters of interest.

Acute Toxicity to water column organisms, birds, and mammals

1. High
 - a) Kerosene
 - b) Jet fuels
 - c) Gasoline
2. Medium
 - a) Crude oils
 - b) Middle distillates
3. Low
 - a) Bunker and Residuals
 - b) Asphalt
 - c) Other

Acute toxicity categories are to be modified by the percent of 2 or 3 ring or total aromatic hydrocarbons in the spilled oil.

Mechanical Toxicity to diving birds, mammals, intertidal organisms, and benthic organisms in shallow water.

1. High
 - a) Crude oils of API gravity __ and viscosity __
 - b) Middle distillates
 - c) Bunker and Residuals
2. Medium
 - a) Crude oils of API gravity __ and viscosity __
 - b) Middle distillates

⁵*Pacific Northwest Executive*, January 1988, p. 14.

3. Low

- a) Kerosene
- b) Jet fuels
- c) Gasoline
- d) Crude oils of API gravity __ and viscosity __

Mechanical toxicity will be modified by API gravity and pour point.

Persistence in the environment (chemical and physical)

1. High

- a) Bunker and Residuals
- b) Tar
- c) Asphalt

2. Medium

- a) Crude oils with __ % aromatics and __ API gravity
- b) Middle distillates

3. Low

- a) Kerosene
- b) Jet fuels
- c) Gasoline
- d) Crude oils with __ % aromatics and __ API gravity

Tainting to commercially and recreationally valuable and subsistence species

1. High

- a) Middle distillates
- b) Crudes of __ API gravity

2. Medium

- a) Gasoline
- b) Kerosene
- c) Jet fuel
- d) Crudes of __ API gravity

3. Low

- a) Bunker and Residuals
- b) Tars and asphalt

Exposure Assessment

Acute Chemical and Mechanical Toxicity

For assessment of the potential for acute chemical or mechanical toxicity due to exposure to oil, an indicator species approach could be taken. Depending on area or season of the spill, appropriate species could be selected from the following categories:

- fed/state threatened/endangered species;
- birds;
- salmon;
- smelt;
- herring;
- shrimp;
- clams;
- oysters;
- marine mammals;
- kelp and eelgrass.

Persistence

For persistence, both physical and chemical, habitat rather than the actual organisms may be the more important parameter. Perhaps indicator habitats could be selected following the classification system of NOAA's emergency response maps.

For example:

- habitat for fed/state threatened/endangered species;
- bird rookeries and some buffer zone;
- marine mammal haulout areas and buffer zone;
- bays/sheltered waters;
- coastal estuaries.

Tainting

For tainting effects the presence of food species is the most appropriate criterion.

For example:

- salmon;
- other food fish which could get oiled;
- subsistence food organisms (Native Americans and others);
- clams;
- oysters;

Physical harm

The effects from physical harm will vary with the type of oil spilled. The ranking used for mechanical affects would probably be most appropriate.

Significant non-biological resources include:

- shorelines;
- boat launches;
- underwater parks;
- seaside parks;
- other physical attributes and man-made structures.

Assessment of Environmental Influences and Oil-Environment Interactions

Factors Affecting the Impact of a spill:

Meteorological conditions;

- Do high winds drive oil into sensitive regions?
- Do high (offshore) winds aid evaporation and keep oil away from sensitive areas?

Oceanographic conditions;

- Do extreme tides or winds deposit oil above normal high tide lines?
- Does strong wave action help remove oil from affected areas?
- Does strong wave action promote mixing and dispersion?
- Do currents direct the oil towards or away from important resources?
- Do extreme tides, wave action, and wind act synergistically to increase the range of affected areas?

Oil dosage and impact area;

- Did the oil enter a confined area where it was unable to escape and thereby cause greater harm per unit volume of the spill?

- Did the oil enter a confined (biologically unimportant) area where it was able to be removed without affecting many other resources?

Season;

- The season will determine whether or not specific organisms are present to be harmed. In some cases, it will determine whether they are particularly vulnerable to harm.

Temperature;

- Affects the transport of oil into water. If ambient water temperature is below the pour point of oil then it could significantly retard the dispersion of the oil.
- Warmer temperatures increase evaporation and microbial action. This is a second order effect for Washington's waters.

Relevant Crudes and Products

Crudes

Alaska North Slope
Canadian crudes
Indonesian and other

Products

Kerosene
Jet fuels
 Naphtha-type
 Kerosene-type
Gasoline
 Leaded
 Unleaded
 Blending components
Middle distillates
 # 1 fuel oil
 # 2 fuel oil
 # 4 fuel oil
Bunker and Residual oils
Lubricating oils
Asphalt and road oils
Tars
Petroleum coke
Petroleum wax
Propane/propylene
Butane/Butylene
Other

Appendix 2 - Alaska's Civil Penalty System for Oil Spills

18 AAC 75.570 Schedule of Civil Penalties

The civil penalty which a person may be held liable under AS 46.03.758(e) is established as follows:

(1) Base penalty for discharges into various receiving environments is:⁶

	<u>Freshwater</u>	<u>Marine</u>
Critical environmental resources	\$10.00	\$2.50
Sensitive environmental resources	\$5.00	\$2.00
Without significant environmental resources	\$1.00	\$1.00

(2) Toxicity, degradability and dispersibility factors are as follows:

Toxicity	Factor	Degradability	Factor
High	1.00	Low	1.00
Moderate	0.75	Moderate	0.50
Less	0.50	High	0.25
Relatively nontoxic	0.25		

Dispersibility	Factor
High	0.15
Moderate	0.50
Low	1.00

(3) The net per gallon penalty is calculated by multiplying the base penalty (Number 1) by the arithmetic mean of the toxicity, degradability and dispersibility factors (Number 2). If a portion of the oil enters more than one receiving environment, the penalty is based on the most sensitive receiving environment which that portion of the oil enters.

⁶For a description of each type of environment, see below.

Alaska's Formula for Crude Oil

$$\frac{(\text{toxicity} * (\text{API}/30) + \text{degradability} * (30/\text{API}) + \text{dispersibility}) * \text{penalty} * \text{volume}}{3} \quad ^7$$

Alaska's Formula for Refined Products

$$\frac{(\text{toxicity} * (\% \text{ aromatics}/45) + \text{degradability} + \text{dispersibility}) * \text{penalty} * \text{volume}}{3}$$

18 ACC 75.540 Toxicity of Petroleum Products/By-products⁸

Highly Toxic	Moderately Toxic	Less Toxic	Relatively Nontoxic
#1,2 & Arctic diesel fuel & heating oil	waste oil & waste oil mixtures	bunker & residual fuel oils	asphalts
jet aviation fuels A and B	lubricating oil	hydraulic fluids;	tars
motor gasoline including aviation gasoline	all other jet fuels		all other petroleum products & by-products
kerosene	crude oil		
stationary turbine fuels			

⁷Where API represents the gravity of oil obtained using a hydrometer graduated to the American Petroleum Institute scale. The relationship between the API scale and specific gravity of petroleum is expressed by the formula: Degrees API = 141.5/(sp. gr. 60/60 °F) - 131.5.

⁸To determine the toxicity factor for a refined product, the factor from the table (previous page) is multiplied by a fraction whose numerator is the percent concentration of aromatics in the oil and whose denominator is 45. The toxicity factor shall never exceed 1.0. For crude oil, the toxicity factor is multiplied by a fraction whose numerator is the API gravity of the crude and whose denominator is 30.

18 AAC 75.550 Degradability of Petroleum Products/By-products⁹

Low	Moderate	High
asphalt	hydraulic fluids	motor gasoline including aviation gasoline
tar	lubricating oil	#1,2 & Arctic diesel fuel & heating oil
bunker & residual fuel oils	waste oils, waste oil mixtures	jet & stationary turbine fuels
all other petroleum products/by-products	crude oil	kerosene

18 AAC 75.560 Dispersibility of Petroleum Products/By-products

High	Moderate	Low
motor gasoline including aviation gasoline	emulsified oil mixes	bunker & residual fuel oils
all jet fuels	lubricating oils	asphalts
kerosene	waste oils & waste oil mixtures	tars
#1,2 & Arctic diesel fuel & heating oil	crude oils	all other petroleum products/by-products
hydraulic fluid		
stationary turbine fuels		

⁹For crude oil, the degradability factor is multiplied by a fraction whose numerator is 30 and whose denominator is the API gravity of the crude.

18 AAC 75.510 Freshwater Environments

(a) Freshwater environments with significant aquatic resources are classified as follows:

Critical

- surface and subsurface waters supplies for which the commissioner of natural resources has issued a permit;
- rivers, lakes and streams important for the spawning, rearing or migration of anadromous fish, and the water of lakes, streams, and rivers which flow or empty into designated waters;
- lakes, streams, rivers and freshwater wetlands within the boundaries of lands administered under the National Wildlife Refuge System, and the waters of lakes, streams and rivers which flow or empty into those waters;
- lakes, streams, rivers and freshwater wetlands within the boundaries of game reserve areas, refuges, critical habitat areas, and sanctuaries and the water of lakes, streams, and rivers which flow or empty into these waters;
- Lakes, streams, rivers and freshwater wetlands within the boundaries of fish reserve areas, refuges, critical habitat areas and sanctuaries, and the water of lakes, streams and rivers which flow or empty into those waters.

Sensitive

- lakes other than those classified in (A) of this subsection;
- freshwater wetlands other than classified in (A) of this subsection; and
- subsurface freshwater other than those classified in (A)(1) of this subsection.

(b) All freshwater not classified above are classified as "without significant aquatic resources."

18 AAC 75.520 Marine Environments

(a) Estuarine, intertidal and saltwater environments;

Critical

- marine water within the boundaries of state game refuges;
- marine water within the boundaries of fish and game critical habitats;
- marine water within the boundaries of marine sanctuaries;
- marine water within the boundaries of areas administered under the National Wildlife Refuge System;
- marine water within one statute mile of the mouth of waters designated as important for the spawning, rearing or migration of anadromous fish;
- marine water within one statute mile of a seabird colony or marine mammal rookery or hauling ground;
- high density sea otter habitat;
- marine water within the barrier island-lagoon ecosystems extending from the Colville River to Canning River, and seaward of the Copper River delta.

Sensitive

- the inside water of SE Alaska not otherwise classified in (A) of this subsection;
- saltwater wetlands and other intertidal and estuarine areas not otherwise classified in (A) of this subsection; and
- Prince William Sound, and the bays, arms fjords, ports and other inside marine waters of Prince William Sound; and
- all marine water within 10 statute miles of any point of those waters designated in (A) of this subsection.

(b) All marine water not classified in (A) or (B) of this subsection, is classified as without significant aquatic resources.

Appendix 3 - Texas Guidelines for the Determination of Values for Fish and Wildlife

The Texas Parks and Wildlife Code (sections 12.301-12.303) directs the Texas Wildlife Commission to adopt rules that establish guidelines for valuing fish and wildlife, thus quantifying the damages recoverable in suits for unlawful injury or destruction of fish and wildlife.

The value determined through use of these guidelines for each species is arrived at through a rating of factors that contribute to the relative significance of that species, followed by application of a monetary scale to the overall rating.

A species is rated on a scale of 0-3 for each of eight criteria "...selected to reflect the major definable elements of social and economic values attributable to wildlife, while at the same time avoiding overlaps or duplications in accounting for those elements" (11 Texas Register 1561). These eight scores are summed, then adjusted through multiplication by a factor "that reflects the extent to which public demand for the species exceeds what might be expected purely on the basis of the objective elements of value attributable to that species" (11 Texas Register 1561-62).

31 TAC 69.22

(a) Each species of bird, mammal, reptile, amphibian, threatened or endangered aquatic life is assigned a score of 0-3 for each of eight criteria. Scores are then summed, multiplied by a weighting factor and compared to a monetary scale to obtain a monetary value. A partial list of wildlife values obtained by applying these guidelines is included at Table 1 of Section 69.31 of this title.

(b) The scoring criteria are as follows:

1) Recreation. This criterion takes account of the traditional extent to which a species is actively sought by sportsmen, photographers, bird watchers, nature enthusiasts, park visitors, and others with wildlife interests. Scoring considers both harvest and non-harvest use of a species. A species that is not sought at all would be scored as 0; a highly sought-after species would be scored as 3.

2) Aesthetic. This criterion takes account of high (score:3) to low (score:0) intangible social values of wildlife species that arise from their beauty or interesting qualities (behavior, coloration, movement, or other attributes), and that exist merely because of the species' known presence in an area, whether or not a given person ever would encounter one in the wild.

3) Educational. This criterion takes account of high (score:3) to low (score:0) perceived educational value of a species arising from, for example, published materials and other audio-visual media about the species, displays in zoos, or the relative frequency with which the species is used to exemplify important curricula principles.

4) Scarcity. This criterion takes account of relative population of a species within the range of its habitat, from very abundant (score:0) to scarce (score:3).

5) Environmental tolerance. This criterion takes account of whether a species is tolerant of a wide range of environmental conditions and the normally considered limiting factors (score:0) or is sensitive to climate, topography, water regimes, or other ecological factors (score:3), and is thus limited in range and population.

6) Economics. This criterion takes account of high (score:3) to low (score:0) direct or indirect cash flow attributable to the species as a result of recreational

transactions (such as hunting leases), sightseeing tours, park visits, pelt value, or other similar legal financial transactions.

7) Recruitment. This criterion takes account of high (score:0) to low (score:3) reproductive and survival potential of a species as it relates to the capability for replacement of its population following decrease or loss.

8) Ecological role. This criterion takes account of a species' relationships with other lifeforms - contributing to a healthful and stable balance of nature. For example, widely-consumed forage species score high (score:3), as do important predators (score:3) which keep prey species populations under control. Forage species that are not widely consumed score low (score:0), as do rare predators (score:0) which contribute little to regulation of prey populations.

(c) Weighting factors are applied to the basic score achieved by applying the eight criteria listed in subsection (b) of this section, in order to account for any existing variance in public demand and/or perception of value for a species. These weighting factors relate to overall demand for the species relative to existing supply and to future opportunity as management programs evolve. The total basic criteria score is multiplied by the relevant weighting factor to obtain the adjusted criteria score. These multipliers are assigned as follows:

(1) 1.0 - no additional public demand or perception of value exists beyond that reflected by the eight criteria above.

(2) 1.1 - minor disparity exists between resource availability and public interest and the public demand fluctuates periodically around an equilibrium point;

(3) 1.3 - substantial disparity exists between available supply and identified public interest in wildlife resources (species) that are subject to ongoing management programs;

(4) 1.5 - the wildlife resource (species) supply is never expected to meet identified demands and needs, or management programs for a limited species are not fully developed with respect to planned recreational opportunity and economic contribution.

(d) Once a species has been scored using the guidelines established in subsections (a) - (c) of this section, the following table is used to determine the monetary value for each species.

<u>Adjusted Criteria Score Range</u>	<u>Monetary Range</u>
1-5	\$1-\$5
6-8	\$6-10
9-10	\$11-20
11-12	\$21-50
13-14	\$51-75
15-16	\$76-250
17-18	\$251-800
19-20	\$801-1,500
21-23	\$1,501-4,200
24-36	\$4,210-10,000

A \$1000 and \$500 premium is added for each individual member of an endangered and threatened species, respectively.

All recovery values are updated on August 31 of each year to reflect changes in the CPI.

(e) For each individual member of a species categorized as endangered or threatened, a premium is added to the monetary value derived by application of this section. The premium is \$1,000 for each individual member of an endangered species and \$500 for each individual member of a threatened species.

§69.28. Updating Existing Recovery Values. All recovery values obtained by the application of this chapter shall be updated by the department on August 31 of each year to reflect an increase or decrease (percent of change) in the consumer price index of retail sales as prepared by the Bureau of Labor Statistics, United States Department of

Labor (using the National Consumer Price Index, all urban consumers, 1967-100) to reflect current estimated values as adjusted for inflationary factors.

(or a proclamation or regulation adopted under that Code) or in violation of the Texas Water Code, §26.121.

§69.30. Savings Clause. If any word, phrase, sentence, paragraph, section, subsection, or any other part of this chapter is invalidated or held inapplicable for any reason, the balance of the chapter shall not be affected thereby, but shall remain in full force and effect to the greatest extent permitted by law.

