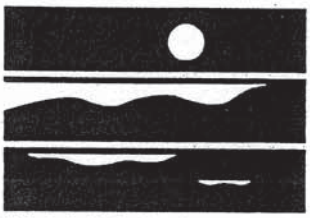


# Development of the Washington State Oil Spill Compensation Schedule

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Development of the Resource Vulnerability and Oil Effects Rankings that comprise the Oil Spill Compensation Schedule could not have been possible without the extraordinary dedication and hardwork of the Scientific Advisory Board Participants (Listed in Appendix A).

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## INTRODUCTION

In 1989, the Washington State Legislature passed the Resource Damage Assessment Act (ESHB 1853). This innovative law directed the state's Department of Ecology to develop a simplified approach for determining public resource damages for oil spills into state waters in the form of a compensation schedule. The need for a new approach for resource damage assessment for oil spills became apparent after several moderately large spills in the period of a few years. Several obstacles to successful resource damage assessment were encountered including the inability to collect all pertinent evidence prior to its disappearance, lack of information on pre-spill resource conditions, and the inability to ascertain fate and effects of the spilled oil (Geselbracht, 1989). In addition, resource experts were not satisfied that the damages recovered represented adequate compensation. Furthermore, in some of these cases the cost of assessing resource damages exceeded recoveries by an order of magnitude. Given the relatively high cost of assessing resource damages, and the uncertainty involved with recovering assessment costs and damages, state resource agencies became understandably timid about aggressively pursuing damage assessment for all but the most obvious resource injuries (i.e., oiled birds).

The Act directs that the compensation schedule be based on three factors, characteristics of the oil that affect severity of effects on resources, sensitivity of the resources affected by the spill, and actions taken by the party responsible for spilling the oil. Damages calculated under the schedule are to be no less than one dollar per gallon of oil spilled, and no greater than fifty dollars per gallon of oil spilled. The compensation schedule is to be applied in place of traditional damage assessment methodologies when resource trustees determine the following: (a) restoration or enhancement of the injured resources is not technically feasible, (b) damages are not quantifiable at a reasonable cost using traditional damage assessment approaches, and (c) the restoration and enhancement projects proposed by the responsible party are insufficient to adequately compensate the public for damages sustained as a result of the spill.

The Washington Department of Ecology developed the compensation schedule with the assistance of a Scientific Advisory Board as directed by the Act. The Advisory Board was comprised of several committees whose membership consisted of representatives from state and federal resource agencies, indian tribes, affected industries, academic institutions and environmental organizations. Appendix A lists the subcommittees comprising the Scientific Advisory Board and the participants on each.

Compensation schedule development required compilation and synthesis of all pertinent resource information as well as extensive coordination with Scientific Advisory Board subcommittees. On May 24, 1992, the "Preassessment Screening and Oil Spill Compensation Schedule Rule" (Chapter 183-173 WAC) became effective. This report describes the process and methodologies employed to construct the resource vulnerability and oil effect rankings that comprise the Compensation Schedule for oil spills into marine and estuarine waters, excluding the Columbia

River Estuary. Compensation Schedules for the Columbia River Estuary and freshwater streams, lakes, rivers and wetlands are handled in separate sections of the Rule. All of the data used to construct the resource vulnerability rankings are contained in this report. Where possible, data tables are integrated with report text. Tables too long for effective integration in the text are presented at the end of each chapter.

## 1.0 THE MARINE/ESTUARINE COMPENSATION SCHEDULE

The compensation schedule for marine and estuarine environments consists of two main components, the resource vulnerability rankings and the oil effects rankings. The resource vulnerability rankings collectively rate the sensitivity of the receiving environment to spilled oil. For purposes of the compensation schedule, resources are divided into the following seven categories: habitat, marine birds, marine fisheries, shellfish, salmon, marine mammals and recreation. The oil effects rankings rate the propensity of a spilled oil to cause the following types of environmental harm: acute toxicity, mechanical injury and to persist in the environment.

## 2.0 THE RESOURCE VULNERABILITY RANKINGS

The resource vulnerability rankings incorporate resource, area and seasonal specificity to derive a composite resource vulnerability score for a particular spill. To incorporate area specificity, the marine and estuarine waters of Washington State were divided into 16 regions and 131 subregions (excluding those established for the Columbia River Estuary) (Appendix B). The majority of the subregions were based on those established through earlier research efforts. Resource and seasonal specificity were taken into consideration by evaluating the vulnerability of several resource groups to oil spills by season and subregion. For purposes of the compensation schedule, resources are divided into the following categories: habitat, marine birds, marine fish, shellfish, salmon, marine mammals and recreation. Although in general, the resource vulnerability rankings rate the vulnerability of resources to spilled oil in a particular subregion during a particular season, the habitat and salmon vulnerability rankings are based on the proportion of habitat types exposed to spilled oil.

The resource vulnerability rankings were developed using best available information and expert advice. Each of the resource vulnerability rankings was developed in consultation with an advisory committee. Advisory committee participation consisted of resource experts from state and federal agencies, academic institutions, consulting firms, indian tribes, industry and environmental organizations. The basic framework used to rate resource vulnerability is modelled on a methodology developed by Wahl et al. (1981) and Manuwal et al. (1979) to rate marine bird vulnerability to oil spills. All of the rankings rate resource vulnerability

on a one to five scale where a score of five represents the most vulnerable condition, and a score of one represents the least vulnerable condition. The following sections provide detailed information on the development of the resources vulnerability rankings that comprise the compensation schedule for marine and estuarine environments.

## 2.1 Habitat Vulnerability Ranking

The habitat vulnerability ranking employs the marine/estuarine habitat classification and ratings developed by Dethier (1991) for the Washington Compensation Schedule. Habitats are classified into 35 types based on substrate type, depth and energy regime (Dethier, 1991). The habitat classification developed for the compensation schedule is a "scaled-down" version of a more detailed classification that the state is using for detailed mapping of state marine and estuarine habitats (Dethier, 1990). Habitat types described in the compensation schedule classification can be translated to Dethier's (1990) more detailed classification scheme, as well as to the Cowardin et al. (1979) habitat classification. For purposes of the compensation schedule, habitat is defined as including the substrate and all flora and fauna not incorporated into the other compensation schedule resource vulnerability rankings (as described below). Dethier (1991) rated each habitat type on a one to five scale for two factors, magnitude of resources at risk (hm) and sensitivity to the acute, mechanical and persistence effects of spilled oil ($hs_{AT}$, $hs_{MI}$, and $hs_{PER}$, respectively). Dethier's (1991) ratings were reviewed and slightly modified by the Habitats Advisory Committee (Table H-1 and H-2). The ratings for the two factors were then combined using the following formula to derive an overall habitat vulnerability score to the acute toxicity, mechanical injury and persistence effects of spilled oil:

$$hv_i = hs_i * (hm_{pri} + hm_{sec} + hm_{div})$$

where: $hv_i$ = habitat vulnerability to oil effect i;
hm = magnitude of the resources at risk;
$hs_i$ = habitat sensitivity to oil effect i; and
i = acute toxicity, mechanical injury or persistence.

**Table H-1. Magnitude of the Resources at Risk (hm).**

| Habitat Class | Primary Productivity ($hm_{pri}$) | Secondary Productivity ($hm_{sec}$) | Diversity ($hm_{div}$) |
|---|---|---|---|
| ESTUARINE INTERTIDAL | | | |
| (a) open rocky shores | 3 | 3 | 3 |
| (b) open mixed-coarse beaches & low marsh | 3 | 3 | 4 |
| (c) open gravel beaches | 2 | 3 | 2 |
| (d) open sandy beaches | 3 | 4 | 1 |
| (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 | 4 | 3 | 2 |
| (i) mud flats | 3 | 4 | 3 |
| (j) high salt marshes | 4 | 3 | 2 |
| (k) transition zone wetlands | 4 | 3 | 2 |

| | | | |
|---|---|---|---|
| ESTUARINE SUBTIDAL | | | |
| (l) shallow rock & boulders | 4 | 3 | 3 |
| (m) deep rock and boulders | 2 | 4 | 2 |
| (n) shallow cobble and mixed-coarse areas | 3 | 3 | 4 |
| (o) deep cobble and mixed coarse areas | 1 | 3 | 3 |
| (p) shallow sandy or mixed-fine areas | 3 | 4 | 3 |
| (q) deep sandy or mixed fine areas | 1 | 3 | 2 |
| (r) shallow muddy bays | 3 | 3 | 3 |
| (s) deep muddy bays | 1 | 2 | 2 |
| (t) open water | 5 | 5 | 5 |
| 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 & mixed coarse beaches | 2 | 4 | 4 |
| (e) semi-exposed gravel beaches | 1 | 3 | 2 |
| (f) exposed sandy beaches | 1 | 3 | 1 |
| (g) semi-protected mixed-fine beaches | 3 | 4 | 3 |
| (h) protected mud flats | 4 | 4 | 3 |
| MARINE SUBTIDAL | | | |
| (i) shallow rock and boulders | 5 | 4 | 5 |
| (j) deep rock and boulders | 2 | 4 | 5 |
| (k) deep cobble and mixed-coarse areas | 1 | 3 | 3 |
| (l) shallow mixed-coarse to mixed fine | 5 | 4 | 4 |
| (m) shallow gravel or mixed-fine areas | 2 | 3 | 3 |
| (n) deep sand | 1 | 2 | 1 |
| (o) deep mixed-fine areas | 1 | 3 | 3 |
| (p) deep muddy areas | 1 | 2 | 3 |
| (q) open water | 5 | 5 | 5 |

**Table H-2. Sensitivity to the acute, mechanical and persistence effects of spilled oil ($hs_{AT}$, $hs_{MI}$, and $hs_{PER}$, respectively).**

| Habitat Class | Acute Toxicity Score | Mechanical Injury Score | Persistence Score |
|---|---|---|---|
| ESTUARINE INTERTIDAL | | | |
| (a) open rocky shores | 3 | 4 | 3 |
| (b) open mixed-coarse beaches & low marsh | 4 | 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 | 3 | 4 | 5 |
| (k) transition zone wetlands | 3 | 4 | 5 |

| | | | |
|---|---|---|---|
| ESTUARINE SUBTIDAL | | | |
| (l) shallow rock & boulders | 3 | 3 | 2 |
| (m) deep rock and boulders | 2 | 2 | 3 |
| (n) shallow cobble & mixed-coarse areas | 2 | 3 | 3 |
| (o) deep cobble and mixed coarse areas | 1 | 2 | 3 |
| (p) shallow sandy or mixed-fine areas | 3 | 3 | 3 |
| (q) deep sandy or mixed fine areas | 2 | 3 | 4 |
| (r) shallow muddy bays | 3 | 2 | 5 |
| (s) deep muddy bays | 2 | 2 | 5 |
| (t) open water | 5 | 2 | 1 |
| MARINE INTERTIDAL | | | |
| (a) exposed and semi-exposed rocky shores | 3 | 4 | 2 |
| (b) sand-scoured rocky shores | 3 | 4 | 2 |
| (c) protected rocky shores | 3 | 4 | 3 |
| (d) semi-exposed cobble & mixed coarse beaches | 3 | 3 | 3 |
| (e) semi-exposed gravel beaches | 5 | 1 | 2 |
| (f) exposed sandy beaches | 5 | 1 | 2 |
| (g) semi-protected mixed-fine beaches | 3 | 2 | 4 |
| (h) protected mud flats | 4 | 2 | 5 |
| MARINE SUBTIDAL | | | |
| (i) shallow rock and boulders | 3 | 3 | 2 |
| (j) deep rock and boulders | 2 | 2 | 3 |
| (k) deep cobble and mixed-coarse areas | 1 | 2 | 2 |
| (l) shallow mixed-coarse to mixed fine | 3 | 3 | 3 |
| (m) shallow gravel or mixed-fine areas | 3 | 1 | 2 |
| (n) deep sand | 2 | 3 | 2 |
| (o) deep mixed-fine areas | 1 | 3 | 4 |
| (p) deep muddy areas | 2 | 2 | 5 |
| (q) open water | 5 | 2 | 1 |

The habitat vulnerability scores for a particular habitat type and oil effect ($hv_{AT}$, $hv_{MI}$, and $hv_{PER}$) are as calculated from the above formula and as provided in the Rule, are as follows:

**TABLE H-3. Habitat Vulnerability for a Single Habitat Type and Oil Effect (hv)**

| | HABITAT VULNERABILITY (hv) | | |
|---|---|---|---|
| HABITAT TYPE | ACUTE TOXICITY | MECHANICAL INJURY | PERSISTENCE |
| | ($hv_{AT}$) | ($hv_{MI}$) | ($hv_{PER}$) |
| MARINE INTERTIDAL | | | |
| Exposed and semi-exposed 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 |
| Semi-exposed cobble & mixed-coarse beaches | 3.2 | 3.2 | 3.2 |
| Semi-exposed gravel beaches | 3.2 | 1.4 | 2.0 |
| Exposed sandy beaches | 2.9 | 1.3 | 1.8 |
| Semi-protected 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 |

The final habitat vulnerability score for a spill is determined after a spill occurs to accommodate the following special considerations. Areas with seagrass or kelp are treated as separate habitat types and the habitat vulnerability scores ($hv_i$) for these areas is multiplied by 1.5. When more than one habitat type is exposed to spilled oil, the habitat vulnerability score for the spill is the weighted average of the habitat vulnerability scores, where weighting is dependent on the size of the spill. For spills of 1,000 gallons or greater, weighting is defined by percent coverage of the habitat types within the area of spill exposure. For spills of less than 1,000 gallons, weighting is defined by percent coverage of the habitat types within the zone(s) exposed to spilled oil. Weighting differs depending on spill size in an attempt to reduce administrative costs associated with determining damages for smaller spills. Therefore, once the percent coverage of habitat types within any zone is calculated, these values will be used to calculate damages for all subsequent spills under 1,000 gallons where the compensation schedule is applied.