§69.31. Computed Values for Selected Species. The values contained in the tables within this section were computed as of March 1, 1986, by the Texas Parks and Wildlife Department personnel, using the valuation methodologies established by this chapter:

SAMPLE PAGE

TABLE 1. PARTIAL LIST WILDLIFE VALUES:

SPECIES	CATEGORY	REC	AES	EDU	SCA	ENV	ECO	RET	ECOL	SUM	MUL	SCORE	VALUE RANGE
Whooping Crane	ENDANGERED	2	3	3	3	3	1	3	2	20	1.5	30	\$4,201 - \$10,000**
Bighorn-H	ENDANGERED	0	3	3	3	3	0	3	1	16	1.5	24	\$4,201 - \$10,000**
Bald Eagle	ENDANGERED	1	3	3	2	3	0	3	2	17	1.3	22	\$1,501 - \$4,200**
Bighorn-F	ENDANGERED	0	2	2	3	3	0	3	1	14	1.5	21	\$1,501 - \$4,200**
Atlantic Ridley Turtle	ENDANGERED	0	1	1	3	3	1	3	1	13	1.5	20	\$801 - \$1,500**
Peregrine Falcon	ENDANGERED	1	2	2	2	3	0	3	2	15	1.3	20	\$801 - \$1,500**
Ocelot	ENDANGERED	0	3	0	3	3	0	2	2	13	1.5	20	\$801 - \$1,500**
Mule deer-H	GAME MAMMAL	1	2	2	1	2	1	2	1	12	1.5	18	\$251 - \$800
Brown Pelican	ENDANGERED	0	2	2	3	3	0	3	1	14	1.3	18	\$251 - \$800**
Red-Cockaded Woodpecker	ENDANGERED	1	1	2	3	3	0	2	2	14	1.3	18	\$251 - \$800**
Eastern Turkey	GAME BIRD	1	3	1	3	2	1	1	2	14	1.3	18	\$251 - \$800
Golden-cheeked Warbler	THREATENED	1	1	1	3	3	1	2	2	14	1.3	18	\$251 - \$800*
Attwater's P. Chick	ENDANGERED	1	1	1	3	3	0	1	2	12	1.5	18	\$251 - \$800**
Black-footed Ferner	ENDANGERED	0	1	1	3	3	0	3	1	12	1.5	18	\$251 - \$800**
Elk-H	GAME MAMMAL	0	3	1	3	2	0	2	1	12	1.5	18	\$251 - \$800
White-tail-H	GAME MAMMAL	3	3	3	0	1	3	2	1	16	1.1	18	\$251 - \$800
Black Bear	GAME MAMMAL	0	2	1	3	2	0	2	2	12	1.5	18	\$251 - \$800
Alligator	STATUTORY	1	2	2	1	2	1	1	3	13	1.3	17	\$251 - \$800
Pronghorn-H	GAME MAMMAL	1	3	1	2	2	1	2	1	13	1.3	17	\$251 - \$800
Elk-F	GAME MAMMAL	0	3	1	3	2	0	2	1	12	1.3	16	\$76 - \$250
Mule deer-F	GAME MAMMAL	1	3	2	1	1	1	2	1	12	1.3	16	\$76 - \$250

Appendix 4 - EHB 1853 and EHB 1854



CERTIFICATION OF ENROLLED ENACTMENT

SUBSTITUTE HOUSE BILL NO. 1853.....

Passed the House... March 9, 1989
as amended
Yeas 95 Nays 0

Passed the Senate... April 5, 1989
as amended
Yeas 37 Nays 10

April 15, 1989: The House concurred in the Senate
amendments and passed the bill as
amended by the Senate.
Yeas: 92 Nays: 0

CERTIFICATE

I, Alan Thompson, Chief Clerk of the House of Representatives of the State of Washington, do hereby certify that
the attached is enrolled SUBSTITUTE HOUSE BILL NO. 1853
as passed by the House of Representatives and the Senate on the 15th day of April 1989.


ALAN THOMPSON, Chief Clerk

ENGROSSED SUBSTITUTE HOUSE BILL NO. 1853
AS AMENDED BY THE SENATE

State of Washington 51st Legislature 1989 Regular Session
by Committee on Environmental Affairs (originally sponsored by
Representatives Jones, Hargrove, Rust, Winsley, Haugen, Spanel,
Basich, R. King, Belcher, Cole, Jacobsen, Pruitt, P. King, Valle
and Nelson)

Read first time 2/27/89 and referred to Committee on Appropriations.

1 AN ACT Relating to oil spill damage assessment, compensation, and
2 penalties under the state water pollution control act; amending RCW
3 90.48.315, 90.48.390, 90.48.400, and 90.48.350; adding new sections
4 to chapter 90.48 RCW; creating new sections; prescribing penalties;
5 making an appropriation; and declaring an emergency.

6 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

7 NEW SECTION. Sec. 1. INTENT. The legislature finds that oil
8 spills can cause significant damage to the environment and natural
9 resources held in trust by and for the people of this state. Some of
10 these damages are unquantifiable, and others cannot be quantified at
11 a reasonable cost. Both quantifiable and unquantifiable damages
12 often occur despite prompt containment and cleanup measures. Due to
13 the inability to measure the exact nature and extent of certain types
14 of damages, current damage assessment methodologies used by the state
15 inadequately assess the damage caused by oil spills.

16 In light of the magnitude of environmental and natural resource
17 damage which may be caused by oil spills, and the importance of
18 fishing, tourism, recreation, and Washington's natural abundance and
19 beauty to the quality of life and economic future of the people of
20 this state, the legislature declares that compensation should be
21 sought for those damages that cannot be quantified at a reasonable
22 cost and for those unquantifiable damages that result from oil
23 spills. This compensation is intended to ensure that the public does
24 not bear substantial losses caused by oil pollution for which
25 compensation may not otherwise be received.

26 NEW SECTION. Sec. 2. COMPENSATION SCHEDULE. By July 1, 1991,
27 the department, in consultation with the departments of fisheries,
28 wildlife, and natural resources, and the parks and recreation

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1 commission, shall adopt rules establishing a compensation schedule
2 for the discharge of oil in violation of RCW 90.48.320, by persons
3 liable under RCW 90.48.336. The department shall establish a
4 scientific advisory board to assist in establishing the compensation
5 schedule. The amount of compensation assessed under this schedule
6 shall be no less than one dollar per gallon of oil spilled and no
7 greater than fifty dollars per gallon of oil spilled. The
8 compensation schedule shall reflect adequate compensation for
9 unquantifiable damages or for damages not quantifiable at reasonable
10 cost for any adverse environmental, recreational, aesthetic, or other
11 effects caused by the oil spill and shall take into account:

12 (1) Characteristics of the oil spilled, such as toxicity,
13 dispersibility, solubility, and persistence, that may affect the
14 severity of the effects on the receiving environment, living
15 organisms, and recreational and aesthetic resources;

16 (2) The sensitivity of the affected area as determined by such
17 factors as: (a) The location of the spill; (b) habitat and living
18 resource sensitivity; (c) seasonal distribution or sensitivity of
19 living resources; (d) areas of recreational use or aesthetic
20 importance; (e) the proximity of the spill to important habitats for
21 birds, aquatic mammals, fish, or to species listed as threatened or
22 endangered under state or federal law; and (f) other areas of special
23 ecological or recreational importance, as determined by the
24 department; and

25 (3) Actions taken by the party who spilled the oil or any party
26 liable for the spill that: (a) Demonstrate a recognition and
27 affirmative acceptance of responsibility for the spill, such as the
28 immediate removal of oil and the amount of oil removed from the
29 environment; or (b) enhance or impede the detection of the spill, the
30 determination of the number of gallons spilled, or the extent of
31 damage, including the unauthorized removal of evidence such as oiled
32 fish or wildlife.

33 NEW SECTION. Sec. 3. ASSESSMENT OF COMPENSATION. (1) Prior to
34 assessing compensation under section 2 of this act, the department
35 shall conduct a formal preassessment screening as provided in section
36 4 of this act. The department shall use the compensation schedule

1 established under section 2 of this act if the preassessment
2 screening committee determines that: (a) Restoration or enhancement
3 of the injured resources is not technically feasible; (b) damages are
4 not quantifiable at a reasonable cost; and (c) the restoration and
5 enhancement projects or studies proposed by the liable parties are
6 insufficient to adequately compensate the people of the state for
7 damages sustained as a result of the oil spill.

8 (2) Compensation shall not be assessed under this section for oil
9 spills for which damages have been or will be assessed under RCW
10 90.48.142.

11 (3) Compensation assessed under this section shall be recoverable
12 in an action brought by the attorney general on behalf of the people
13 of the state of Washington in the superior court of Thurston county
14 or any county in which damages occurred. Moneys recovered by the
15 attorney general under this section shall be deposited in the coastal
16 protection fund established under RCW 90.48.390, and shall only be
17 used for the purposes stated in RCW 90.48.400.

18 (4) Compensation assessed under this section for a particular oil
19 spill shall preclude claims under this chapter by local governments
20 for compensation for damages to publicly owned resources resulting
21 from the same spill.

22 NEW SECTION. Sec. 4. PREASSESSMENT SCREENING. (1) The
23 department shall adopt rules establishing a formal process for
24 preassessment screening of damages resulting from oil spills. The
25 rules shall specify the conditions under which the department shall
26 convene a preassessment screening committee. The preassessment
27 screening process shall occur concurrently with reconnaissance
28 activities. The committee shall use information obtained from oil
29 spill reconnaissance activities as well as any other relevant
30 resource and resource use information. For each oil spill, the
31 committee shall determine whether a damage assessment investigation
32 should be conducted under RCW 90.48.142, or alternatively, whether
33 the compensation schedule authorized under sections 2 and 3 of this
34 act should be used to assess damages. The committee may accept
35 restoration or enhancement projects or studies proposed by the liable
36 parties in lieu of some or all of: (a) The compensation schedule

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1 authorized under this chapter; or (b) the claims from damage
2 assessment studies authorized under RCW 90.48.142.

3 (2) A preassessment screening committee may consist of
4 representatives of the departments of ecology, fisheries, wildlife,
5 natural resources, social and health services, and emergency
6 management, the parks and recreation commission, as well as other
7 federal, state, and local agencies, and tribal and local governments
8 whose presence would enhance the reconnaissance or damage assessment
9 aspects of oil spill response. The department shall chair the
10 committee and determine which representatives will be needed on a
11 spill-by-spill basis.

12 (3) The committee shall consider the following factors when
13 determining whether a damage assessment study authorized under RCW
14 90.48.142 should be conducted: (a) Whether evidence from
15 reconnaissance investigations suggests that injury has occurred or is
16 likely to occur to publicly owned resources; (b) the potential loss
17 in services provided by resources injured or likely to be injured and
18 the expected value of the potential loss; (c) whether a restoration
19 project to return lost services is technically feasible; (d) the
20 accuracy of damage quantification methods that could be used and the
21 anticipated cost-effectiveness of applying each method; (e) the
22 extent to which likely injury to resources can be verified with
23 available quantification methods; and (f) whether the injury, once
24 quantified, can be translated into monetary values with sufficient
25 precision or accuracy.

26 (4) Oil spill damage assessment studies authorized under RCW
27 90.48.142 may only be conducted if the committee, after considering
28 the factors enumerated in subsection (3) of this section, determines
29 that the damages to be investigated are quantifiable at a reasonable
30 cost and that proposed assessment studies are clearly linked to
31 quantification of the damages incurred.

32 (5) As new information becomes available, the committee may
33 reevaluate the scope of damage assessment using the factors listed in
34 subsection (3) of this section and may reduce or expand the scope of
35 damage assessment as appropriate.

36 (6) The preassessment screening process shall provide for the

1 ongoing assessment of persons who may be liable for damages
2 resulting from an oil spill. The department may negotiate with a
3 potentially liable party to perform restoration and enhancement
4 projects or studies which may substitute for all or part of the
5 compensation authorized under sections 2 and 3 of this act or the
6 damage assessment studies authorized under RCW 90.48.142.

7 (7) For the purposes of this section and section 3 of this act,
8 the cost of a damage assessment shall be considered "reasonable" when
9 the anticipated cost of the damage assessment is expected to be less
10 than the anticipated damage that may have occurred or may occur.

11 NEW SECTION. Sec. 5. ANNUAL REPORT. The department shall
12 submit an annual report to the appropriate standing committees of the
13 legislature for the next five years beginning January 1, 1990. The
14 annual report shall cover the implementation of this act and shall
15 include information on each oil spill for which a preassessment
16 screening committee was convened, the outcome of each process, any
17 compensation claims imposed or damage assessment studies conducted,
18 and the revenues to and expenditures from the coastal protection
19 fund.

20 Sec. 6. Section 10, chapter 133, Laws of 1969 ex. sess. as last
21 amended by section 5, chapter 316, Laws of 1985 and RCW 90.48.315 are
22 each amended to read as follows:

23 For purposes of RCW 90.48.315 through 90.48.365 ((and RCW)),
24 78.52.020, 78.52.125, 82.36.330, 90.48.315, 90.48.370 through
25 90.48.410, 90.48.903, 90.48.906 and 90.48.907, and sections 2 through
26 5 of this act, the following definitions shall apply unless the
27 context indicates otherwise:

28 (1) "Board" shall mean the pollution control hearings board.

29 (2) "Committee" shall mean the preassessment screening committee
30 established under section 4 of this act.

31 (3) "Department" shall mean the department of ecology.

32 (((3))) (4) "Director" shall mean the director of the department
33 of ecology.

34 (((4))) (5) "Discharge" shall mean any spilling, leaking,
35 pumping, pouring, emitting, emptying, or dumping.

Sec. 6

1 (((5))) (6) "Fund" shall mean the state coastal protection fund
2 as provided in RCW 90.48.390 and 90.48.400.

3 (((6))) (7) "Having control over oil" shall include but not be
4 limited to any person using, storing, or transporting oil immediately
5 prior to entry of such oil into the waters of the state, and shall
6 specifically include carriers and bailees of such oil.

7 (((7))) (8) "Necessary expenses" means the expenses incurred by
8 the department and assisting state agencies for (a) investigating the
9 source of the discharge; (b) investigating the extent of the
10 environmental damage caused by the discharge; and (c) conducting
11 actions necessary to clean up the discharge.

12 (((8))) (9) "Oil" or "oil" shall mean oil, including gasoline,
13 crude oil, fuel oil, diesel oil, lubricating oil, sludge, oil refuse,
14 liquid natural gas, propane, butane, and distilled from coal, and
15 other liquid hydrocarbons regardless of specific gravity, or any
16 other petroleum-related product.

17 (((9))) (10) "Person" shall mean any political subdivision,
18 government agency, municipality, industry, public or private
19 corporation, copartnership, association, firm, individual, or any
20 other entity whatsoever and its owner, operator, master, officer, or
21 employee of a ship.

22 (((10))) (11) "Ship" shall mean any boat, ship, vessel, barge, or
23 other floating craft of any kind.

24 (((11))) (12) "Technical feasibility" or "technically feasible"
25 shall mean that given available technology a restoration or
26 enhancement project can be successfully completed at a cost that is
27 not disproportionate to the value of the resource prior to the
28 injury.

29 (13) "Waters of the state" shall include lakes, rivers, ponds,
30 streams, inland waters, underground water, salt waters, estuaries,
31 tidal flats, beaches and lands adjoining the seacoast of the state,
32 sewers, and all other surface waters and watercourses within the
33 jurisdiction of the state of Washington.

34 Sec. 7. Section 4, chapter 180, Laws of 1971 ex. sess. and RCW
35 90.48.390 are each amended to read as follows:

36 The coastal protection fund is established to be used by the

1 department as a revolving fund for carrying out the purposes of RCW
2 90.48.315 through 90.48.365 ((and--RCW)), 78.52.020, 78.52.125,
3 82.36.330, 90.48.315, 90.48.370 through 90.48.410, 90.48.903,
4 90.48.906 and 90.48.907, and sections 2 through 4 of this act. To
5 this fund there shall be credited penalties, fees, and charges
6 received pursuant to the provisions of RCW 90.48.315 through
7 90.48.365, compensation for damages received under sections 2 through
8 4 of this act. and an amount equivalent to one cent per gallon from
9 each marine use refund claim under RCW 82.36.330.

10 Moneys in the fund not needed currently to meet the obligations
11 of the department in the exercise of its powers, duties, and
12 functions under RCW 90.48.315 through 90.48.365 and RCW 78.52.020,
13 78.52.125, 82.36.330, 90.48.315, 90.48.370 through 90.48.410,
14 90.48.903, 90.48.906 and 90.48.907 shall be deposited with the state
15 treasurer to the credit of the fund and may be invested in such
16 manner as is provided for by law. Interest received on such
17 investment shall be credited to the fund.

18 Sec. 8. Section 5, chapter 180, Laws of 1971 ex. sess. and RCW
19 90.48.400 are each amended to read as follows:

20 (1) Moneys in the coastal protection fund shall be disbursed for
21 the following purposes and no others:

22 (a) All costs of the department related to the enforcement of RCW
23 90.48.315 through 90.48.365 ((and--RCW)), 78.52.020, 78.52.125,
24 82.36.330, 90.48.315, 90.48.370 through 90.48.410, 90.48.903,
25 90.48.906 and 90.48.907, and sections 2 through 4 of this act
26 including but not limited to equipment rental and contracting costs.

27 (b) All costs involved in the abatement of pollution related to
28 the discharge of oil.

29 (c) The director may allocate a portion of the fund to be devoted
30 to research and development in the causes, effects, and removal of
31 pollution caused by the discharge of oil.

32 (2) Moneys disbursed from the coastal protection fund for the
33 abatement of pollution caused by the discharge of oil shall be
34 reimbursed to the fund whenever:

35 (a) Moneys are available under any federal program; or

36 (b) Moneys are available from a recovery made by the department

1 from the person liable for the discharge of oil.

2 (3) A steering committee consisting of representatives of the
3 department of ecology, fisheries, wildlife, and natural resources,
4 and the parks and recreation commission shall authorize the
5 expenditure of the moneys collected under sections 2 through 4 of
6 this act, after consulting impacted local agencies and local and
7 tribal governments. The moneys collected under sections 2 through 4
8 of this act shall only be used for the following purposes: (a)
9 Environmental restoration and enhancement projects intended to
10 restore or enhance environmental, recreational, or aesthetic
11 resources for the benefit of Washington's citizens: (b)
12 investigations of the long-term effects of oil spills on state
13 resources: and (c) reimbursement of agencies for reasonable
14 reconnaissance and damage assessment costs. Agencies may not be
15 reimbursed under this section for the salaries and benefits of
16 permanent employees for routine operational support. Agencies may
17 only be reimbursed under this section if money for reconnaissance and
18 damage assessment activities is unavailable from other sources.

19 Sec. 9. Section 7, chapter 133, Laws of 1969 ex. sess. as last
20 amended by section 20, chapter 109, Laws of 1987 and RCW 90.48.350
21 are each amended to read as follows:

22 Any person who ~~((intentionally or))~~ negligently discharges oil,
23 or causes or permits the entry of the same, shall incur, in addition
24 to any other penalty as provided by law, a penalty in an amount of up
25 to twenty thousand dollars for every such violation, and for each day
26 ~~((of a continuing violation of said amount to))~~ the spill poses risks
27 to the environment as determined by the director. Any person who
28 intentionally or recklessly discharges or causes or permits the entry
29 of oil into the waters of the state shall incur, in addition to any
30 other penalty authorized by law, a penalty of up to one hundred
31 thousand dollars for every such violation and for each day the spill
32 poses risks to the environment as determined by the director. The
33 amount of the penalty shall be determined by the director after
34 taking into consideration the gravity of the violation, the previous
35 record of the violator in complying, or failing to comply, with the
36 provisions of chapter 90.48 RCW, the speed and thoroughness of the

1 collection and removal of the oil, and such other considerations as
2 the director deems appropriate. Every act of commission or omission
3 which procures, aids or abets in the violation shall be considered a
4 violation under the provisions of this section and subject to the
5 penalty herein provided for. The penalty herein provided for shall
6 be imposed pursuant to RCW 43.21B.300.

7 NEW SECTION. Sec. 10. The sum of seventy-five thousand dollars,
8 or as much thereof as may be necessary, is appropriated from the
9 state toxics control account to the department of ecology for the
10 biennium ending June 30, 1991, for the purpose of preparing the
11 compensation schedule required under section 2 of this act.

12 NEW SECTION. Sec. 11. Sections 2 through 5 of this act are each
13 added to chapter 90.48 RCW.

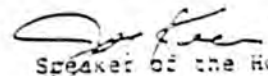
14 NEW SECTION. Sec. 12. This act applies prospectively only, and
15 not retroactively. It applies only to causes of action which arise
16 after the effective date of this act.

17 NEW SECTION. Sec. 13. Section headings as used in this act do
18 not constitute any part of the law.

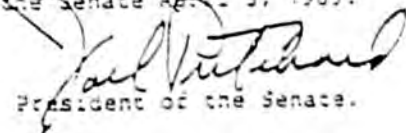
19 NEW SECTION. Sec. 14. If any provision of this act or its
20 application to any person or circumstance is held invalid, the
21 remainder of the act or the application of the provision to other
22 persons or circumstances is not affected.

23 NEW SECTION. Sec. 15. This act is necessary for the immediate
24 preservation of the public peace, health, or safety, or support of
25 the state government and its existing public institutions, and shall
26 take effect immediately.

Passed the House April 15, 1989.


Speaker of the House.

Passed the Senate April 5, 1989.


President of the Senate.

IN THE LEGISLATURE
of the
STATE OF WASHINGTON



CERTIFICATION OF ENROLLED ENACTMENT

SUBSTITUTE HOUSE BILL NO. 1854

Passed the House March 7 1989.

Yeas 25 Nays 0

Passed the Senate April 6 1989
as amended

Yeas 41 Nays 3

April 15, 1989: The House concurred in the Senate
amendment and passed the bill as
amended by the Senate.

Yeas: 92 Nays: 0

CERTIFICATE

I, Alan Thompson, Chief Clerk of the House of Representatives of the State of Washington, do hereby certify that
the attached is enrolled SUBSTITUTE HOUSE BILL, NO. 1854
as passed by the House of Representatives and the Senate on the dates herein set forth.

Alan Thompson
ALAN THOMPSON, Chief Clerk

SUBSTITUTE HOUSE BILL NO. 1854
AS AMENDED BY THE SENATE

State of Washington 51st Legislature 1989 Regular Session

by Committee on Environmental Affairs (originally sponsored by
Representatives Jones, Hargrove, Rust, Winsley, Basich, R. King,
Belcher, Cole, Spanel, P. King and Nelson)

Read first time 2/22/89.

1 AN ACT Relating to resource damage assessment under the state
2 water pollution control act; amending RCW 90.48.142, 90.48.390, and
3 90.48.400; creating new sections; and declaring an emergency.

4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

5 NEW SECTION. Sec. 1. The legislature finds that there is
6 confusion regarding the measure of damages authorized under RCW
7 90.48.142. The intent of this act is to clarify existing law on the
8 measure of damages authorized under RCW 90.48.142, not to change the
9 law.

10 Sec. 2. Section 13, chapter 139, Laws of 1967 ex. sess. as last
11 amended by section 69, chapter 36, Laws of 1988 and RCW 90.48.142 are
12 each amended to read as follows:

13 (1) Any person who violates any of the provisions of this
14 chapter, or fails to perform any duty imposed by this chapter, or
15 violates an order or other determination of the department or the
16 director made pursuant to the provisions of this chapter, including
17 the conditions of a waste discharge permit issued pursuant to RCW
18 90.48.160, and in the course thereof causes the death of, or injury
19 to, fish, animals, vegetation or other resources of the state, or
20 otherwise causes a reduction in the quality of the state's waters
21 below the standards set by the department or, if no standards have
22 been set, causes significant degradation of water quality, thereby
23 damaging the same, shall be liable to pay the state damages in an
24 amount equal to the sum of money necessary to: (a) Restore any
25 damaged resource to its condition prior to the injury, to the extent
26 technically feasible, and compensate for the lost value incurred
27 during the period between injury and restoration; or (b) compensate
28 for the lost value throughout the duration of the injury that the

Sec. 2

1 resource previously provided if restoration is not technically
2 feasible and, when only partial restoration is technically feasible,
3 compensate for the remaining lost value. "Technical feasibility" or
4 "technically feasible" shall mean for the purposes of this
5 subsection, that given available technology, a restoration or
6 enhancement project can be successfully completed at a cost that is
7 not disproportionate to the value of the resource prior to the
8 injury.

9 (2) Restoration shall include the cost to restock such waters,
10 replenish or replace such resources, and otherwise restore the
11 stream, lake or other ((water-seuree)) waters of the state, including
12 any estuary, ocean area, submerged lands, shoreline, bank, or other
13 lands adjoining such waters to its condition prior to the injury, as
14 such condition is determined by the department. The lost value of a
15 damaged resource shall be equal to the sum of consumptive,
16 nonconsumptive, and indirect use values, as well as lost taxation,
17 leasing, and licensing revenues. Indirect use values may include
18 existence, bequest, option, and aesthetic values. Damages shall be
19 determined by generally accepted and cost-effective procedures.

20 (3) Such damages shall be recoverable in an action brought by the
21 attorney general on behalf of the people of the state of Washington
22 in the superior court of Thurston county or the county in which such
23 damages occurred: PROVIDED, That if damages occurred in more than
24 one county the attorney general may bring action in any of the
25 counties where the damages occurred. Any money so recovered by the
26 attorney general shall be transferred to ((either-the-state-wildlife
27 fund-or-the-department-of-fisheries-to-use-for-feed-fish-or-shellfish
28 management-purposes-and-propagation,-or-to-any-other--agency--of--the
29 state--having--jurisdiction--over--the-resource-damaged-and-for-which
30 said-moneys-were--recovered;--as--appropriate;--PROVIDED;--That--the
31 agency--receiving--such-money-shall-utilize-not-less-than-one-half-of
32 said-money-on-activities-of)) the coastal protection fund established
33 under RCW 90.48.390. A steering committee consisting of
34 representatives of the departments of ecology, fisheries, wildlife,
35 natural resources, and the parks and recreation commission shall
36 authorize the expenditure of the moneys collected under this section

1 after consulting impacted local agencies and local and tribal
 2 governments. The department shall chair the steering committee. The
 3 moneys collected under this section shall only be used for the
 4 following purposes: (a) Environmental restoration and enhancement
 5 projects intended to restore or enhance environmental, recreational,
 6 or aesthetic resources for the benefit of Washington's citizens: (b)
 7 investigations of the long-term effects of discharges, including
 8 sewer sludge, on state resources: and (c) reimbursement of agencies
 9 for reasonable reconnaissance and damage assessment costs under this
 10 chapter. Agencies may not be reimbursed under this section for the
 11 salaries and benefits of permanent employees for routine operational
 12 support. Agencies may only be reimbursed under this section if money
 13 for reconnaissance and damage assessment activities is unavailable
 14 from other sources. In authorizing restoration or enhancement
 15 projects, preference shall be given to projects within ((the-county))
 16 counties where ((the-action-was-brought-by-the-attorney-general)) the
 17 injury occurred. No action shall be authorized under this section
 18 against any person operating in compliance with the conditions of a
 19 waste discharge permit issued pursuant to RCW 90.48.160.

20 Sec. 3. Section 4, chapter 180, Laws of 1971 ex. sess. and RCW
 21 90.48.390 are each amended to read as follows:

22 The coastal protection fund is established to be used by the
 23 department as a revolving fund for carrying out the purposes of RCW
 24 90.48.315 through 90.48.365 and RCW 78.52.020, 78.52.125, 82.36.330,
 25 90.48.142, 90.48.315, 90.48.370 through 90.48.410, 90.48.903,
 26 90.48.906 and 90.48.907. To this fund there shall be credited
 27 penalties, fees, damages, and charges received pursuant to the
 28 provisions of RCW 90.48.142 and 90.48.315 through 90.48.365 and an
 29 amount equivalent to one cent per gallon from each marine use refund
 30 claim under RCW 82.36.330.

31 Moneys in the fund not needed currently to meet the obligations
 32 of the department in the exercise of its powers, duties, and
 33 functions under RCW 90.48.315 through 90.48.365 and RCW 78.52.020,
 34 78.52.125, 82.36.330, 90.48.142, 90.48.315, 90.48.370 through
 35 90.48.410, 90.48.903, 90.48.906 and 90.48.907 shall be deposited with
 36 the state treasurer to the credit of the fund and may be invested in

Sec. 3

1 such manner as is provided for by law. Interest received on such
2 investment shall be credited to the fund.

3 Sec. 4. Section 5, chapter 180, Laws of 1971 ex. sess. and RCW
4 90.48.400 are each amended to read as follows:

5 (1) Moneys in the coastal protection fund shall be disbursed for
6 the following purposes and no others:

7 (a) All costs of the department related to the enforcement of RCW
8 90.48.315 through 90.48.365 and RCW 78.52.020, 78.52.125, 82.36.330,
9 90.48.142, 90.48.315, 90.48.370 through 90.48.410, 90.48.903,
10 90.48.906 and 90.48.907 including but not limited to equipment rental
11 and contracting costs.

12 (b) All costs involved in the abatement of pollution related to
13 the discharge of oil.

14 (c) The director may allocate a portion of the fund to be devoted
15 to research and development in the causes, effects, and removal of
16 pollution caused by the discharge of oil.

17 (2) Moneys disbursed from the coastal protection fund for the
18 abatement of pollution caused by the discharge of oil shall be
19 reimbursed to the fund whenever:

20 (a) Moneys are available under any federal program; or

21 (b) Moneys are available from a recovery made by the department
22 from the person liable for the discharge of oil.

23 (3) Moneys collected under section 2 of this act shall only be
24 used for the purposes enumerated in that section, subject to the
25 approval of the steering committee.

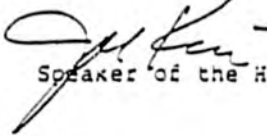
26 NEW SECTION. Sec. 5. This act applies prospectively only and
27 not retroactively. It applies only to causes of action which arise
28 after the effective date of this act.

29 NEW SECTION. Sec. 6. If any provision of this act or its
30 application to any person or circumstance is held invalid, the
31 remainder of the act or the application of the provision to other
32 persons or circumstances is not affected.

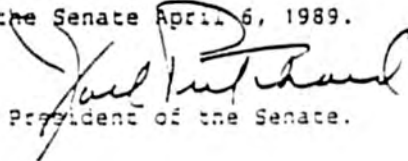
33 NEW SECTION. Sec. 7. This act is necessary for the immediate
34 preservation of the public peace, health, or safety, or support of

- 1 the state government and its existing public institutions, and shall
- 2 take effect immediately.

Passed the House April 15, 1989.


Speaker of the House.

Passed the Senate April 6, 1989.


President of the Senate.

OIL SPILL DAMAGE ASSESSMENT STUDY

LIST OF STUDY REPORTS

May 1989

Economic Issues and Valuation Concepts for Natural Resource Damages and an Analysis of Washington's Assessment Procedures. Jonathan Rubin. Final Report, April 1989, 37pp.

Description and Analysis of Alaska's Formula to Assess Civil Penalties and Applications of this Formula to the Port Angeles and Anacortes Oil Spills. Jonathan Rubin. Final Report, March 1989, 28pp.

Oil Spill Liability and Compensation: A Review and Evaluation of Alaska's Civil Penalty Scheme. Wendy Graham. Final Report, January 1989, 87pp.

Petroleum Toxicity and Fate in the Marine Environment with Implications for the Development of a Compensation Schedule for Spilled Oil. Jonathan Rubin. Final Report, March 1989, 29pp.

Policy Recommendations and Summary of Findings. Thomas M. Leschine. Preliminary Draft, October 1, 1988, 60pp.

A Proposed Compensation Schedule for Unquantifiable Oil Spill Damages. Thomas M. Leschine and Jonathan Rubin. May 1989 57pp.

Washington's Compensation Recovery Mechanisms for Aquatic Resource Damages from Pollutant Spills: A Review and Appraisal. Laura Geselbracht. Final Report, March 1989, 64pp.

RESOURCE DAMAGE ASSESSMENT

RESOURCE DAMAGE COMPENSATION TABLE

A SHORT CUT TO EXPENSIVE RESOURCE DAMAGE STUDIES

#2 General Approach
This is the slide
show I use to
describe the table
approach

#2

PENALITY VS RESOURCE DAMAGE ASSESSMENT

2 Separate and distinct actions may be taken by Ecology as the result of an oil spill

1. Penalty - Violation 90.48.320

Discharge of oil into the waters of the state

2. Resource Damage Assessment Claim - 90.48.142

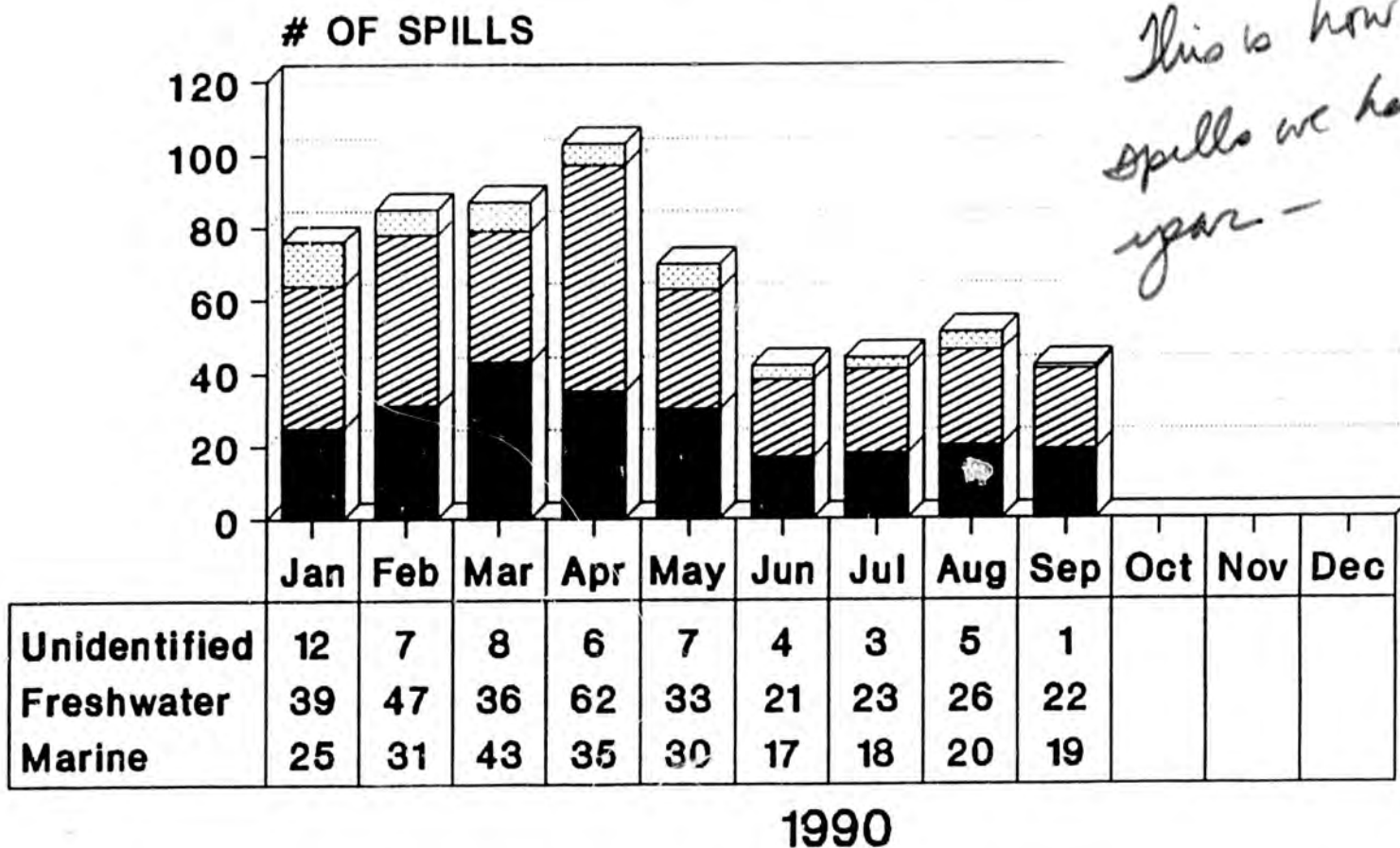
Compensation for loss of natural resources