## 2.2 Marine Bird Vulnerability Ranking

The marine bird vulnerability ranking directly incorporates the bird oil index (BOI) developed by Wahl et al. (1981). The BOI rates marine bird vulnerability to oil spills on a one to five scale by season and compensation schedule subregion. BOI vulnerability scores are based on population abundance and composition of 116 seabird, shorebird, waterfowl and raptor species in particular compensation schedule subregions by season, as well as the behavioral and life history characteristics listed in Table MB-1.

**TABLE MB-1. Life History Characteristics Incorporated into the BOI.**

Roosting behavior
Escape behavior
Flocking on water
Feeding specialization
Population size
Reproductive potential
Breeding distribution
Winter distribution
Seasonal exposure
Significance of Washington to total population in each season

The Wahl et al. (1981) study does not, however, determine marine bird vulnerability to oil spills for central and southern Puget Sound or the outer coast of Washington. Consequently, the marine bird vulnerability scores for these areas were determined from expert opinion and existing marine bird population information using the methods described in Wahl et al. (1981) and Manuwal et al. (1979) to calculate BOI. Marine bird vulnerability scores for central and southern Puget Sound (compensation schedule regions 4, 14, 15, and 16) were calculated from population distribution data from the following sources: Wahl and Speich (1984), Wahl and Speich (1983), Washington Department of Wildlife (1991), and U.S. Fish and Wildlife Service (1991). Table MB-2 provides the subregional summer BOI scores calculated from marine bird surveys conducted by Wahl and Speich (1984) in the summer of 1982 and the final summer marine bird vulnerability scores (i.e., BOI ranks). Table MB-3 provides the subregional winter BOI scores and final ranks calculated from marine bird surveys conducted by Wahl and Speich (1983) in the winter '82/'83. The winter surveys conducted by Wahl and Speich (1983) did not cover all of the compensation schedule subregions. For subregions that were not covered by the Wahl and Speich (1983) surveys, Washington Department of Wildlife (WDW, 1991) and U.S. Fish and Wildlife (USFWS, 1991) winter waterfowl survey data were used for survey areas closely matching compensation schedule subregions. The subregional winter BOI scores and final ranks for these subregions are also provided

in Table MB-3. The WDW and USFWS survey data used to calculate the subregional BOIs and final ranks are provided in Tables MB-4 and MB-5, respectively. The WDW (1991) waterfowl survey data were only used to supplement the Wahl and Speich (1983) survey data because of either their lack of coverage of seabirds or other marine birds. The USFWS (1991) survey data were only used to supplement the Speich and Wahl (1983) survey data, because many of the areas covered did not closely match compensation schedule boundaries. Marine bird vulnerability to oil spills for spring and fall in the subregions of regions 4, 14, 15, and 16 were assumed to fall into an intermediate range between the vulnerability scores for winter and summer. Spring and fall marine bird vulnerability scores for a particular subregion were derived by averaging the summer and winter vulnerability scores for that subregion. The subregional marine bird vulnerability scores derived by this method (regions 4, 14, 15, and 16) are presented in Table MB-6.

Marine bird population information was very sparse for the Washington outer coast at the time of schedule development, consequently vulnerability scores were based on the limited information available and the expert judgement of the Marine Bird Advisory Committee (Appendix A). The final marine bird vulnerability scores for each compensation schedule subregion and season as they appear in the Rule are provided in Table MB-7. The pre-calculated marine bird vulnerability score (BVS) for the appropriate subregion and season is used in calculations of damages using the compensation schedule. In cases where a spill came into contact with one or more individuals that are threatened or endangered marine bird species, the BVS would be multiplied by 1.5.

**TABLE MB-7. Final 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 | QUINAULT | 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 |
| 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/SHOAL 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 |
| 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 |

TABLE MB-2. Calculation of Summer BOI Scores for Region 4, 14, 15, and 16 Subregions from Wahl & Speich (1984) Data.

| SPECIES: | | | Great Blue Heron | | Mallard | | Glaucous-winged Gull | | Pigeon Guillemot | | Marbled Murrlet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIES BOI: | | | 50.00 | | 30.80 | | 189.30 | | 368.60 | | 544.00 | |
| Compensation Schedule Subregion | Subregion # Wahl & Speich (1984) | Area (sq. km) | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI |
| 402 | 7 | 153.8 | 3 | 0.02 | | | | | 44 | 1.62 | 20 | 1.09 |
| 403 | 8 | 27.0 | 2 | 0.01 | | | 100 | 1.89 | 71 | 2.62 | 159 | 8.65 |
| 404 | 10 | 7.3 | 1 | 0.01 | | | | | 21 | 0.77 | 49 | 2.67 |
| 405 | 9 | 3.4 | 6 | 0.03 | | | | | 118 | 4.35 | | |
| 1401 | 1 | 178.3 | 77 | 0.39 | 98 | 0.30 | | | 4 | 0.15 | | |
| 1402 | 2 | 41.5 | 10 | 0.05 | 12 | 0.04 | | | 88 | 3.24 | | |
| 1403 | 3 | 140.8 | 5 | 0.03 | | | | | 9 | 0.33 | 21 | 1.14 |
| 1404 | 4 | 16.6 | 7 | 0.04 | | | | | 1 | 0.04 | 4 | 0.22 |
| 1405 | 5 | 112.4 | 61 | 0.31 | 40 | 0.12 | | | 6 | 0.22 | 2 | 0.11 |
| 1406 | 6 | 117.9 | 16 | 0.08 | | | 300 | 5.68 | 8 | 0.29 | 24 | 1.31 |
| 1501 | 11 | 33.8 | 6 | 0.03 | | | 44 | 0.83 | 28 | 1.03 | 26 | 1.41 |
| 1502 | 12 | 6.2 | 1 | 0.01 | | | | | 3 | 0.11 | 1 | 0.05 |
| 1503 | 13 | 5.6 | 4 | 0.02 | | | | | | | | |
| 1504 | 29 | 63.1 | 1 | 0.01 | | | | | 3 | 0.11 | 10 | 0.54 |
| 1505 | 30 | 33.8 | 2 | 0.01 | | | | | | | 2 | 0.11 |
| 1506 | 31 | 61.3 | | | | | | | 6 | 0.22 | 17 | 0.92 |
| 1507 | 32 | 7.3 | | | | | | | 2 | 0.07 | | |
| 1508 | 33 | 75.4 | 11 | 0.06 | | | | | 2 | 0.07 | 8 | 0.44 |
| 1509 | 34 | 13.0 | | | 3 | 0.01 | | | 18 | 0.66 | | |
| 1510 | 35 | 29.8 | 1 | 0.01 | 92 | 0.28 | | | 3 | 0.11 | 3 | 0.16 |
| 1601 | 14 | 209.9 | 28 | 0.14 | | | | | 12 | 0.44 | 1 | 0.05 |
| 1602 | 15 | 134.6 | 9 | 0.05 | 10 | 0.03 | 2 | 0.04 | 32 | 1.18 | 4 | 0.22 |
| 1603 | 17 | 124.4 | 5 | 0.03 | 4 | 0.01 | | | 15 | 0.55 | 12 | 0.65 |
| 1604 | 16 | 4.0 | 11 | 0.06 | 30 | 0.09 | 628 | 11.89 | 1 | 0.04 | | |
| 1605 | 25 | 141.4 | 9 | 0.05 | | | | | | | 1 | 0.05 |
| 1606 | 24 | 40.0 | | | 4 | 0.01 | | | 1 | 0.04 | | |
| 1607 | 27 | 14.0 | | | | | 530 | 10.03 | 2 | 0.07 | | |
| 1608 | 36 | 10.3 | 1 | 0.00 | | | | | 3 | 0.11 | 2 | 0.11 |
| 1609 | 38 | 41.1 | | | | | | | 6 | 0.22 | 3 | 0.16 |
| 1610 | 39 | 33.8 | 32 | 0.16 | | | | | 28 | 1.03 | 12 | 0.65 |
| 1611 | 44 | 10.2 | 1 | 0.01 | | | | | 35 | 1.29 | 2 | 0.11 |
| 1612 | 37 | 9.0 | | | 32 | 0.10 | | | 11 | 0.41 | | |
| 1613 | 40 | 78.2 | 34 | 0.17 | 41 | 0.13 | | | 105 | 3.87 | 4 | 0.22 |
| 1614 | 41 | 3.4 | 1 | 0.01 | 1 | 0.00 | | | 18 | 0.66 | | |
| 1615 | 42 | 7.9 | 8 | 0.04 | | | | | 9 | 0.33 | 4 | 0.22 |
| 1616 | 45 | 62.5 | 51 | 0.26 | | | 2 | 0.04 | 93 | 3.43 | 5 | 0.27 |
| 1617 | 47 | 5.6 | 6 | 0.03 | | | | | 12 | 0.44 | | |
| 1618 | 46 | 10.7 | 1 | 0.01 | | | | | 9 | 0.33 | 2 | 0.11 |
| 1619 | 48 | 21.4 | 4 | 0.02 | 9 | 0.03 | 30 | 0.57 | 36 | 1.33 | | |
| 1620 | 49 | 14.6 | | | 2 | 0.01 | | | 21 | 0.77 | | |
| 1621 | 52 | 22.5 | 35 | 0.18 | 7 | 0.02 | | | 44 | 1.62 | | |
| 1622 | 56 | 7.9 | 14 | 0.07 | 8 | 0.02 | | | 8 | 0.29 | | |
| 1623 | 51 | 4.5 | 2 | 0.01 | | | | | 11 | 0.41 | | |
| 1624 | 50 | 6.2 | 10 | 0.05 | 2 | 0.01 | | | 19 | 0.70 | | |
| 1625 | 53 | 1.7 | 2 | 0.01 | | | | | 8 | 0.29 | | |
| 1626 | 54 | 5.1 | 10 | 0.05 | 13 | 0.04 | | | 49 | 1.81 | | |
| 1627 | 55 | 8.4 | 7 | 0.04 | 5 | 0.02 | 40 | 0.76 | 1 | 0.04 | | |
| 1628 | 18 | 4.1 | | | | | | | 27 | 1.00 | | |
| 1629 | 20 | 6.8 | | | | | | | 20 | 0.74 | | |
| 1630 | 19 | 20.1 | 14 | 0.07 | 4 | 0.01 | | | 46 | 1.70 | 4 | 0.22 |
| 1631 | 22 | 14.1 | 14 | 0.07 | 16 | 0.05 | | | 8 | 0.29 | | |
| 1632 | 21 | 15.8 | 8 | 0.04 | 36 | 0.11 | | | 18 | 0.66 | | |
| 1633 | 23 | 4.0 | | | 16 | 0.05 | | | 1 | 0.04 | 1 | 0.05 |
| 1634 | 26 | 11.9 | 1 | 0.01 | 2 | 0.01 | | | 3 | 0.11 | 1 | 0.05 |
| 1635 | 28 | 20.2 | 29 | 0.15 | 45 | 0.14 | | | 6 | 0.22 | | |
| 1636 | 43 | 4.5 | | | | | | | 8 | 0.29 | | |