*Table 15 for
resource damage
assessment rules*



1990 Oil/Petroleum Spills

Western Washington



Marine
 Freshwater
 Unidentified

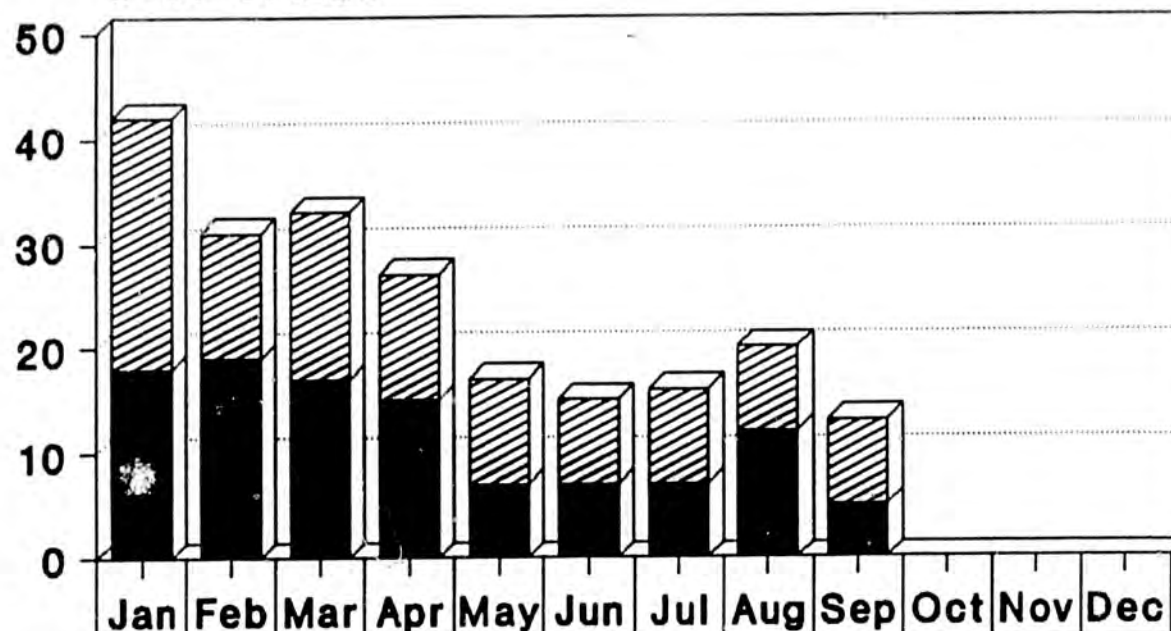
Source: Ecology

1990 SWRO Oil/Petroleum Spills

Identification of Responsible Party

This shows we only catch 50% of responsible parties

OF SPILLS



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Unidentified RP	24	12	16	12	10	8	9	8	8			
Responsible Party	18	19	17	15	7	7	7	12	5			

1990

Responsible Party
 Unidentified RP

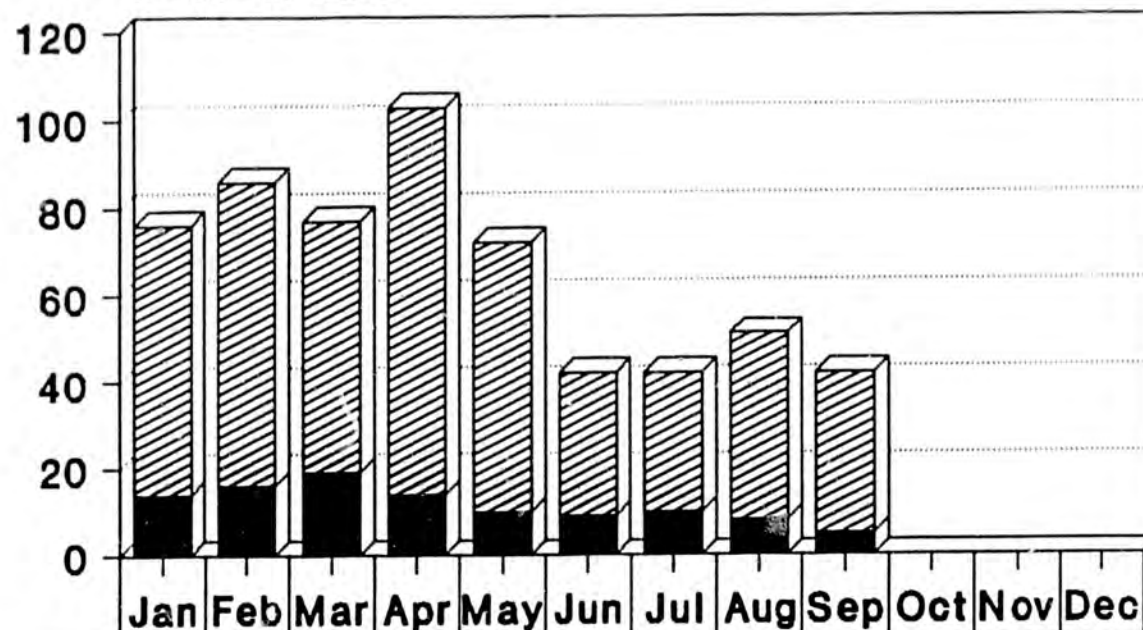
Source: Ecology

1990 Oil/Petroleum Spills

Western Washington

We do even worse when it comes to determining # of gallons spilled which is crucial to success of table.

OF SPILLS



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No Gallons Reported	62	70	58	89	62	33	32	43	37			
Gallons Reported	14	16	19	14	10	9	10	8	5			

1990

Gallons Reported
 No Gallons Reported

Source: Ecology

House Bill 1853

RDA Compensation Schedule Guidance

- Compensation assessed shall be no less than \$1 per gallon to no greater than \$50 per gallon spilled
- Schedule shall reflect adequate compensation for unquantifiable damages or damages not quantifiable at a reasonable rate
- Schedule shall take into account
 1. Characteristics of oil spilled and its toxicity
 2. Sensitivity of the affected areas
 3. Actions taken by party responsible for the spill

*This is all it
started with*

OIL SPILL COMPENSATION TABLE

CT SCORE • RHVS • PROPENSITY OF OIL TO CAUSE HARM

THE PROPENSITY OF OIL TO CAUSE HARM is measured by:

1. Acute Toxicity
2. Mechanical Toxicity
3. Persistence

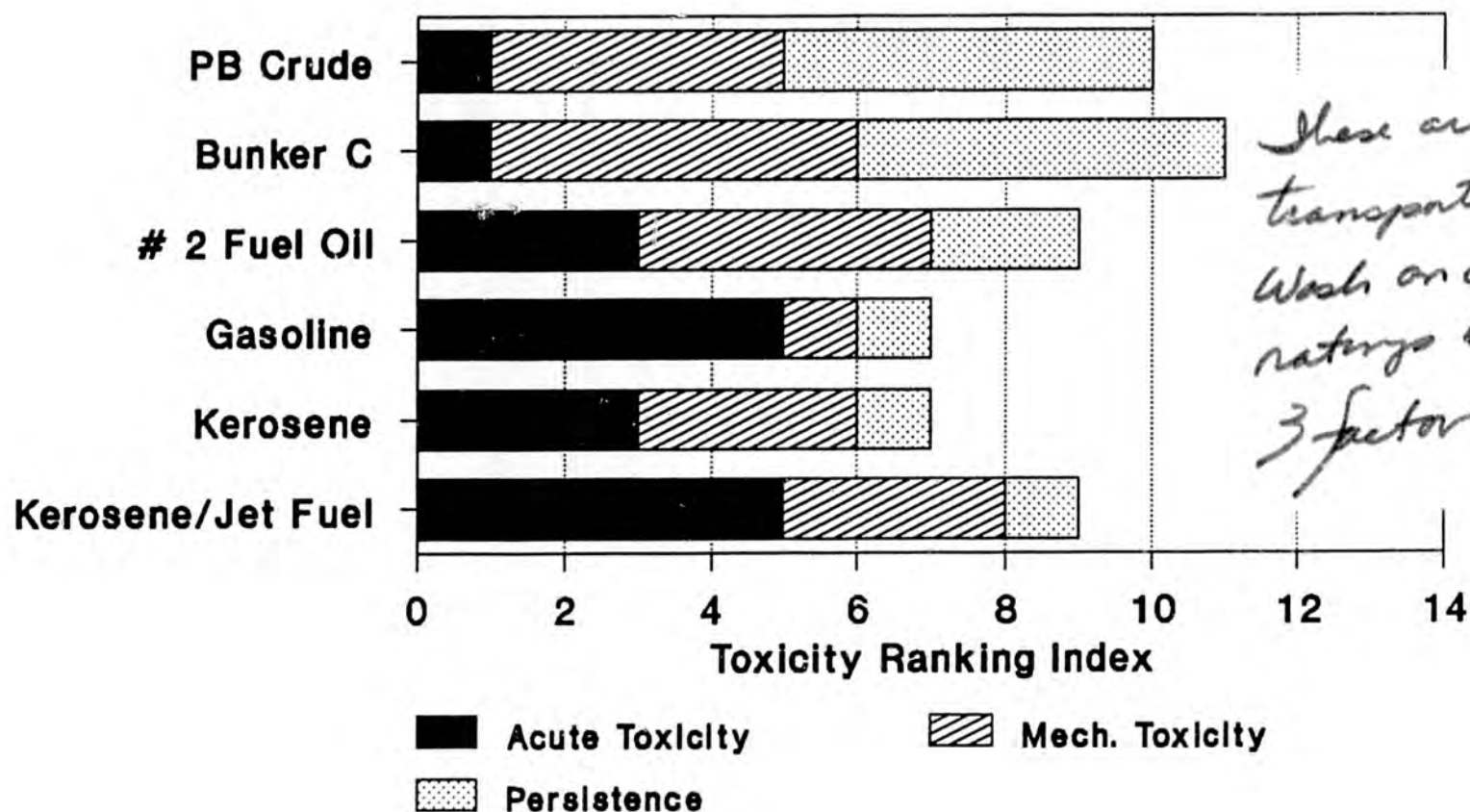
*This is analysis approach
for # 1 prior page
re: oil toxicity*

*Also see attached
Leskine paper
1991*

SCORE: 1-5

Relative Ranking of Acute Toxicity

Mechanical Injury & Oil Persistence



Source: T. Leschine, 1991

OIL SPILL COMPENSATION TABLE

COMP TABLE SCORE (CT)

CT SCORE = RVS * PROPENSITY OF OIL TO DO HARM

where CT SCORE is the numerical score that will be scaled to dollars per gallon spilled

RVS is a relative vulnerability score which measures productivity, diversity and sensitivity

Propensity of oil to do harm measures the affect of the oil on the affected resource

*errors to look
at effect on animals
and habitat this
model. determine
species/habitat importance
and how vulnerable to
oil those are*

ENVIRONMENTAL SENSITIVITY

Parameters That Were Ranked

- Habitats
- Fisheries - Marine & Freshwater Fish and Shellfish
- Birds
- Marine Mammals
- Recreational use

5 categories were selected for ranking

Source: Logan

OIL SPILL COMPENSATION TABLE

CT SCORE = RHVS * PROPENSITY OF OIL TO DO HARM

RHVS = Habitat Productivity * Habitat Sensitivity

The Relative Habitat Vulnerability Score (RHVS) measure

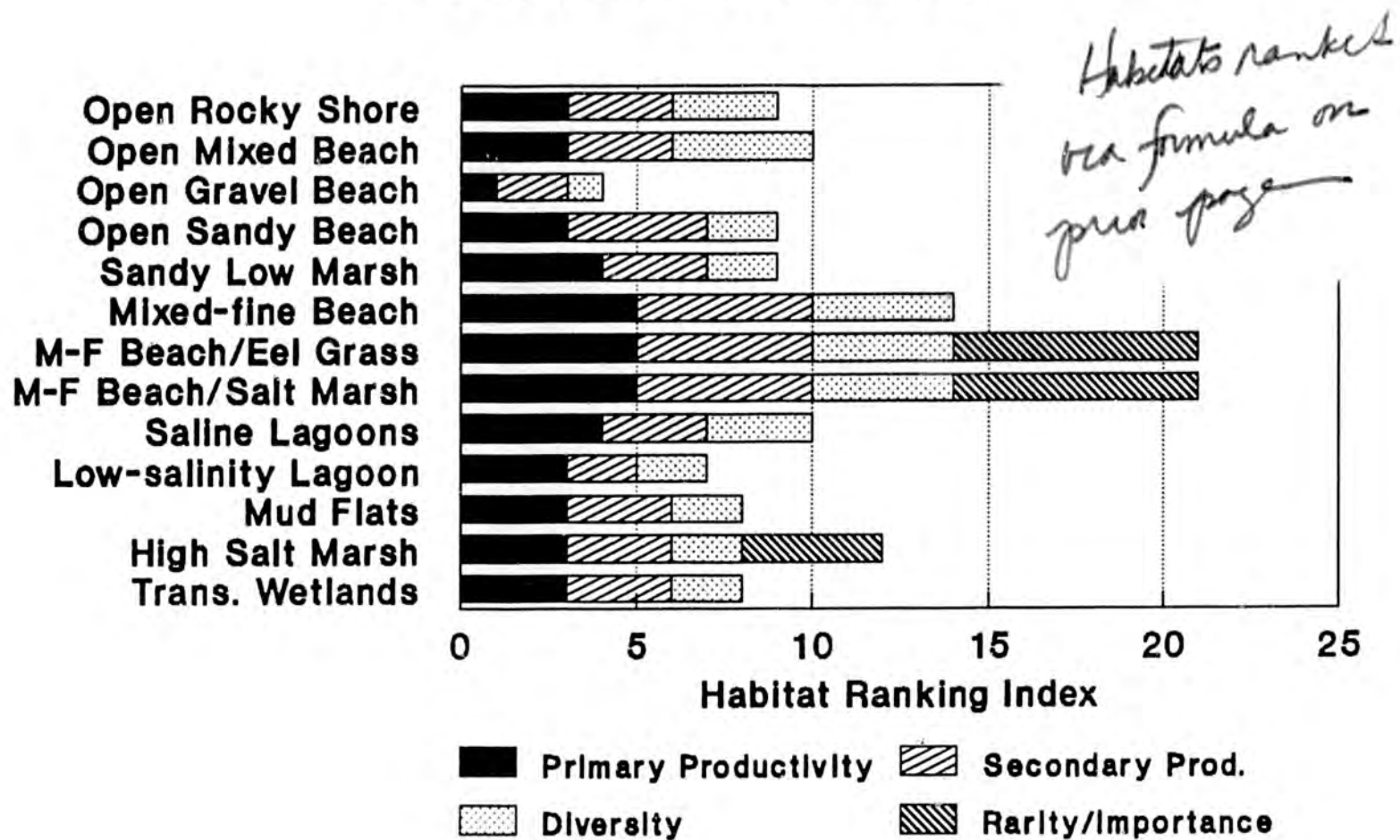
1. The amount of food production
2. The different number of species, and
3. How sensitive that habitat and those species are to oil spills

Which is converted into an index (RHVS) that numerically describes how biologically sensitive the zone is

Scale: 1-5

*This is habitat
sub model approach*

Relative Ranking of Marine & Estuarine Habitats



Source: M. Dethler, 1991

OIL SPILL COMPENSATION TABLE

Relative Habitat Vulnerability Score (RHVS)

<u>RESOURCE</u>	<u>PADILLA BAY</u>	<u>ELLIOTT BAY</u>
HABITAT	5	1
BIRDS	5	2
FISHERIES	5	2
MARINE MAMMALS	2	1
RECREATION	3	1

We got lots of
you will score everything
5 - This table looks
at best of worst bay
in Wa - dramatic
difference in scores

ENVIRONMENTAL SENSITIVITY

Parameters That Were Ranked

- Habitats
- Fisheries - Marine & Freshwater Fish and Shellfish
- Birds
- Marine Mammals
- Recreational use

*I included more
detail of fisheries
used since fish
are a big deal up
here FYI*

FISHERY RANKING

Fish Oil Index (FOI)