TABLE MB-2.

| SPECIES: | Belted Kingfisher | | Northwestern Crow | | Pelagic Cormorant | | Canada Goose | | Oyster-Catcher | | Killdeer | | Common Loon | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIES BOI: | | 50.00 | | 50.00 | | 228.50 | | 25.90 | | 220.80 | | 30.80 | | 149.60 |
| Compensation Schedule Subregion | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI |
| 402 | | | 4 | 0.02 | | | | | | | | | 23 | 0.34 |
| 403 | | | 16 | 0.08 | | | 2 | 0.01 | | | | | | |
| 404 | | | 13 | 0.07 | | | | | | | | | | |
| 405 | | | 5 | 0.03 | 215 | 4.91 | | | 3 | 0.07 | | | | |
| 1401 | 1 | 0.01 | 35 | 0.18 | | | | | | | | | | |
| 1402 | 2 | 0.01 | 126 | 0.63 | | | | | | | | | 23 | 0.34 |
| 1403 | | | 15 | 0.08 | | | | | | | | | | |
| 1404 | | | 4 | 0.02 | | | | | | | | | | |
| 1405 | 1 | 0.01 | 4 | 0.02 | | | | | | | | | | |
| 1406 | 1 | 0.01 | 4 | 0.02 | | | | | | | | | | |
| 1501 | 1 | 0.01 | 8 | 0.04 | | | | | | | | | | |
| 1502 | | | 9 | 0.05 | | | | | | | | | | |
| 1503 | | | | | | | | | | | | | | |
| 1504 | | | 7 | 0.04 | | | | | | | | | | |
| 1505 | | | 3 | 0.02 | | | | | | | | | | |
| 1506 | | | | | | | | | | | | | | |
| 1507 | | | | | | | | | | | | | | |
| 1508 | 1 | 0.01 | 2 | 0.01 | | | | | | | | | | |
| 1509 | 3 | 0.02 | | | | | | | | | | | | |
| 1510 | 3 | 0.02 | 38 | 0.19 | | | | | | | | | | |
| 1601 | | | 4 | 0.02 | | | | | | | | | | |
| 1602 | 1 | 0.01 | 37 | 0.19 | | | 2 | 0.01 | | | | | | |
| 1603 | 1 | 0.01 | 18 | 0.09 | | | | | | | | | | |
| 1604 | | | 7 | 0.04 | | | 20 | 0.05 | | | | | | |
| 1605 | | | 8 | 0.04 | | | | | | | | | | |
| 1606 | | | 44 | 0.22 | | | | | | | | | | |
| 1607 | | | 4 | 0.02 | | | 6 | 0.02 | | | | | | |
| 1608 | 1 | 0.00 | 18 | 0.09 | | | | | | | | | | |
| 1609 | | | 7 | 0.04 | | | | | | | | | | |
| 1610 | | | | | | | | | | | | | | |
| 1611 | | | 23 | 0.12 | | | | | | | | | | |
| 1612 | | | | | | | | | | | | | | |
| 1613 | 4 | 0.02 | 363 | 1.82 | | | | | | | | | | |
| 1614 | | | | | | | | | | | | | | |
| 1615 | | | 16 | 0.08 | | | | | | | | | | |
| 1616 | 1 | 0.01 | 288 | 1.44 | | | | | | | | | | |
| 1617 | 3 | 0.02 | 6 | 0.03 | | | | | | | | | | |
| 1618 | | | | | | | | | | | | | | |
| 1619 | 4 | 0.02 | 5 | 0.03 | | | | | | | | | | |
| 1620 | | | 3 | 0.02 | | | | | | | | | | |
| 1621 | 7 | 0.04 | 26 | 0.13 | | | | | | | | | | |
| 1622 | | | 45 | 0.23 | | | 2 | 0.01 | | | 3 | 0.01 | | |
| 1623 | 1 | 0.01 | 13 | 0.07 | | | | | | | | | | |
| 1624 | | | | | | | | | | | | | | |
| 1625 | 1 | 0.01 | 3 | 0.02 | | | | | | | | | | |
| 1626 | 5 | 0.03 | 6 | 0.03 | | | | | | | | | | |
| 1627 | | | 25 | 0.13 | | | | | | | | | | |
| 1628 | 1 | 0.01 | 42 | 0.21 | | | | | | | | | | |
| 1629 | | | 62 | 0.31 | | | 2 | 0.01 | | | | | | |
| 1630 | | | 77 | 0.39 | | | | | | | | | | |
| 1631 | | | 28 | 0.14 | | | | | | | | | | |
| 1632 | 1 | 0.01 | 98 | 0.49 | | | | | | | | | | |
| 1633 | | | 18 | 0.09 | | | | | | | | | | |
| 1634 | 2 | 0.01 | 86 | 0.43 | | | | | | | | | | |
| 1635 | 8 | 0.04 | 1 | 0.01 | | | | | | | | | | |
| 1636 | | | 5 | 0.03 | | | | | | | | | | |

TABLE MB-2.

| SPECIES: | Arctic Loon | | Earred Grebe | | Western Grebe | | Double-crested Cormorant | | Brandt's Cormorant | | Dabbling Ducks | | Scaup | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIES BOI: | 201.60 | | 13.70 | | 302.40 | | 138.20 | | 204.80 | | 55.40 | | 154.90 | |
| Compensation Schedule Subregion | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI |
| 402 | | | | | | | | | | | | | | |
| 403 | | | | | | | | | | | | | | |
| 404 | | | | | | | | | | | | | | |
| 405 | | | 2 | 0.00 | | | | | | | | | | |
| 1401 | | | | | | | 256 | 3.54 | | | 201 | 1.11 | 50 | 0.77 |
| 1402 | | | | | | | | | | | | | | |
| 1403 | | | | | | | 5 | 0.07 | | | | | | |
| 1404 | | | | | | | | | | | | | | |
| 1405 | | | | | 79 | 2.39 | | | | | | | 50 | 0.77 |
| 1406 | | | | | | | | | | | | | | |
| 1501 | | | | | | | | | | | | | | |
| 1502 | | | | | | | | | | | | | | |
| 1503 | | | | | | | | | | | | | | |
| 1504 | | | | | | | | | | | | | | |
| 1505 | | | | | | | | | | | | | | |
| 1506 | | | | | | | | | | | | | | |
| 1507 | | | | | | | | | | | | | | |
| 1508 | | | | | | | | | | | | | | |
| 1509 | | | | | 49 | 1.48 | | | | | | | | |
| 1510 | | | | | | | 5 | 0.07 | | | | | | |
| 1601 | | | | | | | 5 | 0.07 | | | | | | |
| 1602 | | | | | | | | | | | | | | |
| 1603 | | | | | | | | | | | | | | |
| 1604 | | | | | | | | | | | | | | |
| 1605 | | | | | | | | | | | | | | |
| 1606 | | | | | | | | | | | | | | |
| 1607 | | | | | | | | | | | | | | |
| 1608 | | | | | | | | | | | | | | |
| 1609 | | | | | | | | | | | | | | |
| 1610 | | | | | | | 5 | 0.07 | | | | | | |
| 1611 | | | | | | | | | | | | | | |
| 1612 | | | | | | | | | | | | | | |
| 1613 | 3 | 0.06 | | | | | | | | | | | | |
| 1614 | | | | | | | | | | | | | | |
| 1615 | | | | | | | | | | | | | | |
| 1616 | | | | | 14 | 0.42 | | | 4 | 0.08 | | | | |
| 1617 | | | | | | | | | | | | | | |
| 1618 | | | | | | | | | 4 | 0.08 | | | | |
| 1619 | | | | | | | | | 4 | 0.08 | | | | |
| 1620 | | | | | | | | | | | | | | |
| 1621 | | | | | | | | | | | | | | |
| 1622 | | | | | | | | | | | | | | |
| 1623 | | | | | | | | | | | | | | |
| 1624 | | | | | | | | | | | | | | |
| 1625 | | | | | | | | | | | | | | |
| 1626 | | | | | | | | | | | | | | |
| 1627 | | | | | | | | | | | | | | |
| 1628 | | | | | | | | | | | | | | |
| 1629 | | | | | | | | | | | | | | |
| 1630 | | | | | | | | | | | | | | |
| 1631 | | | | | | | | | | | | | | |
| 1632 | | | | | | | | | | | | | | |
| 1633 | | | | | | | 5 | 0.07 | | | | | | |
| 1634 | | | | | | | | | | | | | | |
| 1635 | | | | | | | 5 | 0.07 | | | | | | |
| 1636 | | | | | | | | | | | | | | |

TABLE MB-2.

| SPECIES: | Harlequin Duck | | White-winged Scoter | | Scoter Spp. | | Surf Scoter | | Common Merganser | | Red-breasted Merganser | | Ruddy Turnstone | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIES BOI: | 184.80 | | 218.90 | | 237.10 | | 256.90 | | 115.20 | | 132.00 | | 33.60 | |
| Compensation Schedule Subregion | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI |
| 402 | | | | | | | | | | | | | | |
| 403 | | | | | | | | | | | | | | |
| 404 | | | | | | | | | | | | | | |
| 405 | 46 | 0.85 | | | | | | | | | 4 | 0.05 | | |
| 1401 | | | 300 | 6.57 | 1,500 | 35.57 | 450 | 11.56 | 162 | 1.87 | | | | |
| 1402 | 14 | 0.26 | 300 | 6.57 | 1,500 | 35.57 | 450 | 11.56 | | | | | | |
| 1403 | | | | | | | | | | | | | | |
| 1404 | | | | | | | | | | | | | | |
| 1405 | | | | | | | | | | | | | | |
| 1406 | | | | | | | | | | | | | | |
| 1501 | | | | | | | | | | | | | | |
| 1502 | 6 | 0.11 | | | | | | | | | | | | |
| 1503 | | | | | | | | | | | | | | |
| 1504 | | | | | | | | | | | | | | |
| 1505 | | | | | | | | | | | | | | |
| 1506 | | | | | | | | | | | | | | |
| 1507 | | | | | | | | | | | | | | |
| 1508 | | | | | | | 175 | 4.50 | | | | | | |
| 1509 | | | | | | | | | | | | | | |
| 1510 | | | | | | | | | | | | | | |
| 1601 | | | | | | | 175 | 4.50 | | | | | | |
| 1602 | | | | | | | | | | | | | | |
| 1603 | | | | | | | | | | | | | | |
| 1604 | | | | | | | | | | | | | | |
| 1605 | | | | | | | | | | | | | | |
| 1606 | | | | | | | | | | | | | | |
| 1607 | | | | | | | | | | | | | 2 | 0.01 |
| 1608 | | | | | | | | | | | | | | |
| 1609 | | | | | | | | | | | | | | |
| 1610 | | | | | | | | | | | | | | |
| 1611 | | | | | | | | | | | | | | |
| 1612 | | | | | | | | | | | | | | |
| 1613 | | | | | | | | | | | | | | |
| 1614 | | | | | | | | | | | | | | |
| 1615 | | | | | | | | | | | | | | |
| 1616 | | | | | | | | | | | 1 | 0.01 | | |
| 1617 | | | | | | | | | | | | | | |
| 1618 | | | | | | | | | | | | | | |
| 1619 | | | | | | | | | | | | | | |
| 1620 | | | | | | | | | | | | | | |
| 1621 | | | | | | | | | | | | | | |
| 1622 | | | | | | | | | | | | | | |
| 1623 | | | | | | | | | | | | | | |
| 1624 | | | | | | | | | | | | | | |
| 1625 | | | | | | | | | | | | | | |
| 1626 | | | | | | | | | | | | | | |
| 1627 | | | | | | | | | 20 | 0.23 | | | | |
| 1628 | | | | | | | | | | | | | | |
| 1629 | | | | | | | | | | | | | | |
| 1630 | | | | | | | | | | | | | | |
| 1631 | | | | | | | | | | | | | | |
| 1632 | | | | | | | | | | | | | | |
| 1633 | 1 | 0.02 | | | | | | | | | | | | |
| 1634 | | | | | | | | | | | | | | |
| 1635 | | | | | | | | | | | | | | |
| 1636 | | | | | | | | | | | | | | |

TABLE MB-2.

| SPECIES: | Sandpiper spp. | | Ring-billed Gull | | Mew Gull | | Heermann's Gull | | Caspian Tern | | Common Murre | | Rhinocerus Auklet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIES BOI: | | 46.10 | | 20.80 | | 79.20 | | 112.30 | | 22.90 | | 322.60 | | 504.00 |
| Compensation Schedule Subregion | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI | # | BOI |
| 402 | | | | | | | 17 | 0.19 | | | | | 74 | 3.73 |
| 403 | | | | | | | | | | | | | 74 | 3.73 |
| 404 | | | | | | | | | | | | | 73 | 3.68 |
| 405 | | | | | | | | | | | | | 74 | 3.73 |
| 1401 | | | 170 | 0.35 | 12 | 0.10 | | | 23 | 0.05 | | | | |
| 1402 | | | | | 13 | 0.10 | | | | | | | | |
| 1403 | | | | | | | | | | | | | | |
| 1404 | | | | | | | | | | | | | | |
| 1405 | | | | | | | | | | | | | | |
| 1406 | | | | | | | | | 6 | 0.01 | | | | |
| 1501 | | | | | | | 17 | 0.19 | | | | | | |
| 1502 | | | | | | | | | | | | | | |
| 1503 | | | | | | | | | | | | | | |
| 1504 | | | | | | | | | | | | | | |
| 1505 | | | | | | | | | | | | | | |
| 1506 | | | | | | | | | | | | | | |
| 1507 | | | | | | | | | | | | | | |
| 1508 | | | | | | | | | | | | | | |
| 1509 | | | | | | | | | | | | | | |
| 1510 | | | | | | | | | | | | | | |
| 1601 | | | | | | | | | | | | | | |
| 1602 | | | | | | | | | | | | | | |
| 1603 | | | | | | | | | | | | | | |
| 1604 | | | | | | | | | 3 | 0.01 | | | 15 | 0.76 |
| 1605 | | | | | | | | | | | | | | |
| 1606 | | | | | | | | | | | | | | |
| 1607 | | | | | | | | | 3 | 0.01 | | | | |
| 1608 | | | | | | | | | | | | | | |
| 1609 | | | | | | | | | | | | | 11 | 0.55 |
| 1610 | 370 | 1.71 | | | | | | | 6 | 0.01 | | | | |
| 1611 | | | | | | | | | | | 284 | 9.16 | | |
| 1612 | | | | | | | | | | | | | | |
| 1613 | | | | | | | | | | | 28 | 0.90 | | |
| 1614 | | | | | | | | | | | 28 | 0.90 | | |
| 1615 | | | | | | | | | | | | | | |
| 1616 | | | | | | | | | | | | | | |
| 1617 | | | | | | | | | | | | | | |
| 1618 | | | | | | | | | | | | | | |
| 1619 | | | | | | | | | | | | | | |
| 1620 | | | | | | | | | | | | | | |
| 1621 | | | | | | | | | | | | | | |
| 1622 | | | | | | | | | | | | | | |
| 1623 | | | | | | | | | | | | | | |
| 1624 | | | 47 | 0.10 | | | | | | | | | | |
| 1625 | | | | | | | | | | | | | | |
| 1626 | | | | | | | | | | | | | | |
| 1627 | | | | | | | | | | | | | | |
| 1628 | | | | | | | | | | | | | | |
| 1629 | | | | | | | | | | | | | | |
| 1630 | | | | | | | | | | | | | | |
| 1631 | | | | | | | | | | | | | | |
| 1632 | | | | | | | | | | | | | | |
| 1633 | | | | | | | | | | | | | | |
| 1634 | | | | | | | | | | | | | | |
| 1635 | | | | | | | | | | | | | | |
| 1636 | | | | | | | | | | | | | | |

TABLE MB-2.

* Given an additional point due the the presence of a breeding colony or special concentration.

| Compensation Schedule Subregion | SUBREGIONAL BOI | BOI RATING | BOI/ SQ. KM | BOI/SQ.KM RATING | Average Rating | Initial Ranking | Special? * | Final Ranking |
|---|---|---|---|---|---|---|---|---|
| 402 | 17.09 | 2 | 0.11 | 1 | 2 | 1 | | 1 |
| 403 | 27.26 | 3 | 1.01 | 4 | 4 | 2 | | 2 |
| 404 | 17.51 | 2 | 2.40 | 5 | 4 | 2 | | 2 |
| 405 | 24.24 | 2 | 7.13 | 7 | 5 | 2 | | 2 |
| 1401 | 62.57 | 4 | 0.35 | 2 | 3 | 2 | 1 | 3 |
| 1402 | 60.71 | 4 | 1.46 | 5 | 5 | 2 | 1 | 3 |
| 1403 | 15.64 | 2 | 0.11 | 1 | 2 | 1 | | 1 |
| 1404 | 14.31 | 2 | 0.86 | 4 | 3 | 2 | | 2 |
| 1405 | 17.95 | 2 | 0.16 | 1 | 2 | 1 | | 1 |
| 1406 | 21.38 | 2 | 0.18 | 1 | 2 | 1 | | 1 |
| 1501 | 17.35 | 2 | 0.51 | 2 | 2 | 1 | | 1 |
| 1502 | 14.33 | 2 | 2.31 | 5 | 4 | 2 | | 2 |
| 1503 | 14.02 | 2 | 2.50 | 5 | 4 | 2 | | 2 |
| 1504 | 14.69 | 2 | 0.23 | 1 | 2 | 1 | | 1 |
| 1505 | 14.13 | 2 | 0.42 | 2 | 2 | 1 | | 1 |
| 1506 | 15.15 | 2 | 0.25 | 2 | 2 | 1 | | 1 |
| 1507 | 14.07 | 2 | 1.93 | 5 | 4 | 2 | | 2 |
| 1508 | 14.58 | 2 | 0.19 | 1 | 2 | 1 | | 1 |
| 1509 | 16.17 | 2 | 1.24 | 5 | 4 | 2 | | 2 |
| 1510 | 14.84 | 2 | 0.50 | 2 | 2 | 1 | | 1 |
| 1601 | 14.73 | 2 | 0.07 | 1 | 2 | 1 | | 1 |
| 1602 | 15.71 | 2 | 0.12 | 1 | 2 | 1 | | 1 |
| 1603 | 15.34 | 2 | 0.12 | 1 | 2 | 1 | | 1 |
| 1604 | 26.21 | 3 | 6.55 | 7 | 5 | 2 | | 2 |
| 1605 | 14.14 | 2 | 0.10 | 1 | 2 | 1 | | 1 |
| 1606 | 14.27 | 2 | 0.36 | 2 | 2 | 1 | | 1 |
| 1607 | 24.16 | 2 | 1.73 | 5 | 4 | 2 | | 2 |
| 1608 | 14.31 | 2 | 1.39 | 5 | 4 | 2 | | 2 |
| 1609 | 14.42 | 2 | 0.35 | 2 | 2 | 1 | | 1 |
| 1610 | 15.91 | 2 | 0.47 | 2 | 2 | 1 | | 1 |
| 1611 | 15.52 | 2 | 1.52 | 5 | 4 | 2 | | 2 |
| 1612 | 14.50 | 2 | 1.61 | 5 | 4 | 2 | | 2 |
| 1613 | 20.28 | 2 | 0.26 | 2 | 2 | 1 | | 1 |
| 1614 | 14.67 | 2 | 4.32 | 6 | 4 | 2 | | 2 |
| 1615 | 14.67 | 2 | 1.86 | 5 | 4 | 2 | | 2 |
| 1616 | 19.94 | 2 | 0.32 | 2 | 2 | 1 | | 1 |
| 1617 | 14.52 | 2 | 2.59 | 5 | 4 | 2 | | 2 |
| 1618 | 14.53 | 2 | 1.36 | 5 | 4 | 2 | | 2 |
| 1619 | 16.07 | 2 | 0.75 | 3 | 3 | 2 | | 2 |
| 1620 | 14.80 | 2 | 1.01 | 5 | 4 | 2 | | 2 |
| 1621 | 15.98 | 2 | 0.71 | 3 | 3 | 2 | | 2 |
| 1622 | 14.63 | 2 | 1.85 | 5 | 4 | 2 | | 2 |
| 1623 | 14.49 | 2 | 3.22 | 6 | 4 | 2 | | 2 |
| 1624 | 14.76 | 2 | 2.38 | 5 | 4 | 2 | | 2 |
| 1625 | 14.32 | 2 | 8.43 | 8 | 5 | 2 | | 2 |
| 1626 | 15.95 | 2 | 3.13 | 6 | 4 | 2 | | 2 |
| 1627 | 14.97 | 2 | 1.78 | 5 | 4 | 2 | | 2 |
| 1628 | 15.21 | 2 | 3.71 | 6 | 4 | 2 | | 2 |
| 1629 | 15.06 | 2 | 2.21 | 5 | 4 | 2 | | 2 |
| 1630 | 16.38 | 2 | 0.81 | 3 | 3 | 2 | | 2 |
| 1631 | 14.55 | 2 | 1.03 | 4 | 3 | 2 | | 2 |
| 1632 | 15.31 | 2 | 0.97 | 4 | 3 | 2 | | 2 |
| 1633 | 14.32 | 2 | 3.58 | 6 | 4 | 2 | | 2 |
| 1634 | 14.62 | 2 | 1.23 | 5 | 4 | 2 | | 2 |
| 1635 | 14.62 | 2 | 0.72 | 3 | 3 | 2 | | 2 |
| 1636 | 14.32 | 2 | 3.18 | 6 | 4 | 2 | | 2 |

TABLE MB-3. Calculation of Subregional Winter BOI Scores and Final Ranks.