There are 8 components to the FOI:

$$\text{FOI} = [P * (CC * ((AS + PD) + (SR * (F + LS + ES))))]$$

where P = Presence/abundance in zone

AS = Adult sensitivity

PD = Normal distributional range of species

CC = Commercial catch in pounds harvested

SR = Seasonal risk of developmental stages

F = Fecundity

LS = Larval sensitivity

ES = Egg sensitivity

Source: Logan

FISHERY RANKING

Relative Abundance

<u>Ranking Charateristic</u>	<u>Score</u>
No Known Records	0
Uncommon	1
Common	3
Abundant	4
Very Abundant	5

Source: Mills et al, 1984; Miller & Borton, 1980

FISHERY RANKING

Larval/Adult Habitat

<u>Ranking Characteristic</u>	<u>Score</u>
Always deeper than 20 meters	0
Primarily deeper than 20 m	1
Primarily less than 20 meters	3
Pelagic	5

Source: Logan; Garrison & Miller, 1982; Hart, 1973

FISHERY RANKING

Population Distribution

<u>Ranking Characteristic</u>	<u>Score</u>
Widespread along West Coast	1
At North or South end of Distribution Range	3
Rare Throughout Range	4
Endemic Species	5

Source: Logan; Miller & Borton, 1980; Hart, 1973

FISHERY RANKING

Commercial Harvest in Pounds

<u>Ranking Charateristic</u>	<u>Score</u>
0-50,000 ##	1
50,001-100,000 ##	2
100,001-150,000 ##	3
150,001-200,000 ##	4
Over 200,000 ##	5

Source: Logan; WDF

FISHERY RANKING

Fecundity

<u>Ranking Charateristic</u>	<u>Score</u>
500,000+ eggs/female	1
100,001 - 500,000 eggs/female	3
1-100,000 eggs/female	5

Source: Logan; Garrison & Miller, 1982; Hart, 1973

FISHERY RANKING

Seasonal Larval/Egg Risk

<u>Ranking Charateristic</u>	<u>Score</u>
No Risk	0
Minor Risk	1
1-2 month risk - Usually either beginning or end of period	3
Major risk due to long term surface water concentrations	5

Source: Logan; Garrison & Miller, 1982; Hart, 1973

#3 Specific model approach

Here is a little more detail of how individual scoring is done

April 1991

#3

Oil Spill Compensation Schedule

Procedures for Determining Compensation for Resource Damages that are Unquantifiable or Not Quantifiable at a Reasonable Cost Using the Oil Spill Compensation Schedule

Introduction

In 1989, the state legislature passed HB 1853 which allows compensation for resource damages that are unquantifiable or not quantifiable for a reasonable cost to be recovered using an oil spill compensation schedule. Under the bill, compensation is to range between \$1 and \$50 per gallon of oil spilled and is to be based on the oil's propensity to caused environmental harm, sensitivity of the environment impacted and actions taken by the responsible party.

In general, the approach presented here calculates compensation by multiplying a resource vulnerability score by a score reflecting the spilled oil's propensity to cause environmental harm, as follows:

Compensation Score = RVS * Spilled Oil's Propensity to Cause Harm

where RVS = Resource Vulnerability Score.

RVS is a composite of marine bird, marine mammal, fishery species, recreation and habitat vulnerability scores. An oil's propensity to cause environmental harm is based on three characteristics of the oil, its propensity to cause acute toxicity, mechanical injury and its propensity to persist in a particular type of habitat. Amount of compensation calculated may be further modified depending on actions taken by the responsible party. Specifics on how compensation will be calculated using the compensation schedule are provided in the following sections.

Acute Toxicity, Mechanical Injury and Persistence Scoring for Oils

For purposes of the compensation schedule, the crude oils, oil products and byproducts comprising 90% of the total oil shipped around Washington coastal waters have been relatively ranked for acute toxicity, mechanical injury and persistence on a 1 to 5 scale (Leschine et al., 1990). The relative ranking of these oils is presented below in Table 1.

Table 1. Relative Ranking Scores of Selected Oils for Acute Toxicity, Mechanical Injury and Persistence.

<u>Oil</u>	<u>Acute Toxicity</u>	<u>Mechanical Injury</u>	<u>Persistence</u>
Prudhoe Bay Crude	1	4	5
Bunker C	1	5	5
No. 2 Fuel Oil	3	4	2
Gasoline	5	1	1
Kerosene	2	3	1
Kerosene-type Jet Fuel	5	3	1

In cases where the oil spilled does not fit into one of the above classification of oil, the score for the category of oil best describing the spilled oil will be used.

Marine and Estuarine Regions and Subregions of the State

The marine and estuarine waters of the state have been subdivided into the regions and subregions designated on the maps attached as Appendix 1.

Marine and Estuarine Habitat Vulnerability Scoring

Dethier (1990) has classified the marine and estuarine habitats of Washington State into 35 habitat classes for purposes of the compensation schedule. Vulnerability of each habitat type to oil spill effects, is rated using a two-part approach. In the first part of the approach habitat vulnerability is ranked as a function of biota productivity and diversity. The second portion of the approach ranks habitat vulnerability as a function of the habitat's sensitivity to the acutely toxic, mechanical and persistence effects of oil. Table 2 presents Dethier's (1990) relative ranking of habitats for primary productivity, secondary productivity and diversity on a 1 to 5 scale. Table 3 presents Dethier's (1990) relative ranking of habitat sensitivity to oil effects.

Table 2. Relative Ranking of Marine and Estuarine Habitats for Primary Productivity, Secondary Productivity and Diversity

<u>Habitat Class</u>	Primary Productivity	Secondary Productivity	Diversity
ESTUARINE INTERTIDAL			
(a) open rocky shores	3	3	3
(b) open mixed-coarse beaches & low marsh	3	3	4
(c) open gravel beaches	1	2	1
(d) open sandy beaches	3	4	2
(e) sandy low marshes	4	3	2
(f) mixed-fine beaches and low marshes	5	5	4
(g) saline lagoons	4	3	3
(h) low-salinity lagoons	3	2	2
(i) mud flats	3	3	2
(j) high salt marshes	3	3	2
(k) transition zone wetlands	3	3	2
ESTUARINE SUBTIDAL			
(l) shallow subtidal rock & boulders	4	3	3
(m) deep subtidal rock and boulders	2	4	4
(n) shallow subtidal cobble and mixed-coarse areas	3	3	3
(o) deep subtidal cobble and mixed coarse areas	1	3	2
(p) shallow subtidal sandy or mixed-fine areas	3	4	3
(q) deep subtidal sandy or mixed fine areas	1	3	2
(r) shallow subtidal muddy bays	3	3	2
(s) deep subtidal muddy bays	0	3	2
MARINE INTERTIDAL			
(a) exposed and semi- exposed rocky shores	4	5	5
(b) sand-scoured rocky shores	3	4	4
(c) protected rocky shores	3	3	3
(d) semi-exposed cobble and mixed coarse beaches	2	4	4

(e) semi-exposed gravel beaches	1	2	1
(f) exposed sandy beaches	1	3	1
(g) semi-protected mixed-fine beaches	3	4	3
(h) protected mud flats	4	4	2

MARINE SUBTIDAL

(i) shallow subtidal rock and boulders	5	4	5
(j) deep subtidal rock and boulders	2	4	5
(k) deep subtidal cobble and mixed-coarse areas	1	3	2
(l) shallow subtidal mixed-coarse to mixed fine	5	4	4
(m) shallow subtidal gravel or mixed-fine areas	2	3	3
(n) deep subtidal sand	0	2	1
(o) deep subtidal mixed-fine areas	1	3	2
(p) deep subtidal muddy areas	0	2	2

Table 4. Acute Toxicity, Mechanical Injury and Persistence Ranking Scores for Marine and Estuarine Habitats of Washington

<u>Habitat Class</u>	<u>Acute Toxicity Score</u>	<u>Mechanical Toxicity Score</u>	<u>Persistence Score</u>
ESTUARINE INTERTIDAL			
(a) open rocky shores	3	4	3
(b) open mixed-coarse beaches & low marsh	3	3	3
(c) open gravel beaches	5	1	2
(d) open sandy beaches	4	3	2
(e) sandy low marshes	4	3	3
(f) mixed-fine beaches and low marshes	4	4	4
(g) saline lagoons	4	4	5
(h) low-salinity lagoons	3	4	5
(i) mud flats	4	2	5
(j) high salt marshes	2	4	5
(k) transition zone wetlands	2	4	5

ESTUARINE SUBTIDAL

(l) shallow subtidal rock & boulders	3	3	2
(m) deep subtidal rock and boulders	2	2	3
(n) shallow subtidal cobble and mixed-coarse areas	2	3	3
(o) deep subtidal cobble and mixed coarse areas	1	2	3
(p) shallow subtidal sandy or mixed-fine areas	3	3	3
(q) deep subtidal sandy or mixed fine areas	2	3	4
(r) shallow subtidal muddy bays	3	2	5
(s) deep subtidal muddy bays	2	2	5

MARINE INTERTIDAL

(a) exposed and semi-exposed rocky shores	4	3	2
(b) sand-scoured rocky shores	4	3	2
(c) protected rocky shores	4	3	3
(d) semi-exposed cobble and mixed coarse beaches	3	3	3
(e) semi-exposed gravel beaches	1	5	2
(f) exposed sandy beaches	1	5	1
(g) semi-protected mixed-fine beaches	2	3	4
(h) protected mud flats	2	4	5

MARINE SUBTIDAL

(i) shallow subtidal rock and boulders	3	3	2
(j) deep subtidal rock and boulders	2	2	3
(k) deep subtidal cobble and mixed-coarse areas	2	1	2
(l) shallow subtidal mixed-coarse to mixed fine	3	3	3
(m) shallow subtidal gravel or mixed-fine areas	1	3	2
(n) deep subtidal sand	3	2	2
(o) deep subtidal mixed-fine areas	3	1	4
(p) deep subtidal muddy areas	2	2	5

The relative vulnerability of each habitat type to each of the three oil effects (acute toxicity, mechanical injury and persistence) is determined by taking the square root of the average of the productivity and diversity values multiplied by the appropriate oil effect as follows:

Formula 1:

Relative Habitat Vulnerability Score_j =

$$\{[(PPS_i + SPS_i + DS_i)/3] * HVS_j\}^{-2}$$

where: PPS = primary productivity score
SPS = secondary productivity score
DS = diversity score
i = habitat type

HVS = habitat vulnerability score
j = acute toxicity, mechanical injury or persistence

Relative Habitat Vulnerability scores may be increased either through a multiplier or through addition of points to account for special cases where the ranking methodology may not be able to adequately represent resource vulnerability. Potential special cases for consideration include the presence of eelgrass, kelp, or rare habitats in a subregion.

Marine and Estuarine Habitat Vulnerability Scores By Subregion.

Until the time when computerized marine and estuarine habitat mapping on a state-wide basis is completed as anticipated, habitat vulnerability scoring for each of the subregions impacted by spilled oil will be determined at the time of the spill. Subregional habitat vulnerability scores for acute toxicity, mechanical injury and persistence are determined by summing the weighted habitat vulnerability scores for each of the habitats present in the zone prior to determining the square root in formula 1 above. Weighting is defined by percent coverage of each habitat in a zone at the time of the spill.

Example:

Assume that an oil spill occurred in a subregion with two habitat types. Habitat type 1 covers 80% of the subregion. Habitat type 2 covers 20% of the subregion. The subregional habitat vulnerability score would then be calculated as follows:

Formula 2:

$$\{[(PPS_1+SPS_1+DS_1)/3*HVS_j*PC_1]+[(PPS_2+SPS_2+DS_2)/3*HVS_j*PC_2]\}^{-2}$$

where PC_1 = Percent-coverage of habitat-type i

all other variables are those listed under formula 1 above.

Marine Bird Oil Spill Vulnerability Scores

Each of the marine and estuarine subregions of the state will be relatively ranked for marine bird vulnerability to oil spills on a 1 to 5 scale for each season. Marine bird vulnerability rankings for each subregion will be based on a method described in Wahl et al. (1981). Marine bird vulnerability rankings take into consideration seasonal presence of species, population status of present species, abundance of present species and species vulnerability to oil spills. Species vulnerability is based on the following: 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 in each season. Marine Bird Vulnerability rankings are currently in the process of being determined by the Marine Bird Subcommittee of the Scientific Advisory Board.

Relative Marine Bird Vulnerability scores for a subregion may be increased either through a multiplier or through addition of points to account for special cases where the ranking methodology may not be able to adequately represent resource vulnerability. Potential special cases for consideration include the presence of rare or endangered species in a subregion.

Marine Mammal Oil Spill Vulnerability Scores

Each of the marine and estuarine subregions of the state will be scored for marine mammal vulnerability to oil spills on a scale from 1 to 5 for each season. A marine mammal oil vulnerability ranking methodology is under development by the Marine Mammal Subcommittee of the Scientific Advisory Board. The marine mammal vulnerability ranking methodology will take into consideration the following: species presence, population status of species present, breeding vulnerability, presence of young, physiological vulnerability, abundance, and other factors influencing species vulnerability.

Relative Marine Mammal Vulnerability scores for a subregion may be increased either through a multiplier or through addition of points to account for special cases where the ranking methodology may not be able to adequately represent resource vulnerability. Potential special cases for consideration include the presence of congregating animals in a subregion.

Marine Fishery Species Vulnerability Scores

Each of the marine and estuarine subregions of the state will be relatively ranked for fishery species vulnerability to oil spills on a 1 to 5 scale for each season. A marine fishery species ranking methodology is under development by the Marine Fish, Shellfish and Salmonids Subcommittees of the Scientific Advisory Board. The marine fishery species ranking methodology will take into consideration the following: species present, population status of species present, abundance and vulnerability of life stages among other factors influencing vulnerability.

Relative Marine Fishery Species Vulnerability scores for a subregion may be increased either through a multiplier or through addition of points to account for special cases where the ranking methodology may not be able to adequately represent resource vulnerability. Potential special cases for consideration include the presence of salmon fry or returning adults in river estuaries or other areas.

Marine- and estuarine-related recreation vulnerability scoring

Each of the marine and estuarine subregions of the state waters will be relatively ranked for marine- and estuarine-related recreation vulnerability to oil spills on a 1 to 5 scale for each season. A marine- and estuarine-related vulnerability ranking methodology is under development by the Recreation Subcommittee of the Scientific Advisory Board. The ranking methodology will take into consideration seasonal level of participation in recreational activities, sensitivity of recreational activities to oil spills, number of recreation sites in a subregion, and level of use, among other factors influencing vulnerability.

Relative Recreation Vulnerability scores for a subregion may be increased either through a multiplier or through addition of points to account for special cases where the ranking methodology may not be able to adequately represent resource vulnerability. Potential special cases for consideration may include the presence of national parks, state parks, or other preserves or protected areas.

Determination of Compensation Score

A compensation score for each spill incident will be determined by multiplying oil vulnerability factors by the appropriate oil effects factors as illustrated by Formula 3.

Formula 3:

Compensation Score =

$$OIL_{mech} * (MB_{mech} + MM_{mech} + FS_{mech} + REC_{mech} + HAB_{mech}) +$$

$$OIL_{tox} * (MB_{tox} + MM_{tox} + FS_{tox} + REC_{tox} + HAB_{tox}) +$$

$$OIL_{pers} * (MB_{pers} + MM_{pers} + FS_{pers} + REC_{pers} + HAB_{pers})$$

where OIL_i = oil effects score
 MB_j = marine bird vulnerability score
 MM_j = marine mammal vulnerability score
 FS_j = fisheries species vulnerability score
 REC_j = recreation vulnerability score
 HAB_j = habitat vulnerability score

i = tox, mech and pers
tox = propensity to cause acute toxicity
mech = propensity to cause mechanical injury
pers = propensity to persist

j = VT, VM, and VP
VT = vulnerability to acute toxicity
VM = vulnerability to mechanical injury
VP = vulnerability to persisting oil

In cases where more than one subregion is exposed to spilled oil, compensation shall be calculated using resource vulnerability scores from the most sensitive subregion exposed.

Dollar amount of compensation will be calculated by multiplying the number of gallons spilled by the compensation score and a yet to be determined factor or factors. The yet to be determined factor or factors will be necessary to scale compensation to \$1 to \$50 per gallon value.

Formula 4:

Compensation (\$) = No. of gallons spilled * CS * scaling factor

where CS = Compensation Score.

Modification to calculated compensation for actions taken by the spiller or other potentially liable party

The dollar amount of compensation will be reduced for spillers or other potentially liable parties that recover spilled oil within a specified time period following the spill, or that enhance detection of the spill, determination of the number of gallons spilled, or extent of resource injuries. Such a reduction in compensation shall not be reduced below \$1 per gallon of oil spilled.

Potential Ways in Which the Dollar Amount of Compensation Might be Reduced:

1. Subtract the number of gallons recovered from the number of gallons spilled, and use this value instead as the multiplier of the compensation score.
2. Reduce persistence and/or mechanical injury scores for the oil by a fraction equal to the fraction of the total spill recovered.
3. Where the spiller or other potentially responsible party enhances spill response and reconnaissance efforts as above, reduce the dollar amount of compensation calculated by 0.75.

The dollar amount of compensation will be increased for spillers or other potentially liable parties that impede detection of the spill, determination of the number of gallons spilled, or extent of resource injuries. Such an increase in compensation shall not exceed \$50 per gallon of oil spilled.