| Compensation Schedule Subregion | Subregion from Wahl & Speich (1983) | SUBREGIONAL SPECIES GROUP BOI | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AREA | LOONS | | | GREBES | | | CORMORANTS | | |
| | | sq. km | Dec '82 | Feb '83 | AVE | Dec '82 | Feb '83 | AVE | Dec '82 | Feb '83 | AVE |
| 402 | 1 | 153.8 | 0.0 | 0.4 | 0.2 | 10.1 | 1.7 | 5.9 | 0.9 | 0.9 | 0.9 |
| 403 | 2 | 27.0 | 0.4 | 1.8 | 1.1 | 13.4 | 50.3 | 31.9 | 1.6 | 1.1 | 1.4 |
| 404 | 3 | 3.4 | 0.1 | 1.8 | 1.0 | 1.0 | 8.4 | 4.7 | 0.2 | 0.2 | 0.2 |
| 405 | 4 | 7.3 | 0.4 | 0.4 | 0.4 | 20.1 | 1.7 | 10.9 | 1.6 | 0.7 | 1.2 |
| 1401 | | | | | | | | | | | |
| 1402 | | | | | | | | | | | |
| 1403 | | | | | | | | | | | |
| 1404 | | | | | | | | | | | |
| 1405 | | | | | | | | | | | |
| 1406 | 5 | 117.9 | 0.0 | 0.1 | 0.1 | 33.6 | 47.0 | 40.3 | 1.4 | 0.2 | 0.8 |
| 1501 | 6 | 33.8 | 0.1 | 0.1 | 0.1 | 0.8 | 0.5 | 0.7 | 0.7 | 0.7 | 0.7 |
| 1502 | 7 | 6.2 | 0.4 | 0.4 | 0.4 | 3.4 | 0.3 | 1.9 | 0.5 | 0.2 | 0.4 |
| 1503 | 8 | 5.6 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.5 | 1.1 | 0.0 | 1.1 |
| 1504 | 9 | 63.1 | 0.4 | 0.2 | 0.3 | 15.1 | 6.7 | 10.9 | 0.5 | 1.1 | 0.8 |
| 1505 | 10 | 33.8 | 0.0 | 0.1 | 0.1 | 10.1 | 33.6 | 21.9 | 0.1 | 0.1 | 0.1 |
| 1506 | 11 | 61.3 | 0.1 | 0.5 | 0.3 | 3.4 | 5.0 | 4.2 | 0.7 | 0.5 | 0.6 |
| 1507 | 12 | 7.3 | 0.0 | 0.1 | 0.1 | 3.4 | 8.4 | 5.9 | 0.0 | 0.5 | 0.3 |
| 1508 | 13 | 75.4 | 0.1 | 0.2 | 0.2 | 100.7 | 50.3 | 75.5 | 2.1 | 0.2 | 1.2 |
| 1509 | 14 | 13.0 | 0.1 | 0.0 | 0.1 | 15.1 | 0.2 | 7.7 | 0.0 | 0.0 | 0.0 |
| 1510 | 15 | 29.8 | 0.2 | 1.8 | 1.0 | 83.9 | 234.9 | 159.4 | 0.7 | 0.0 | 0.4 |
| 1601 | 16 | 209.9 | 0.1 | 0.2 | 0.2 | 16.8 | 8.4 | 12.6 | 0.2 | 0.7 | 0.5 |
| 1602 | 17 | 134.6 | 0.0 | 0.1 | 0.1 | 1.7 | 5.0 | 3.4 | 0.7 | 0.7 | 0.7 |
| 1603 | 18 | 124.4 | 0.1 | 0.1 | 0.1 | 5.0 | 1.7 | 3.4 | 1.4 | 0.5 | 1.0 |
| 1604 | | 4.0 | | | | | | | | | |
| 1605 | 19 | 141.4 | 0.0 | 0.7 | 0.4 | 1.3 | 1.2 | 1.3 | 0.7 | 1.1 | 0.9 |
| 1606 | 20 | 40.0 | 0.9 | 0.1 | 0.5 | 0.5 | 33.6 | 17.1 | 0.0 | 0.5 | 0.3 |
| 1607 | | 14.00 | | | | | | | | | |
| 1608 | 22 | 10.3 | 0.0 | 0.0 | 0.0 | 1.7 | 0.3 | 1.0 | 0.0 | 0.5 | 0.3 |
| 1609 | 23 | 41.1 | 0.0 | 0.4 | 0.2 | 1.7 | 11.7 | 6.7 | 1.4 | 0.5 | 1.0 |
| 1610 | 24 | 33.8 | 0.0 | 0.5 | 0.3 | 3.4 | 33.6 | 18.5 | 0.5 | 1.1 | 0.8 |
| 1611 | 25 | 10.2 | 0.0 | 0.5 | 0.3 | 8.4 | 1.7 | 5.1 | 0.2 | 0.5 | 0.4 |
| 1612 | 26 | 9.0 | 0.0 | 0.1 | 0.1 | 0.0 | 16.8 | 16.8 | 0.0 | 0.1 | 0.1 |
| 1613 | 27 | 78.2 | 0.9 | 1.6 | 1.3 | 50.3 | 5.0 | 27.7 | 2.1 | 0.9 | 1.5 |
| 1614 | 28 | 3.4 | 0.1 | 0.1 | 0.1 | 0.2 | 0.8 | 0.5 | 0.0 | 0.1 | 0.1 |
| 1615 | 30 | 7.9 | 0.4 | 0.4 | 0.4 | 1.7 | 3.4 | 2.6 | 0.0 | 0.2 | 0.1 |
| 1616 | 31 | 62.5 | 1.8 | 1.8 | 1.8 | 50.3 | 100.7 | 75.5 | 0.2 | 0.9 | 0.6 |
| 1617 | | 5.6 | | | | | | | | | |
| 1618 | | 10.7 | | | | | | | | | |
| 1619 | | 21.4 | | | | | | | | | |
| 1620 | | 14.6 | | | | | | | | | |
| 1621 | | 22.5 | | | | | | | | | |
| 1622 | | 7.9 | | | | | | | | | |
| 1623 | | 4.5 | | | | | | | | | |
| 1624 | | 6.2 | | | | | | | | | |
| 1625 | | 1.7 | | | | | | | | | |
| 1626 | | 5.1 | | | | | | | | | |
| 1627 | | 8.4 | | | | | | | | | |
| 1628 | | 4.1 | | | | | | | | | |
| 1629 | | 6.8 | | | | | | | | | |
| 1630 | | 20.1 | | | | | | | | | |
| 1631 | | 14.1 | | | | | | | | | |
| 1632 | | 15.8 | | | | | | | | | |
| 1633 | | 4.0 | | | | | | | | | |
| 1634 | 32 | 11.9 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 |
| 1635 | 21 | 20.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 |
| 1636 | 29 | 4.5 | 0.0 | 0.2 | 0.1 | 0.7 | 0.2 | 0.5 | 0.7 | 0.0 | 0.4 |

TABLE MB-3.

WDW - see Table MB-4 for calculation of value.

| Compensation Schedule Subregion | GREAT BLUE HERON | | | DUCKS and GEESE | | | GULLS | | | ALCIDS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dec '82 | Feb '83 | AVE | Dec '82 | Feb '83 | AVE | Dec '82 | Feb '83 | AVE | Dec '82 | Feb '83 | AVE |
| 402 | 0.1 | 0.0 | 0.1 | WDW | WDW | 22.9 | 65.9 | 30.0 | 48.0 | 99.6 | 36.9 | 68.3 |
| 403 | 0.0 | 0.0 | 0.0 | WDW | WDW | 43.5 | 12.0 | 9.0 | 10.5 | 36.9 | 73.8 | 55.4 |
| 404 | 0.0 | 0.0 | 0.0 | WDW | WDW | 10.1 | 0.6 | 6.0 | 3.3 | 0.1 | 7.4 | 3.8 |
| 405 | 0.0 | 0.0 | 0.0 | WDW | WDW | 46.9 | 3.0 | 6.0 | 4.5 | 7.4 | 1.1 | 4.3 |
| 1401 | | | | | | | | | | | | |
| 1402 | | | | | | | | | | | | |
| 1403 | | | | | | | | | | | | |
| 1404 | | | | | | | | | | | | |
| 1405 | | | | | | | | | | | | |
| 1406 | 0.0 | 0.0 | 0.0 | WDW | WDW | 34.9 | 30.0 | 15.0 | 22.5 | 0.1 | 7.4 | 3.8 |
| 1501 | 0.0 | 0.0 | 0.0 | WDW | WDW | 31.0 | 4.5 | 4.5 | 4.5 | 1.1 | 1.1 | 1.1 |
| 1502 | 0.0 | 0.0 | 0.0 | WDW | WDW | 9.9 | 1.0 | 3.0 | 2.0 | 2.6 | 1.1 | 1.9 |
| 1503 | 0.0 | 0.0 | 0.0 | WDW | WDW | 4.3 | 4.5 | 0.0 | 4.5 | 0.4 | 0.0 | 0.4 |
| 1504 | 0.1 | 0.0 | 0.1 | WDW | WDW | 22.4 | 7.5 | 7.5 | 7.5 | 1.5 | 3.7 | 2.6 |
| 1505 | 0.0 | 0.0 | 0.0 | WDW | WDW | 10.8 | 4.5 | 7.5 | 6.0 | 0.4 | 0.2 | 0.3 |
| 1506 | 0.1 | 0.0 | 0.1 | WDW | WDW | 23.0 | 3.0 | 4.5 | 3.8 | 0.1 | 0.4 | 0.3 |
| 1507 | 0.0 | 0.0 | 0.0 | WDW | WDW | 25.2 | 0.6 | 1.5 | 1.1 | 0.4 | 0.2 | 0.3 |
| 1508 | 0.1 | 0.0 | 0.1 | WDW | WDW | 22.7 | 12.0 | 9.0 | 10.5 | 1.5 | 1.1 | 1.3 |
| 1509 | 0.0 | 0.0 | 0.0 | 5.1 | 2.5 | 3.8 | 3.0 | 1.0 | 2.0 | 0.1 | 0.0 | 0.1 |
| 1510 | 0.0 | 0.0 | 0.0 | 75.8 | 92.6 | 84.2 | 44.9 | 44.9 | 44.9 | 7.4 | 73.8 | 40.6 |
| 1601 | 0.0 | 0.0 | 0.0 | WDW | WDW | 47.1 | 15.0 | 52.4 | 33.7 | 36.9 | 29.5 | 33.2 |
| 1602 | 0.0 | 0.0 | 0.0 | WDW | WDW | 35.6 | 44.9 | 30.0 | 37.5 | 36.9 | 2.6 | 19.8 |
| 1603 | 0.0 | 0.0 | 0.0 | WDW | WDW | 34.1 | 30.0 | 30.0 | 30.0 | 11.1 | 11.1 | 11.1 |
| 1604 | | | | | | | | | | | | |
| 1605 | 0.0 | 0.0 | 0.0 | WDW | WDW | 35.8 | 13.5 | 9.0 | 11.3 | 0.0 | 3.7 | 1.9 |
| 1606 | 0.0 | 0.0 | 0.0 | WDW | WDW | 1.9 | 15.0 | 7.5 | 11.3 | 1.5 | 73.8 | 37.7 |
| 1607 | | | | | | | | | | | | |
| 1608 | 0.1 | 0.0 | 0.1 | WDW | WDW | 0.9 | 30.0 | 59.9 | 45.0 | 11.1 | 73.8 | 42.5 |
| 1609 | 0.0 | 0.0 | 0.0 | 0.8 | 0.6 | 0.7 | 30.0 | 15.0 | 22.5 | 18.4 | 22.1 | 20.3 |
| 1610 | 0.0 | 0.0 | 0.0 | 8.4 | 4.2 | 6.3 | 30.0 | 15.0 | 22.5 | 36.9 | 14.8 | 25.9 |
| 1611 | 0.0 | 0.0 | 0.0 | 0.8 | 0.3 | 0.6 | 4.5 | 7.5 | 6.0 | 3.7 | 33.2 | 18.5 |
| 1612 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 6.0 | 6.0 | 0.0 | 3.7 | 3.7 |
| 1613 | 0.1 | 0.3 | 0.2 | 16.8 | 8.4 | 12.6 | 119.8 | 44.9 | 82.4 | 184.4 | 110.6 | 147.5 |
| 1614 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 | 1.5 | 1.5 | 1.5 | 0.4 | 0.7 | 0.6 |
| 1615 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.9 | 0.7 | 12.0 | 6.4 | 1.8 | 36.9 | 19.4 |
| 1616 | 0.0 | 0.0 | 0.0 | 5.1 | 25.3 | 15.2 | 12.0 | 15.0 | 13.5 | 11.1 | 73.8 | 42.5 |
| 1617 | | | | | | | | | | | | |
| 1618 | | | | | | | | | | | | |
| 1619 | | | | | | | | | | | | |
| 1620 | | | | | | | | | | | | |
| 1621 | | | | | | | | | | | | |
| 1622 | | | | | | | | | | | | |
| 1623 | | | | | | | | | | | | |
| 1624 | | | | | | | | | | | | |
| 1625 | | | | | | | | | | | | |
| 1626 | | | | | | | | | | | | |
| 1627 | | | | | | | | | | | | |
| 1628 | | | | | | | | | | | | |
| 1629 | | | | | | | | | | | | |
| 1630 | | | | | | | | | | | | |
| 1631 | | | | | | | | | | | | |
| 1632 | | | | | | | | | | | | |
| 1633 | | | | | | | | | | | | |
| 1634 | 0.0 | 0.0 | 0.0 | WDW | WDW | 77.7 | 1.5 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 |
| 1635 | 0.0 | 0.0 | 0.0 | 0.50 | 0.30 | 0.4 | 12.0 | 7.5 | 9.8 | 3.7 | 2.6 | 3.2 |
| 1636 | 0.0 | 0.0 | 0.0 | 1.7 | 1.7 | 1.7 | 7.5 | 4.5 | 6.0 | 0.4 | 0.1 | 0.3 |