Potential Ways in Which the Dollar Amount of Compensation Might be Increased:

- 1) Increase the dollar amount of compensation by multiplying whatever savings the responsible party or other potentially liable party may have realized by their actions by 1.25 and add this to the base level of compensation calculated.
- 2) Increase the dollar amount of the compensation calculated by 1.25.

REFERENCES

- Detheir, M. 1990. Rankings of Productivity, Diversity and Oil Sensitivity for Marine and Estuarine Habitat Types in Washington. Draft Final Report, Friday Harbor Laboratories, University of Washington.
- Leschine, T., R. Carpenter, and E. Gideon. 1991. Petroleum Toxicity Relationships for the Washington Compensation Schedule. Draft Final Report, College of Ocean and Fishery Sciences, University of Washington, Seattle.
- Wahl, T.R., S.M. Speich, D.A. Manuwal, K.V. Hirsch, and C. Miller. 1981. Marine Bird Populations of the Strait of Juan de Fuca, Strait of Georgia, and Adjacent Waters in 1978 and 1979. U.S. Environmental protection Agency, EPA-600/7-81-156.

APPENDIX 1

REGIONS AND SUBREGIONS OF MARINE AND ESTUARINE AREAS OF THE STATE

Designated For Purposes of the Oil Spill Compensation Schedule

Zones we used
for proving

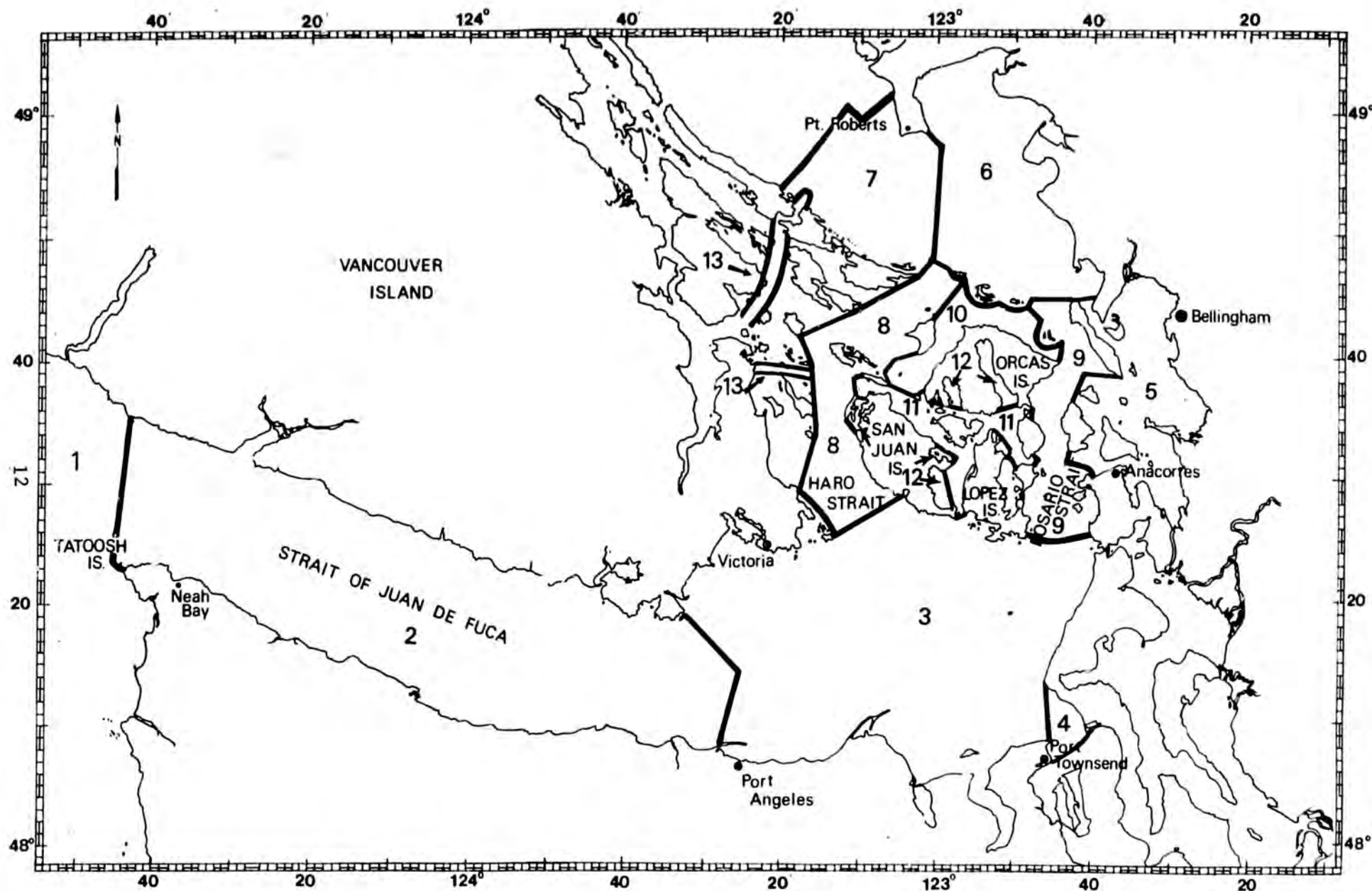


FIGURE 1. MAP OF STUDY AREA SHOWING THE 13 REGIONS.

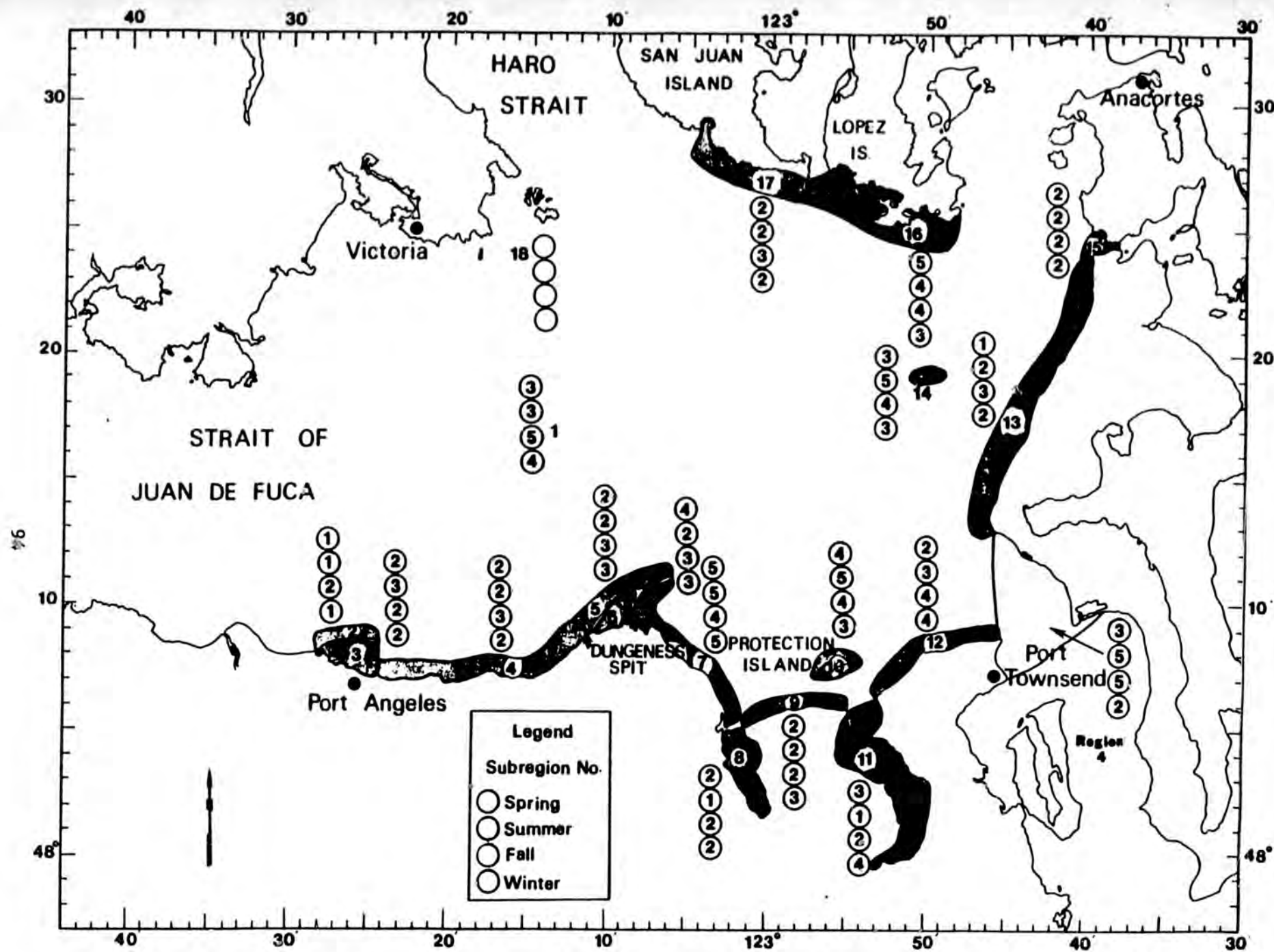


Figure 30. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the Strait of Juan de Fuca, Inner region, region no. 3, and Admiralty Inlet region, region no. 4.

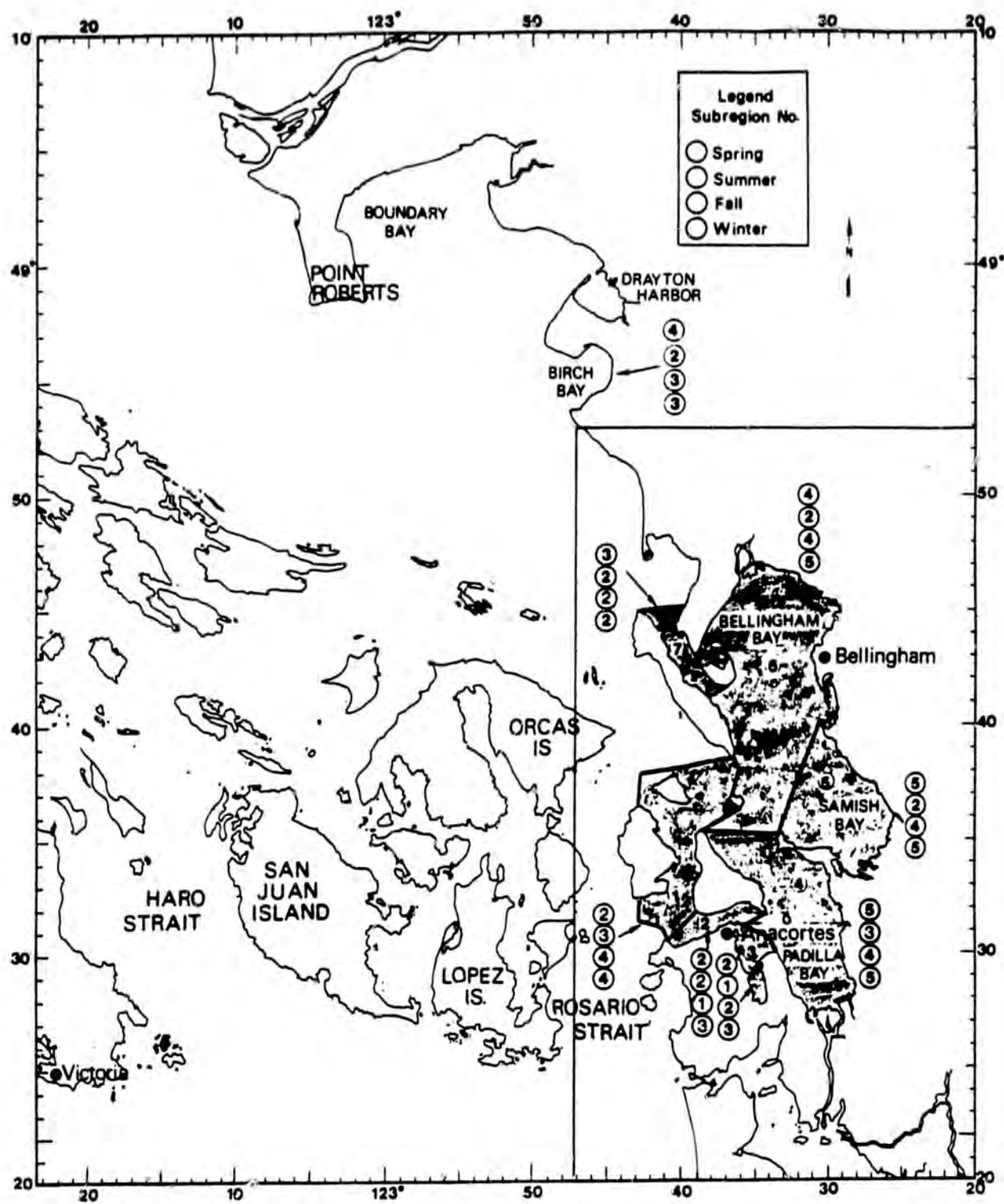


Figure 31. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the Anacortes to Hale Passage region, region no. 5.

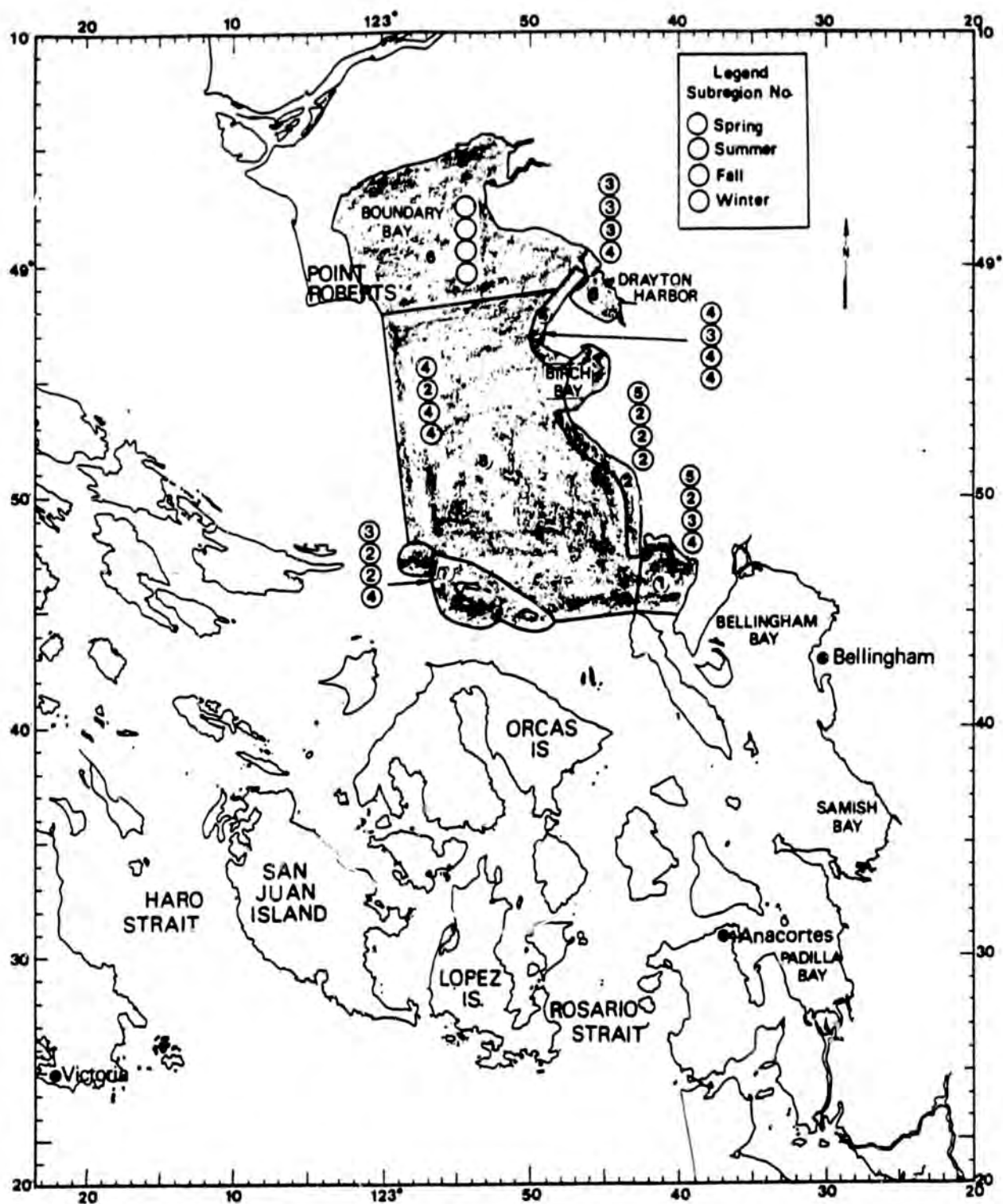


Figure 32. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the Georgia Strait, Eastern region, region no. 6.