TABLE MB-3. * Given an additional point by Wahl because of the presence of a breeding colony or special concentration.
** Final BOI rank based on population data in U.S. fish and Wildlife Service (1991).
*** Final BOI rank based on population data in Washington Department of Wildlife (1991); Table MB-4.
**** where no population data was available, final rank was given a value of "1".

| Compensation Schedule Subregion | TOTAL SUBREG. BOI | BOI RATING | BOI/ sq. km | BOI/ sq. km RATING | AVE. RATING | INITIAL RANK | SPECIAL?* | FINAL RANK | |
|---|---|---|---|---|---|---|---|---|---|
| 402 | 146.15 | 7 | 0.95 | 4 | 6 | 3 | | 3 | |
| 403 | 143.65 | 7 | 5.32 | 7 | 7 | 3 | 1 | 4 | |
| 404 | 23.00 | 2 | 6.76 | 7 | 5 | 2 | | 2 | |
| 405 | 68.10 | 4 | 9.33 | 8 | 6 | 3 | 1 | 4 | |
| 1401 | | | | | | | | 1 | **** |
| 1402 | | | | | | | | 1 | **** |
| 1403 | 68.75 | 4 | 0.50 | 2 | 3 | 2 | | 2 | *** |
| 1404 | 12.51 | 2 | 0.80 | 3 | 3 | 2 | 1 | 3 | *** |
| 1405 | | | | | | | | 1 | **** |
| 1406 | 102.34 | 6 | 0.87 | 4 | 5 | 2 | | 2 | |
| 1501 | 38.09 | 3 | 1.13 | 5 | 4 | 2 | 1 | 3 | |
| 1502 | 16.39 | 2 | 2.64 | 6 | 4 | 2 | | 2 | |
| 1503 | 10.80 | 2 | 1.93 | 3 | 3 | 2 | | 2 | |
| 1504 | 44.53 | 3 | 0.71 | 3 | 3 | 2 | | 2 | |
| 1505 | 39.08 | 3 | 1.16 | 5 | 4 | 2 | | 2 | |
| 1506 | 32.13 | 3 | 0.52 | 2 | 3 | 2 | 1 | 3 | |
| 1507 | 32.73 | 3 | 4.48 | 6 | 5 | 2 | | 2 | |
| 1508 | 111.38 | 6 | 1.48 | 5 | 6 | 3 | | 3 | |
| 1509 | 13.55 | 2 | 1.04 | 4 | 3 | 2 | | 2 | |
| 1510 | 330.45 | 11 | 11.09 | 9 | 10 | 4 | 1 | 5 | |
| 1601 | 127.18 | 7 | 0.61 | 3 | 5 | 2 | | 2 | |
| 1602 | 96.88 | 5 | 0.72 | 3 | 4 | 2 | | 2 | |
| 1603 | 79.61 | 5 | 0.64 | 3 | 4 | 2 | | 2 | |
| 1604 | | | | | | | | 1 | **** |
| 1605 | 51.40 | 4 | 0.36 | 2 | 3 | 2 | | 2 | |
| 1606 | 68.55 | 4 | 1.71 | 5 | 5 | 2 | | 2 | |
| 1607 | 3.10 | 2 | 0.50 | 1 | 2 | 1 | | 2 | |
| 1608 | 89.55 | 5 | 8.69 | 8 | 7 | 3 | 1 | 4 | |
| 1609 | 51.30 | 4 | 1.25 | 5 | 5 | 2 | 1 | 3 | |
| 1610 | 74.20 | 4 | 2.20 | 5 | 5 | 2 | 1 | 3 | |
| 1611 | 30.65 | 3 | 3.00 | 6 | 5 | 2 | | 2 | |
| 1612 | 27.00 | 3 | 3.00 | 6 | 5 | 2 | 1 | 3 | |
| 1613 | 273.05 | 10 | 3.49 | 6 | 8 | 3 | 1 | 4 | |
| 1614 | 3.50 | 2 | 1.03 | 4 | 3 | 2 | | 2 | |
| 1615 | 29.60 | 3 | 3.75 | 6 | 5 | 2 | | 2 | |
| 1616 | 149.00 | 7 | 2.38 | 5 | 6 | 3 | | 3 | |
| 1617 | 12.15 | 2 | 0.54 | 2 | 2 | 1 | | 1 | ** |
| 1618 | | | | | | | | 1 | **** |
| 1619 | 56.40 | 4 | 2.64 | 6 | 5 | 2 | | 2 | ** |
| 1620 | 44.64 | 3 | 3.06 | 6 | 5 | 2 | | 2 | ** |
| 1621 | 67.70 | 4 | 3.01 | 6 | 5 | 2 | | 2 | ** |
| 1622 | 9.53 | 2 | 0.68 | 3 | 3 | 2 | | 2 | ** |
| 1623 | | | | | | | | 1 | **** |
| 1624 | 9.53 | 2 | 0.68 | 3 | 3 | 2 | | 2 | ** |
| 1625 | 12.90 | 2 | 7.61 | 8 | 5 | 2 | | 2 | ** |
| 1626 | 9.38 | 2 | 1.84 | 5 | 4 | 2 | | 2 | ** |
| 1627 | 12.00 | 2 | 1.43 | 5 | 4 | 2 | | 2 | ** |
| 1628 | 22.25 | 2 | 3.70 | 7 | 4 | 2 | | 2 | *** |
| 1629 | 11.29 | 2 | 1.80 | 5 | 4 | 2 | 1 | 3 | *** |
| 1630 | 40.81 | 3 | 6.60 | 5 | 4 | 2 | | 2 | *** |
| 1631 | 47.93 | 3 | 7.70 | 6 | 5 | 2 | 1 | 3 | *** |
| 1632 | 41.22 | 3 | 6.60 | 6 | 5 | 2 | | 2 | *** |
| 1633 | 6.20 | 2 | 1.00 | 5 | 4 | 2 | | 2 | *** |
| 1634 | 80.16 | 5 | 6.74 | 7 | 6 | 3 | | 3 | |
| 1635 | 13.50 | 2 | 0.67 | 3 | 3 | 2 | | 2 | |
| 1636 | 8.85 | 2 | 1.97 | 5 | 4 | 2 | | 2 | |

TABLE MB-4. Calculation of Winter BOI for Region 4, 14, 15 and 16 Subregions from Washington State Department of Wildlife (1991) Data.

| Species Group and ID#: | | 1 MALLARD | 2 RINGNECK | 3 BRANT | 4 GADWALL | 5 GOLDENEYE | 6 WIDGEON | 7 BUFFLEHEAD | 8 GREEN-WINGED TEAL | 9 RUDDY | 10 BLUE-WINGED TEAL | 11 SHOVLER | 12 EIDER | 13 PINTAIL | 14 SCOTER | 15 OLDSQUAW | 16 TUNDRA SWAN | 17 TRUMPETER SWAN | 18 UNKNOWN SWAN | 19 MERGANSER | 20 REDHEAD | 21 UNIDENT. | 22 CANVAS BACK | 23 COOT | 24 SCAUP | 25 HARLQUIN | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species Group ID #: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | SUBREG. TOTALS | RATINGS | AVERAGE RATING | INITIAL BOI RANK | SPECIAL? | FINAL BOI RANK |
| Species Group BOI: | | 30.8 | 98.6 | 337.0 | 23.8 | 110.2 | 60.5 | 110.2 | 30.8 | 53.2 | 11.2 | 55.4 | 22.8 | 60.5 | 237.1 | 134.6 | 53.8 | 60.5 | 53.8 | 108.0 | 84.2 | 84.2 | 66.6 | 28.8 | 154.9 | 184.8 | | | | | | |
| DATE | SUBREGION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18JAN91 | 402 | | | | | 298.0 | | 370.0 | | | | | | | 50.0 | | | | | | | 140.0 | | | 20.0 | | | | | | | |
| 10JAN90 | 402 | 88.0 | | | | 52.0 | | 294.0 | | 12.0 | | | | | 388.0 | | | | | | | 76.0 | | | 42.0 | | | | | | | |
| 05JAN88 | 402 | | | | | 614.0 | | 1548.0 | | | | | | | 196.0 | 262.0 | | | | 28.0 | | 428.0 | | | 10.0 | 4.0 | | | | | | |
| 10JAN89 | 402 | 4.0 | | | | 390.0 | 24.0 | 12.0 | | | | | | 10.0 | 788.0 | | | | | 170.0 | | | | | 14.0 | | | | | | | |
| 13JAN87 | 402 | | | | | 206.0 | | 1046.0 | | | | | | | 456.0 | | | | | 110.0 | | 67.0 | | | 122.0 | 15.0 | | | | | | |
| Average Seasonal #: | | 18.4 | | | | 312.0 | 4.8 | 654.0 | | 2.4 | | | | 2.0 | 375.6 | 52.4 | | | | 61.6 | | 142.2 | | | 41.6 | 3.8 | 1670.8 | | | | | |
| Subregional BOI: | | 0.1 | | | | 3.4 | 0.0 | 7.2 | | 0.0 | | | | 0.0 | 8.9 | 0.7 | | | | 0.7 | | 1.2 | | | 0.6 | 0.1 | 22.9 | 2.0 | | | | |
| Area (sq. km): | 153.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1.5 | 1.0 | | 1.0 |
| BOI/sq. km: | | 0.0 | | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | | 0.0 | 0.1 | 0.0 | | | | 0.0 | | 0.0 | | | 0.0 | 0.0 | 0.1 | 1.0 | | | | |
| 18JAN91 | 403 | | | | | 881.0 | | 974.0 | | | | | | | 175.0 | | | | | 50.0 | | 106.0 | | | 119.0 | | | | | | | |
| 10JAN89 | 403 | | | | | 652.0 | 1034.0 | 56.0 | | | | | | | 934.0 | 18.0 | | | | 702.0 | | 62.0 | | | 100.0 | | | | | | | |
| 13JAN87 | 403 | 136.0 | | | | 245.0 | 190.0 | 770.0 | | 18.0 | | | | | 978.0 | | | | | 136.0 | | 299.0 | | | 426.0 | | | | | | | |
| 05JAN88 | 403 | | | | | 832.0 | | 629.0 | | | | | | | 645.0 | | | | | 37.0 | | 288.0 | | | 100.0 | | | | | | | |
| 10JAN90 | 403 | 288.0 | | | | 125.0 | | 1604.0 | | | | | | | 1598.0 | | | | | 12.0 | | 75.0 | | | 175.0 | | | | | | | |
| Average Seasonal #: | | 84.8 | | | | 547.0 | 244.8 | 806.6 | | 3.6 | | | | | 866.0 | 3.6 | | | | 187.4 | | 166.0 | | | 184.0 | | 3093.8 | | | | | |
| Subregional BOI: | | 0.3 | | | | 6.0 | 1.5 | 8.9 | | 0.0 | | | | | 20.5 | 0.0 | | | | 2.0 | | 1.4 | | | 2.9 | | 43.5 | 3.0 | | | | |
| Area (sq. km): | 27.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4.0 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | | | | 0.2 | 0.1 | 0.3 | | 0.0 | | | | | 0.8 | 0.0 | | | | 0.1 | | 0.1 | | | 0.1 | | 1.6 | 5.0 | | | | |
| 10JAN89 | 404 | | | | | 101.0 | | | | | | | | | 27.0 | | | | | 6.0 | | | | | | | | | | | |
| 05JAN88 | 404 | | | | | 200.0 | 33.0 | 244.0 | | | | | | | 554.0 | | | | | 20.0 | | 81.0 | | | 118.0 | 16.0 | | | | | | |
| 18JAN91 | 404 | | | | | 51.0 | | 166.0 | | | | | | | 44.0 | | | | | | | 51.0 | | | | | | | | | | |
| 10JAN90 | 404 | | | | | 3.0 | | 152.0 | | | | | | | 486.0 | | | | | | | | | | 3.0 | | | | | | | |
| Average Seasonal #: | | | | | | 88.8 | 8.3 | 140.5 | | | | | | | 277.8 | | | | | 6.5 | | 33.0 | | | 30.3 | 4.0 | 589.0 | | | | | |
| Subregional BOI: | | | | | | 1.0 | 0.0 | 1.5 | | | | | | | 6.6 | | | | | 0.1 | | 0.3 | | | 0.5 | 0.1 | 10.1 | 2.0 | | | | |
| Area (sq. km): | 3.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4.0 | 2.0 | | 2.0 |
| BOI/sq. km: | | | | | | 0.3 | 0.0 | 0.5 | | | | | | | 1.9 | | | | | 0.0 | | 0.1 | | | 0.1 | 0.0 | 3.0 | 6.0 | | | | |
| 13JAN87 | 405 | | | 45.0 | | 264.0 | | 625.0 | | 219.0 | | | | | 564.0 | 12.0 | | | | 45.0 | | 231.0 | | | 596.0 | | | | | | | |
| 05JAN88 | 405 | 239.0 | | | | 1021.0 | 344.0 | 758.0 | 81.0 | 364.0 | | | | | 965.0 | | | | | 117.0 | | 117.0 | | | 81.0 | | | | | | | |
| 18JAN91 | 405 | | | | | 697.0 | | 567.0 | | | | | | | 182.0 | | | | | 64.0 | | 121.0 | | 8.0 | 93.0 | | | | | | | |
| 10JAN90 | 405 | 291.0 | | | | 61.0 | | 499.0 | | | | | | | 1297.0 | | | | | | | | | | 84.0 | | | | | | | |
| 10JAN89 | 405 | 8.0 | | | | 470.0 | 1216.0 | 32.0 | | 8.0 | | | | | 2404.0 | 8.0 | | | | 332.0 | | | | | 348.0 | | | | | | | |
| Average Seasonal #: | | 107.6 | | 45.0 | | 502.6 | 312.0 | 496.2 | 16.2 | 118.2 | | | | | 1082.4 | 4.0 | | | | 111.6 | | 93.8 | | 1.6 | 240.4 | | 3131.6 | | | | | |
| Subregional BOI: | | 0.3 | | 1.5 | | 5.5 | 1.9 | 5.5 | 0.0 | 0.6 | | | | | 25.7 | 0.1 | | | | 1.2 | | 0.8 | | 0.0 | 3.7 | | 46.9 | 3.0 | | | | |
| Area (sq. km): | 117.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | 0.2 | 0.0 | | | | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.4 | 2.0 | | | | |
| 05JAN88 | 1403 | | | | | 558.0 | 95.0 | 868.0 | | | | | | | 2893.0 | | | | | 7.0 | | 342.0 | | | 11.0 | | | | | | | |
| 18JAN91 | 1403 | | | | | 577.0 | | 513.0 | | | | | | | 129.0 | | | | | 14.0 | | 103.0 | | | 2.0 | | | | | | | |
| 10JAN90 | 1403 | | | | | | | 418.0 | | | | | | | 2858.0 | | | | | | | 9.0 | | | | | | | | | | |
| 13JAN87 | 1403 | | 7.0 | | | 544.0 | 72.0 | 173.0 | | | | | | | 2771.0 | | | | | 55.0 | | | | | 132.0 | 29.0 | | | | | | |
| 10JAN89 | 1403 | 4.0 | | | | 1009.0 | 35.0 | 19.0 | | | | | | | 3118.0 | | | | | 333.0 | | | 11.0 | | 21.0 | 23.0 | | | | | | |
| Average Seasonal #: | | 0.8 | 1.4 | | | 537.6 | 40.4 | 398.2 | | | | | | | 2353.8 | | | | | 81.8 | | 90.8 | 2.2 | | 33.2 | 10.4 | 3550.6 | | | | | |
| Subregional BOI: | | 0.0 | 0.0 | | | 5.9 | 0.2 | 4.4 | | | | | | | 55.8 | | | | | 0.9 | | 0.8 | 0.0 | | 0.5 | 0.2 | 68.8 | 4.0 | | | | |
| Area (sq. km): | 140.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3.0 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | | | | | | | 0.4 | | | | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.5 | 2.0 | | | | |

TABLE MB-4. Calculation of Winter BOI for Region 4, 14, 15 and 16 Subregions from Washington State Department of Wildlife (1991) Data.

| Species Group and ID#: | 1 MALLARD | 4 GADWALL | 7 BUFFLEHEAD | 10 BLUE-WINGED TEAL | 13 PINTAIL | 16 TUNDRA SWAN | 19 MERGANSER | 22 CANVAS BACK | 25 HARLQUIN |
|---|---|---|---|---|---|---|---|---|---|
| | 2 RINGNECK | 5 GOLDENEYE | 8 GREEN-WINGED TEAL | 11 SHOVLER | 14 SCOTER | 17 TRUMPETER SWAN | 20 REDHEAD | 23 COOT | |
| | 3 BRANT | 6 WIDGEON | 9 RUDDY | 12 EIDER | 15 OLDSQUAW | 18 UNKNOWN SWAN | 21 UNIDENT. | 24 SCAUP | |

| Species Group ID #: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | SUBREG. TOTALS | AVERAGE RATINGS | AVERAGE RATING | INITIAL BOI RANK | SPECIAL? | FINAL BOI RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species Group BOI: | 30.8 | 98.6 | 337.0 | 23.8 | 110.2 | 60.5 | 110.2 | 30.8 | 53.2 | 11.2 | 55.4 | 22.8 | 60.5 | 237.1 | 134.6 | 53.8 | 60.5 | 53.8 | 108.0 | 84.2 | 84.2 | 66.6 | 28.8 | 154.9 | 184.8 | | | | | | |

| DATE | SUBREGION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10JAN90 | 1404 | | | | 16.0 | | 64.0 | | 2.0 | | | | | 25.0 | | | | | 2.0 | | | | | | | | | | | | |
| 05JAN88 | 1404 | 9.0 | | | 76.0 | 120.0 | 195.0 | | | | | | | 332.0 | | | | | 3.0 | | 187.0 | | | 76.0 | | | | | | | |
| 10JAN89 | 1404 | | | | 459.0 | 28.0 | | | 3.0 | | | | | 767.0 | | | | | 147.0 | | | | | 32.0 | 11.0 | | | | | | |
| 18JAN91 | 1404 | | | | 49.0 | | 181.0 | | | | | | | 7.0 | | | | | | | 19.0 | | | | | | | | | |
| 13JAN87 | 1404 | | | | 121.0 | | 143.0 | | | | | | | 543.0 | | | | | 13.0 | | 67.0 | | | 103.0 | | | | | | | |
| Average Seasonal #: | | 1.8 | | | 144.2 | 29.6 | 116.6 | | 1.0 | | | | | 334.8 | | | | | 33.0 | | 54.6 | | | 42.2 | 2.2 | 760.0 | | | | | |
| Subregional BOI: | | 0.0 | | | 1.6 | 0.2 | 1.3 | | 0.0 | | | | | 7.9 | | | | | 0.4 | | 0.5 | | | 0.7 | 0.0 | 12.5 | 2.0 | | | | |
| Area (sq. km): | 16.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | | | 0.1 | 0.0 | 0.1 | | 0.0 | | | | | 0.5 | | | | | 0.0 | | 0.0 | | | 0.0 | 0.0 | 0.8 | 3.0 | | | | |
| 13JAN87 | 1406 | | | | 110.0 | 651.0 | 15.0 | | | | | | | 344.0 | | | | | 40.0 | | 1608.0 | | | | | | | | | | |
| 11JAN90 | 1406 | 4.0 | | | 74.0 | 200.0 | 584.0 | | | | | | | 2136.0 | | | | | 4.0 | | 8.0 | | | | | | | | | | |
| 05JAN88 | 1406 | | | | 536.0 | 4728.0 | 284.0 | | | | | | | 386.0 | | | | | 20.0 | | 836.0 | | | | | | | | | | |
| 10JAN89 | 1406 | | | | 332.0 | 16.0 | | | 8.0 | | | | | 380.0 | | | | | 138.0 | | | | | 196.0 | | | | | | | |
| 18JAN91 | 1406 | 20.0 | | | 840.0 | | 550.0 | | | | | | | 32.0 | | | | | 20.0 | | 36.0 | | | | | | | | | | |
| Average Seasonal #: | | 4.8 | | | 378.4 | 1119.0 | 286.6 | | 1.6 | | | | | 655.6 | | | | | 44.4 | | 497.6 | | | 39.2 | | 3027.2 | | | | | |
| Subregional BOI: | | 0.0 | | | 4.2 | 6.8 | 3.2 | | 0.0 | | | | | 15.5 | | | | | 0.5 | | 4.2 | | | 0.6 | | 34.9 | 3.0 | | | | |
| Area (sq. km): | 117.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | | | 0.0 | 0.1 | 0.0 | | 0.0 | | | | | 0.1 | | | | | 0.0 | | 0.0 | | | 0.0 | | 0.3 | 2.0 | | | | |
| 13JAN87 | 1501 | 5.0 | | | 80.0 | 1583.0 | 455.0 | | | | | | 1427.0 | 422.0 | 2.0 | | | | 58.0 | | 123.0 | | | 128.0 | | | | | | | |
| 05JAN88 | 1501 | 16.0 | | | 266.0 | 216.0 | 222.0 | | | | | | | 634.0 | | | | | 134.0 | | 38.0 | | | 68.0 | | | | | | | |
| 10JAN90 | 1501 | | | | 52.0 | | 364.0 | | | | | | | 2048.0 | | | | | | | 4.0 | | | 354.0 | | | | | | | |
| 10JAN89 | 1501 | 24.0 | | | 26.0 | | 10.0 | | | | | | | 102.0 | | | | | | | | | | 14.0 | | | | | | | |
| Average Seasonal #: | | 11.3 | | | 106.0 | 449.8 | 262.8 | | | | | | 356.8 | 801.5 | 0.5 | | | | 48.0 | | 41.3 | | | 141.0 | | 2218.8 | | | | | |
| Subregional BOI: | | 0.0 | | | 1.2 | 2.7 | 2.9 | | | | | | 2.2 | 19.0 | 0.0 | | | | 0.5 | | 0.3 | | | 2.2 | | 31.0 | 3.0 | | | | |
| Area (sq. km): | 33.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3.5 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | | | 0.0 | 0.1 | 0.1 | | | | | | 0.1 | 0.6 | 0.0 | | | | 0.0 | | 0.0 | | | 0.1 | | 0.9 | 4.0 | | | | |
| 13JAN87 | 1502 | | | | 18.0 | 510.0 | 78.0 | | | | | | | 442.0 | | | | | 6.0 | | 240.0 | | | 108.0 | | | | | | | |
| 05JAN88 | 1502 | | | | 365.0 | 29.0 | 263.0 | | | | | | | 443.0 | | | | | | | 77.0 | | | 101.0 | | | | | | | |
| 10JAN90 | 1502 | | | | | | 17.0 | | | | | | | 48.0 | | | | | | | | | | | | | | | | | |
| 10JAN89 | 1502 | | | | 2.0 | | | | | | | | | 9.0 | | | | | | | | | | | | | | | | | |
| Average Seasonal #: | | | | | 96.3 | 134.8 | 89.5 | | | | | | | 235.5 | | | | | 1.5 | | 79.3 | | | 52.3 | | 689.0 | | | | | |
| Subregional BOI: | | | | | 1.1 | 0.8 | 1.0 | | | | | | | 5.6 | | | | | 0.0 | | 0.7 | | | 0.8 | | 9.9 | 2.0 | | | | |
| Area (sq. km): | 6.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3.5 | 2.0 | | 2.0 |
| BOI/sq. km: | | | | | 0.2 | 0.1 | 0.2 | | | | | | | 0.9 | | | | | 0.0 | | 0.1 | | | 0.1 | | 1.6 | 5.0 | | | | |
| 13JAN87 | 1503 | | | | 39.0 | 5.0 | 57.0 | | | | | | | 24.0 | | | | | 42.0 | | 377.0 | | | 29.0 | | | | | | | |
| 10JAN89 | 1503 | | | | 21.0 | | | | | | | | | 56.0 | | | | | 11.0 | | | | | 10.0 | | | | | | | |
| 10JAN90 | 1503 | | | | 4.0 | | 102.0 | | | | | | | 144.0 | | | | | | | 5.0 | | | | | | | | | | |
| 05JAN88 | 1503 | 10.0 | | | 149.0 | 100.0 | 123.0 | | | | | | | 146.0 | | | | | 73.0 | | 50.0 | | | 41.0 | | | | | | | |
| Average Seasonal #: | | 2.5 | | | 53.3 | 26.3 | 70.5 | | | | | | | 92.5 | | | | | 31.5 | | 108.0 | | | 20.0 | | 404.5 | | | | | |
| Subregional BOI: | | 0.0 | | | 1.8 | 0.1 | 0.8 | | | | | | | 0.2 | | | | | 0.2 | | 1.2 | | | 0.1 | | 4.3 | 2.0 | | | | |
| Area (sq. km): | 5.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | | | 0.3 | 0.0 | 0.1 | | | | | | | 0.0 | | | | | 0.0 | | 0.2 | | | 0.0 | | 0.7 | 3.0 | | | | |