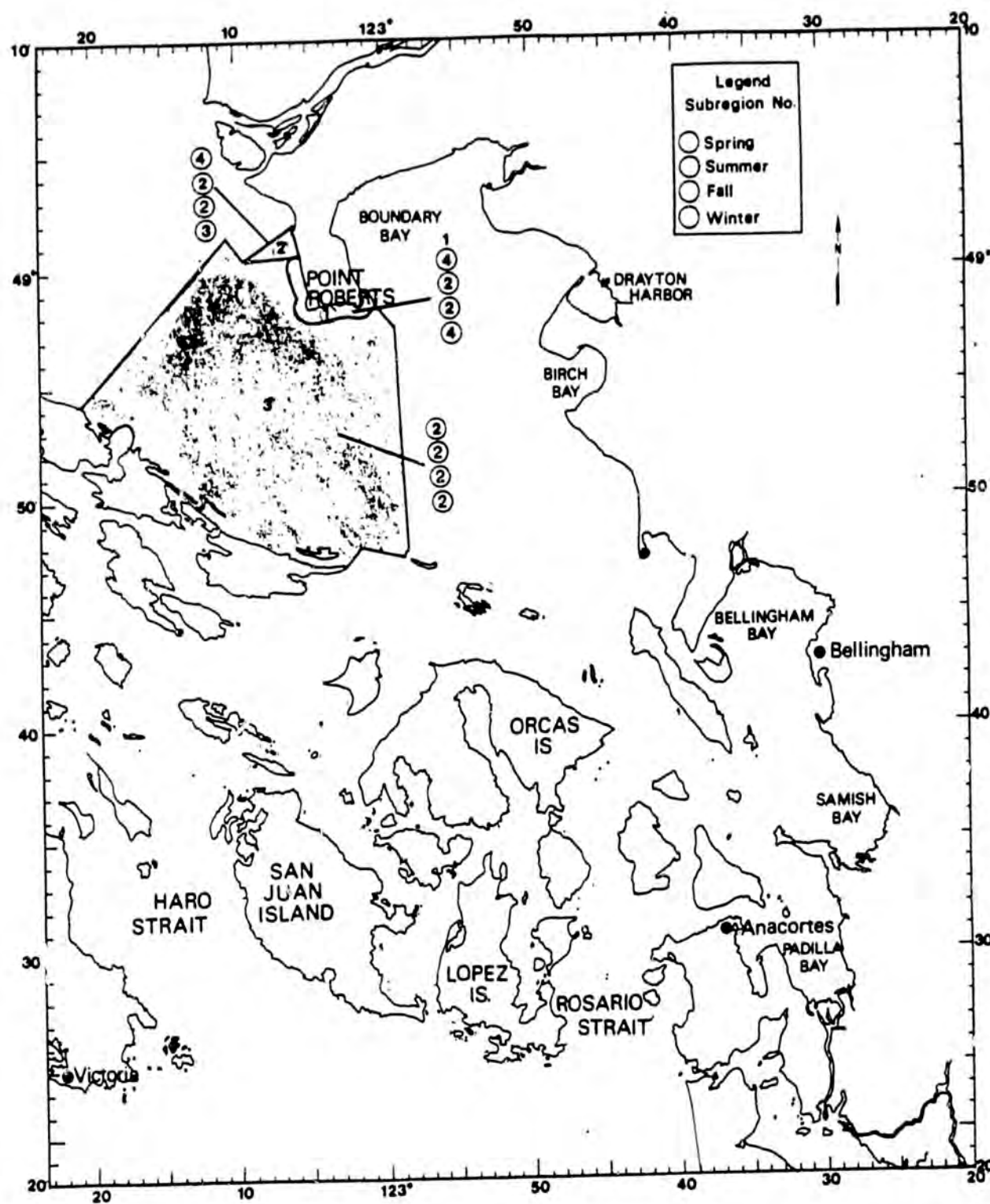


Figure 33. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the Georgia Strait, Western region, region no. 7.

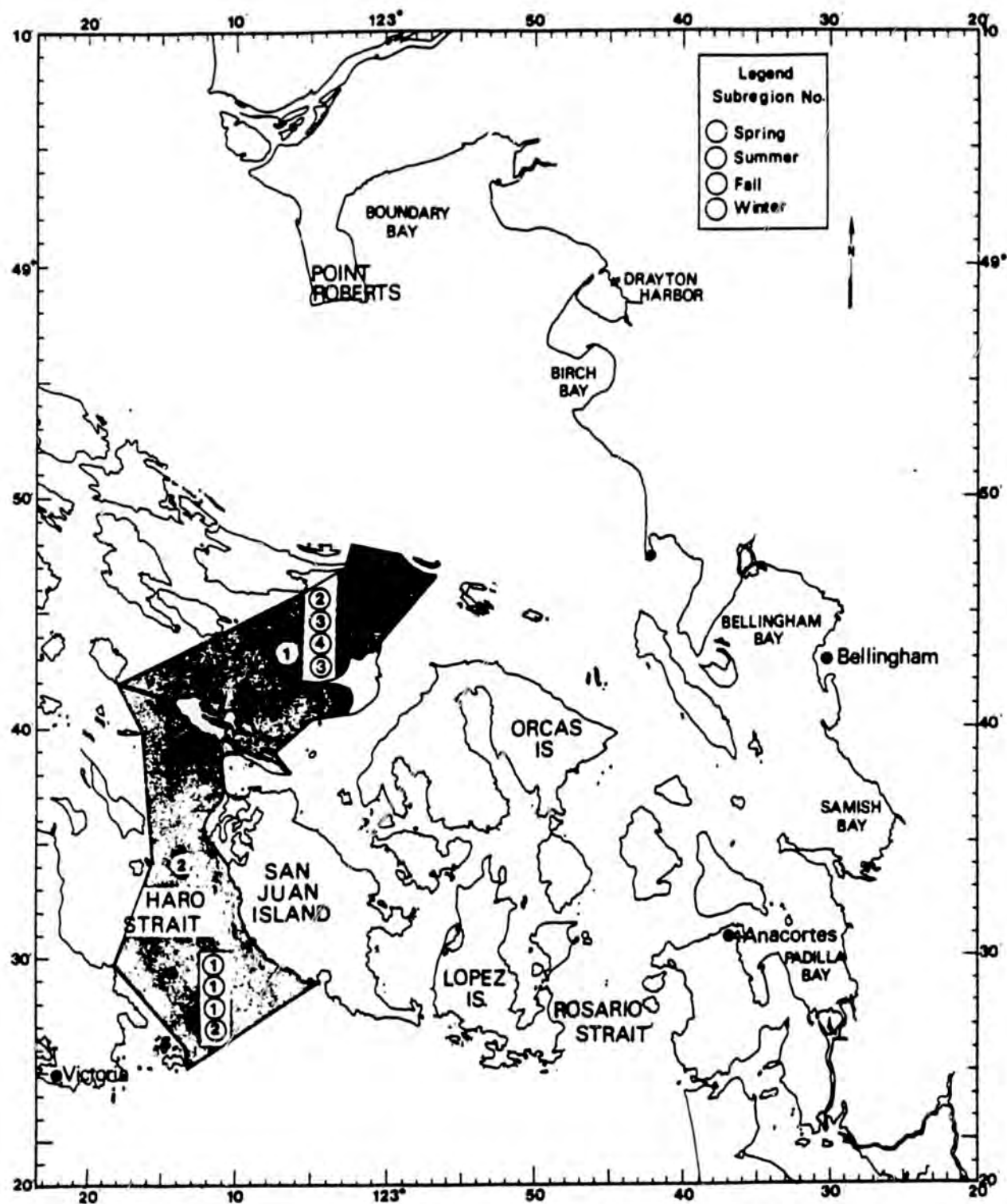


Figure 34. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the Haro Strait region, region no. 8.

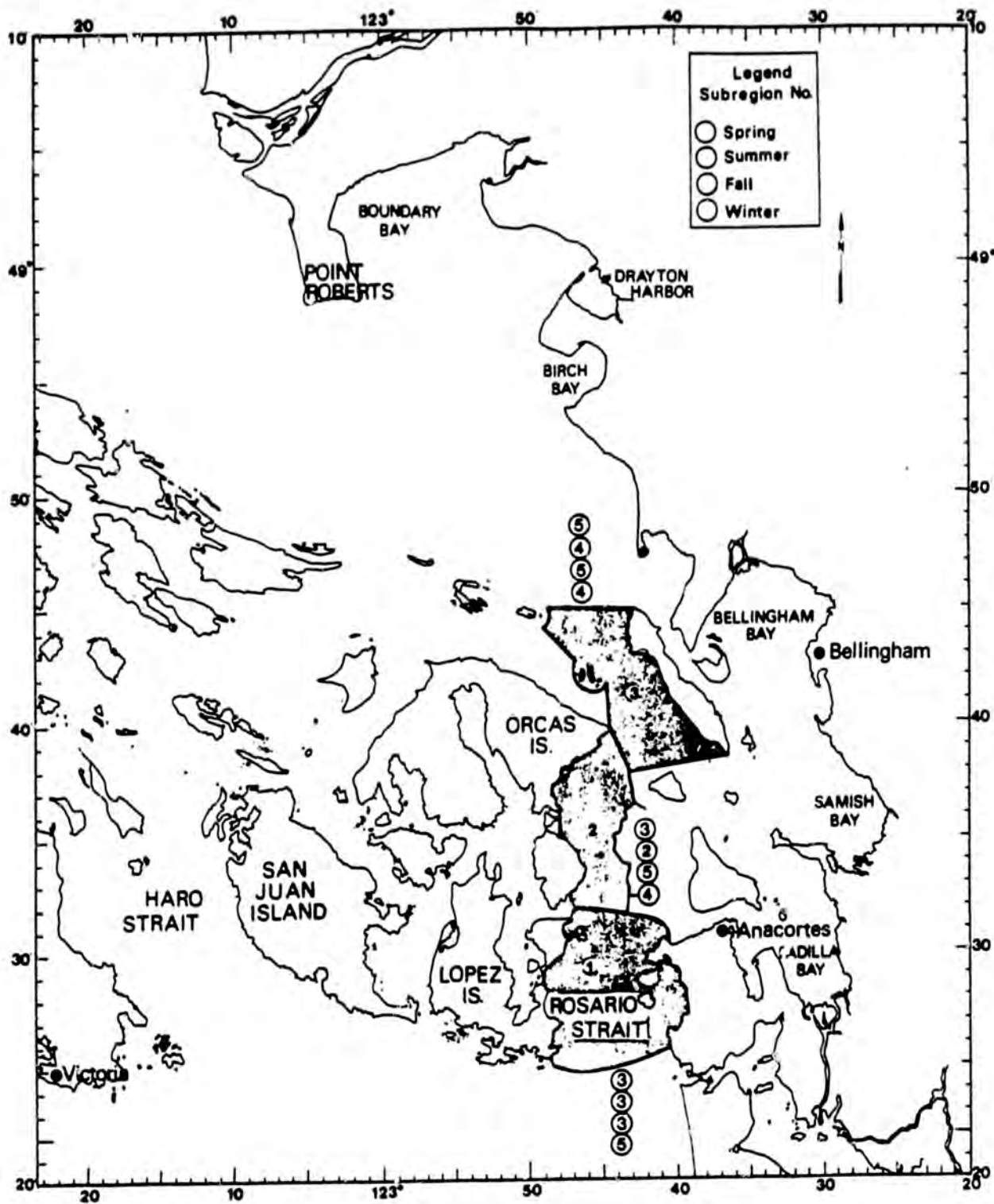


Figure 35. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the Rosario Strait region, region no. 9.

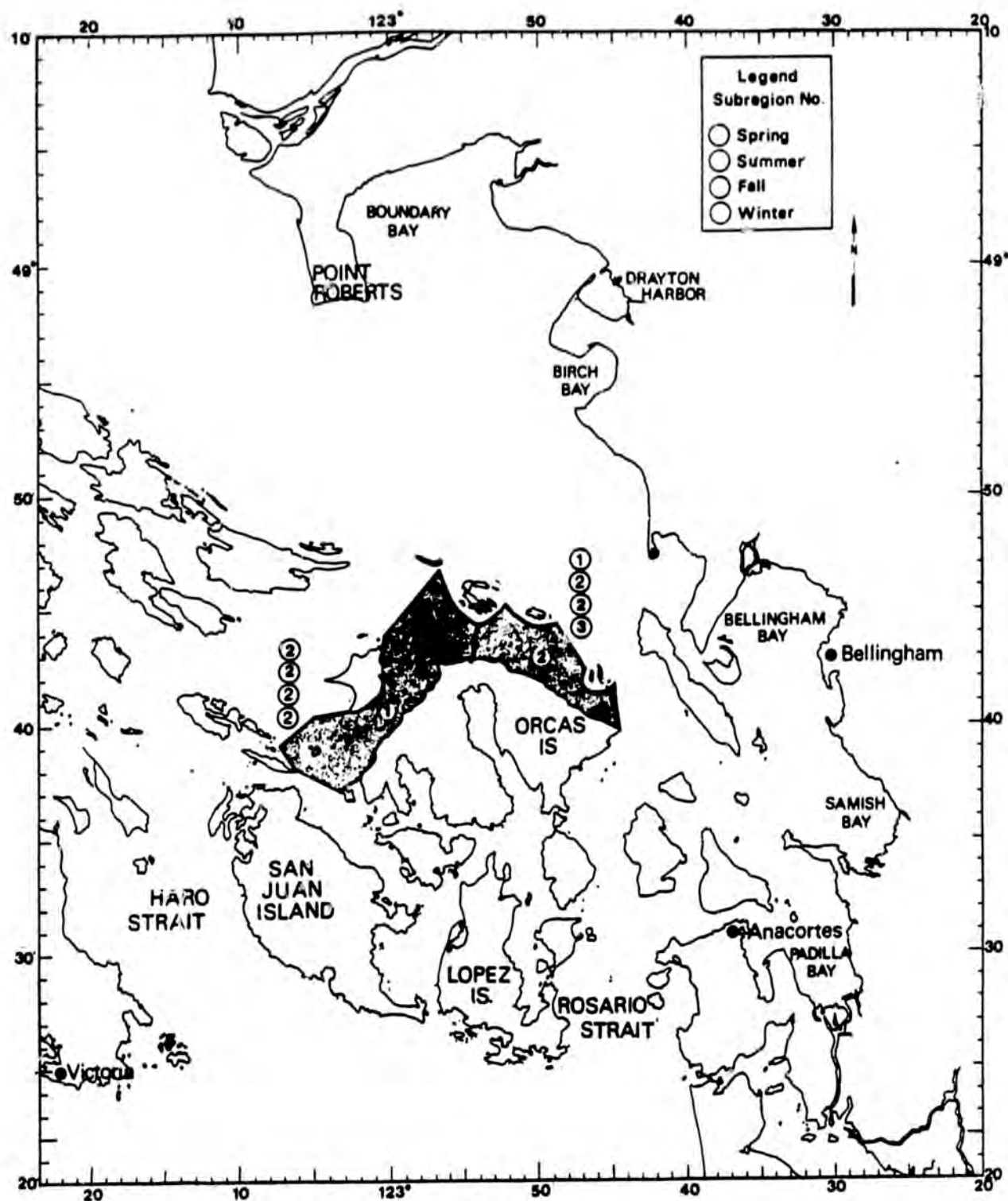


Figure 36. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the San Juan Islands, Northern Waters region, region no. 10.

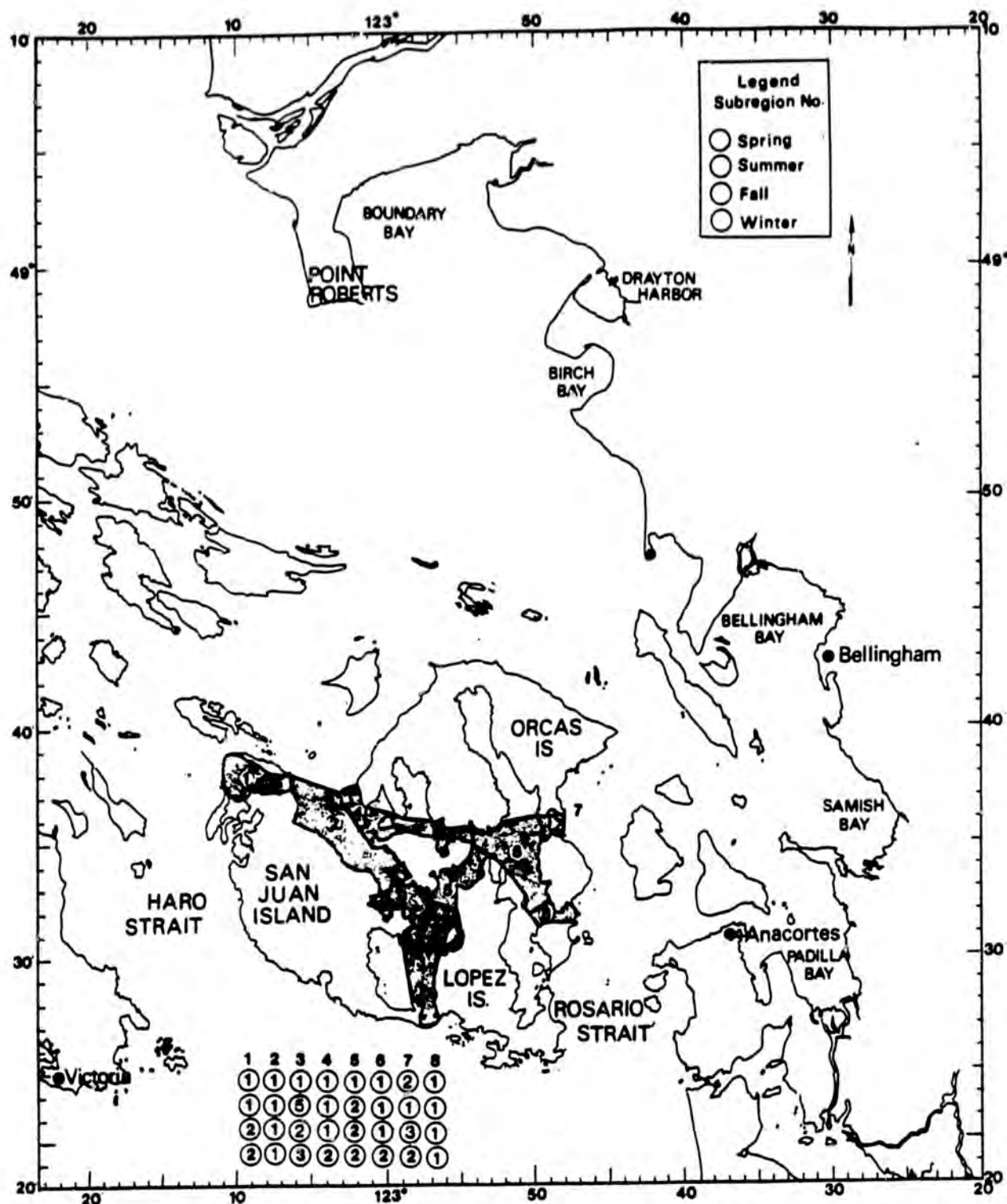


Figure 37. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the San Juan Islands, Interior Channels and Passages region, region no. 11.

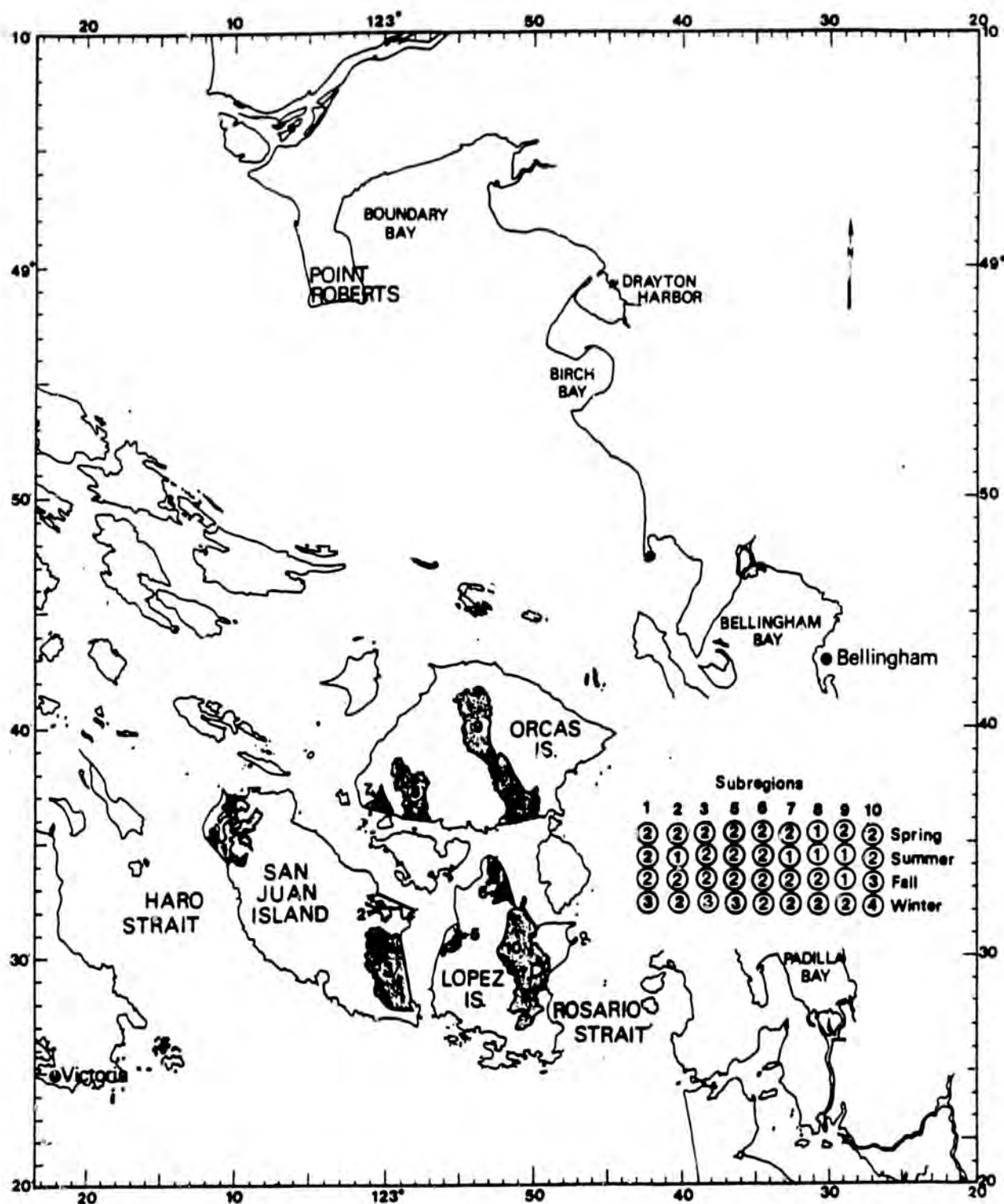
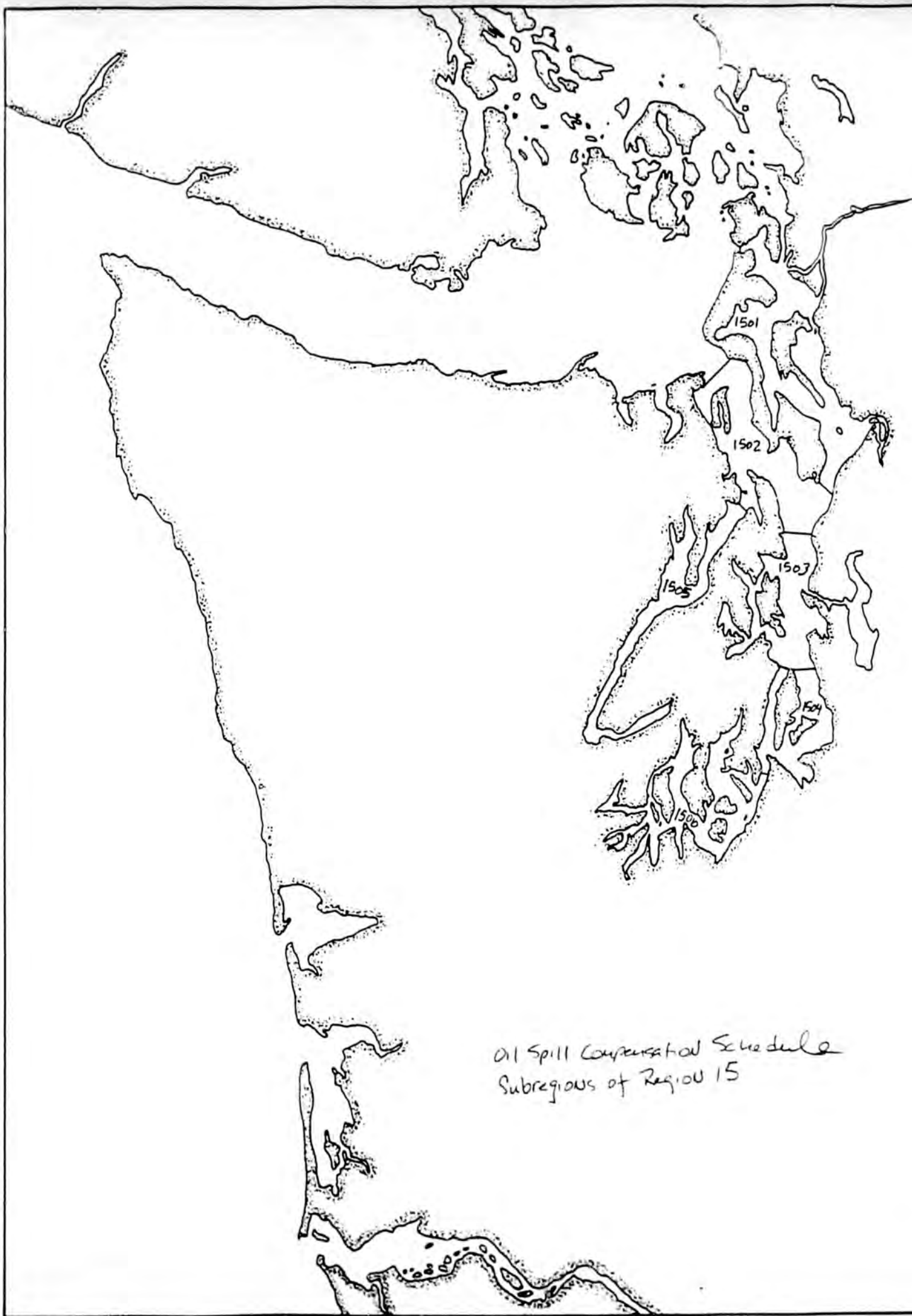
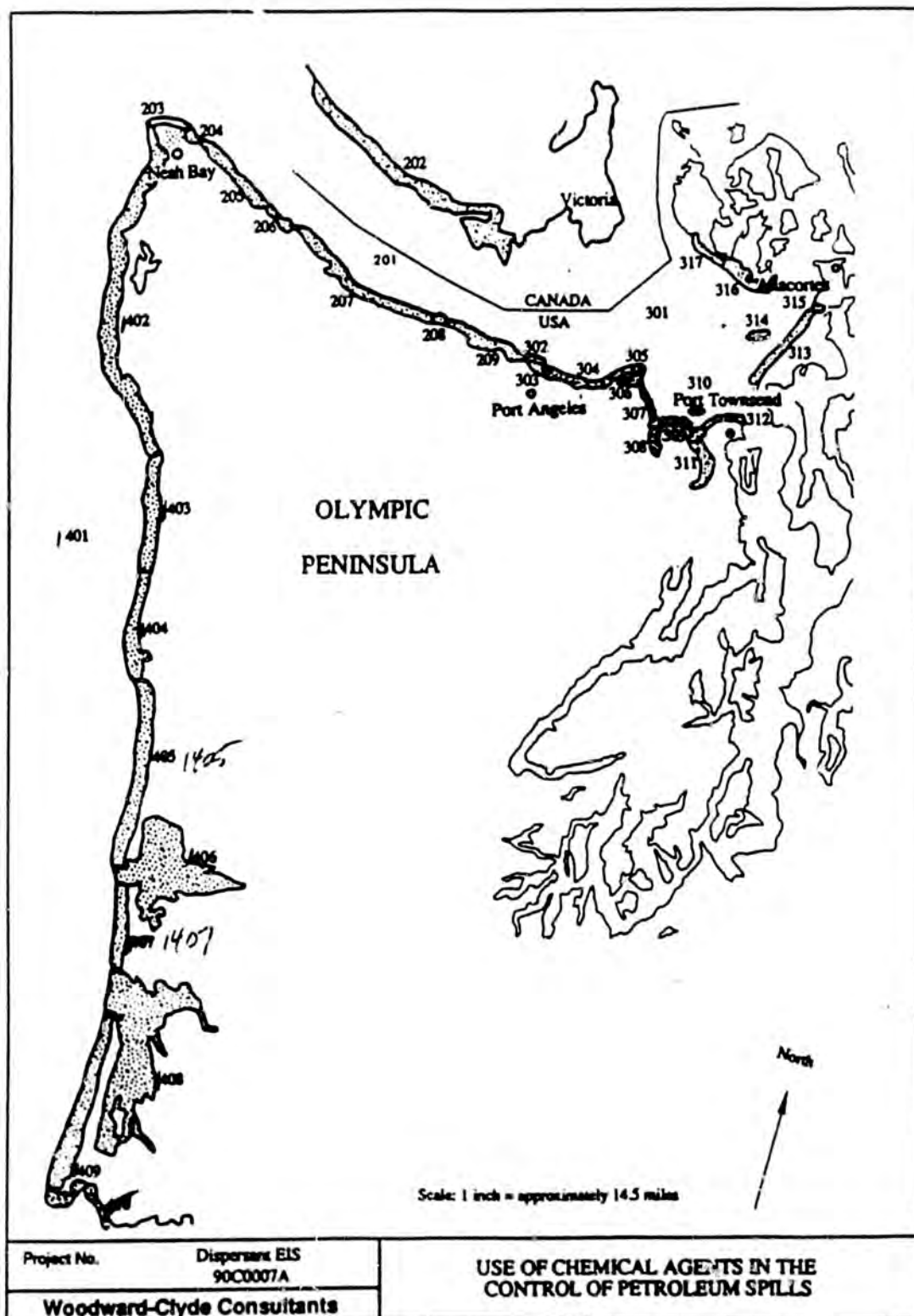


Figure 38. Seasonal subregional BOI rankings, 1978 and 1979 combined, for the San Juan Islands, Interior Bays and Harbors region, region no. 12.



Oil Spill Compensation Schedule
Subregions of Region 15

Oil Spill Compensation Schedule Subregions of Region 14, outer coast



Areas 1405, 1407, and 1409 are considered
to be the southern limit
Figure 1. Coast

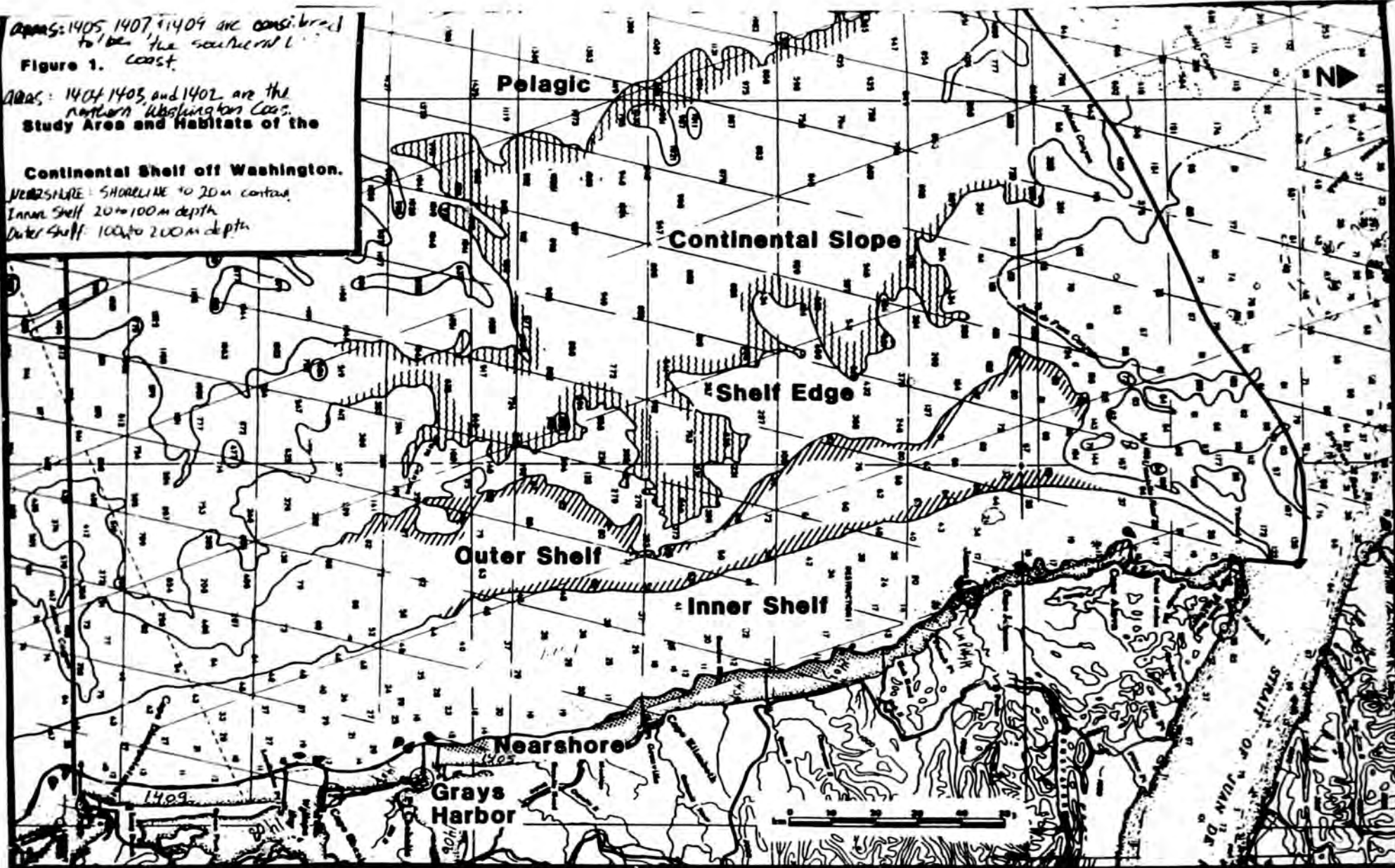
Areas 1404, 1403, and 1402 are the
northern Washington Coast
Study Area and Habitats of the

Continental Shelf off Washington.

Nearshore: Shoreline to 20 m contour

Inner Shelf: 20 to 100 m depth

Outer Shelf: 100 to 200 m depth



Subregions
of Region 14
Outer
Coast