TABLE MB-4. Calculation of Winter BOI for Region 4, 14, 15 and 16 Subregions from Washington State Department of Wildlife (1991) Data.

| Species Group and ID#: | 1 MALLARD | 4 GADWALL | 7 BUFFLEHEAD | 10 BLUE-WINGED TEAL | 13 PINTAIL | 16 TUNDRA SWAN | 19 MERGANSER | 22 CANVAS BACK | 25 HARLQUIN |
|---|---|---|---|---|---|---|---|---|---|
| | 2 RINGNECK | 5 GOLDENEYE | 8 GREEN-WINGED TEAL | 11 SHOVLER | 14 SCOTER | 17 TRUMPETER SWAN | 20 REDHEAD | 23 COOT | |
| | 3 BRANT | 6 WIDGEON | 9 RUDDY | 12 EIDER | 15 OLDSQUAW | 18 UNKNOWN SWAN | 21 UNIDENT. | 24 SCAUP | |

| Species Group ID #: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | SUBREG. TOTALS | AVERAGE RATINGS | AVERAGE RATING | INITIAL BOI RANK | SPECIAL? | FINAL BOI RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species Group BOI: | | 30.8 | 98.6 | 337.0 | 23.8 | 110.2 | 60.5 | 110.2 | 30.8 | 53.2 | 11.2 | 55.4 | 22.8 | 60.5 | 237.1 | 134.6 | 53.8 | 60.5 | 53.8 | 108.0 | 84.2 | 84.2 | 66.6 | 28.8 | 154.9 | 184.8 | | | | | | |
| DATE | SUBREGION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04JAN89 | 1504 | 26.0 | | | | 604.0 | 302.0 | 254.0 | | | | | | | 906.0 | 10.0 | | | | 46.0 | | | 82.0 | | 20.0 | | | | | | | |
| 13JAN87 | 1504 | | | | | 192.0 | 94.0 | 492.0 | | | | | | | 879.0 | 10.0 | | | | 82.0 | | 793.0 | | | 419.0 | | | | | | |
| 10JAN90 | 1504 | 8.0 | | | | 12.0 | | 316.0 | | 6.0 | | | | | 3096.0 | | | | | | | 30.0 | | | | | | | | | |
| 05JAN88 | 1504 | 8.0 | | | | 286.0 | 1394.0 | 394.0 | | | | | | 86.0 | 1498.0 | | | | | 116.0 | | 212.0 | | | 128.0 | | | | | | |
| Average Seasonal #: | | 10.5 | | | | 273.5 | 447.5 | 364.0 | | 1.5 | | | | 21.5 | 1594.8 | 5.0 | | | | 61.0 | | 258.8 | 20.5 | | 141.8 | | 3200.3 | | | | |
| Subregional BOI: | | 0.0 | | | | 9.2 | 1.1 | 4.0 | | 0.0 | | | | 0.1 | 3.6 | 0.0 | | | | 0.4 | | 2.8 | 0.2 | | 0.9 | | 22.4 | 2.0 | | | |
| Area (sq. km): | 63.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.0 | 1.0 | | 1.0 |
| BOI/sq. km: | | 0.2 | | | | 4.3 | 7.1 | 5.8 | | 0.0 | | | | 0.3 | 25.3 | 0.1 | | | | 1.0 | | 4.1 | 0.3 | | 2.2 | | 3.6 | 2.0 | | | |
| 13JAN87 | 1505 | 3.0 | | | | 95.0 | 277.0 | 350.0 | | | | | | | 190.0 | | | | | 62.0 | | 238.0 | | | 126.0 | | | | | | |
| 05JAN88 | 1505 | 31.0 | | | | 157.0 | 490.0 | 121.0 | | | | | | | 228.0 | | | | | 40.0 | | 30.0 | | | 66.0 | | | | | | |
| 10JAN90 | 1505 | 2.0 | | | | 32.0 | | 64.0 | | | | | | | 109.0 | | | | | 2.0 | | | | | | | | | | | |
| 04JAN89 | 1505 | 64.0 | | | | 214.0 | 66.0 | 149.0 | | | | | | | 183.0 | 1.0 | | | | 10.0 | | | | | 93.0 | | | | | | |
| Average Seasonal #: | | 25.0 | | | | 124.5 | 208.3 | 171.0 | | | | | | | 177.5 | 0.3 | | | | 28.5 | | 67.0 | | | 71.3 | | 873.3 | | | | |
| Subregional BOI: | | 0.1 | | | | 1.4 | 1.3 | 1.9 | | | | | | | 4.2 | 0.0 | | | | 0.3 | | 0.6 | | | 1.1 | | 10.8 | 2.0 | | | |
| Area (sq. km): | 33.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.0 | 1.0 | | 1.0 |
| BOI/sq. km: | | 0.0 | | | | 0.0 | 0.0 | 0.1 | | | | | | | 0.1 | 0.0 | | | | 0.0 | | 0.0 | | | 0.0 | | 1.7 | 2.0 | | | |
| 13JAN87 | 1506 | 333.0 | | | | 93.0 | 140.0 | 336.0 | | | | | | 44.0 | 460.0 | | | | | 228.0 | | 504.0 | 5.0 | | 86.0 | | | | | | |
| 05JAN88 | 1506 | 89.0 | | | 3.0 | 297.0 | 326.0 | 156.0 | | | | | | | 510.0 | | | | | 25.0 | | 98.0 | 25.0 | | 146.0 | | | | | | |
| 10JAN90 | 1506 | 114.0 | | | | 57.0 | 31.0 | 120.0 | | 72.0 | | | | | 519.0 | | | | | 15.0 | | | | | 19.0 | | | | | | |
| 04JAN89 | 1506 | 70.0 | | | | 450.0 | 225.0 | 99.0 | | | | | | 60.0 | 760.0 | | | | | 51.0 | | | | | 63.0 | 3.0 | | | | | |
| Average Seasonal #: | | 151.5 | | | 0.8 | 224.3 | 180.5 | 177.8 | | 18.0 | | | | 26.0 | 562.3 | | | | | 79.8 | | 150.5 | 7.5 | | 78.5 | 0.8 | 1658.0 | | | | |
| Subregional BOI: | | 0.5 | | | 0.0 | 2.5 | 1.1 | 2.0 | | 0.1 | | | | 0.2 | 13.3 | | | | | 0.9 | | 1.3 | 0.0 | | 1.2 | 0.0 | 23.0 | 2.0 | | | |
| Area (sq. km): | 61.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.0 | 1.0 | | 1.0 |
| BOI/sq. km: | | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | | | 0.0 | 0.2 | | | | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 3.7 | 2.0 | | | |
| 05JAN88 | 1507 | | | | | 139.0 | 289.0 | 134.0 | | | | | | 15.0 | 682.0 | | | | | 15.0 | | | | | 118.0 | | | | | | |
| 10JAN90 | 1507 | 89.0 | | | | 3.0 | 891.0 | 220.0 | | | | | | | 267.0 | | | | | 34.0 | | | | | 174.0 | | | | | | |
| 13JAN87 | 1507 | | | | | 35.0 | 147.0 | 399.0 | | | | | | | 194.0 | | | | | 85.0 | | 271.0 | | | 271.0 | | | | | | |
| 04JAN89 | 1507 | 38.0 | | | | 457.0 | 1147.0 | 716.0 | | | | | | 11.0 | 720.0 | | | | | 85.0 | | | | | 290.0 | | | | | | |
| Average Seasonal #: | | 31.8 | | | | 158.5 | 618.5 | 367.3 | | | | | | 6.5 | 465.8 | | | | | 54.8 | | 67.8 | | | 213.3 | | 1984.0 | | | | |
| Subregional BOI: | | 0.1 | | | | 1.7 | 3.7 | 4.0 | | | | | | 0.0 | 11.0 | | | | | 0.6 | | 0.6 | | | 3.3 | | 25.2 | 3.0 | | | |
| Area (sq. km): | 7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4.5 | 2.0 | | 2.0 |
| BOI/sq. km: | | 0.0 | | | | 0.2 | 0.5 | 0.6 | | | | | | 0.0 | 1.5 | | | | | 0.1 | | 0.1 | | | 0.5 | | 4.1 | 6.0 | | | |
| 10JAN90 | 1508 | 6.0 | | | | 8.0 | 8.0 | 68.0 | | | | | | | 1922.0 | | | | | 2.0 | | | | | 406.0 | | | | | | |
| 05JAN88 | 1508 | 18.0 | | | | 142.0 | 96.0 | 104.0 | | | | | | | 444.0 | | | | | 12.0 | | 80.0 | | | 88.0 | | | | | | |
| 04JAN89 | 1508 | 10.0 | 4.0 | | | 280.0 | 108.0 | 58.0 | | | | | | 10.0 | 308.0 | | | | 6.0 | 88.0 | | | | | 98.0 | | | | | | |
| 13JAN87 | 1508 | | | | | 69.0 | 14.0 | 93.0 | | | | | | | 117.0 | | 8.0 | | | 34.0 | | 115.0 | | | 111.0 | | | | | | |
| Average Seasonal #: | | 8.5 | 1.0 | | | 124.8 | 56.5 | 80.8 | | | | | | 2.5 | 697.8 | | 2.0 | | 3.0 | 34.0 | | 48.8 | | | 175.8 | | 1235.3 | | | | |
| Subregional BOI: | | 0.0 | 0.0 | | | 1.4 | 0.3 | 0.9 | | | | | | 0.0 | 16.5 | | 0.0 | | 0.0 | 0.4 | | 0.4 | | | 2.7 | | 22.7 | 2.0 | | | |
| Area (sq. km): | 75.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.0 | 1.0 | | 1.0 |
| BOI/sq. km: | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | | | | | | 0.0 | 0.2 | | 0.0 | | 0.0 | 0.0 | | 0.0 | | | 0.0 | | 3.7 | 2.0 | | | |

TABLE MB-4. Calculation of Winter BOI for Region 4, 14, 15 and 16 Subregions from Washington State Department of Wildlife (1991) Data.

| Species Group and ID#: | 1 MALLARD | 2 RINGNECK | 3 BRANT | 4 GADWALL | 5 GOLDENEYE | 6 WIDGEON | 7 BUFFLEHEAD | 8 GREEN-WINGED TEAL | 9 RUDDY | 10 BLUE-WINGED TEAL | 11 SHOVLER | 12 EIDER | 13 PINTAIL | 14 SCOTER | 15 OLDSQUAW | 16 TUNDRA SWAN | 17 TRUMPETER SWAN | 18 UNKNOWN SWAN | 19 MERGANSER | 20 REDHEAD | 21 UNIDENT. | 22 CANVAS BACK | 23 COOT | 24 SCAUP | 25 HARLQUIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species Group ID #: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | SUBREG. TOTALS | AVERAGE RATING | INITIAL BOI RANK | SPECIAL? | FINAL BOI RANK |
| Species Group BOI: | 30.8 | 98.6 | 337.0 | 23.8 | 110.2 | 60.5 | 110.2 | 30.8 | 53.2 | 11.2 | 55.4 | 22.8 | 60.5 | 237.1 | 134.6 | 53.8 | 60.5 | 53.8 | 108.0 | 84.2 | 84.2 | 66.6 | 28.8 | 154.9 | 184.8 | | | | | |
| DATE SUBREGION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13JAN87 1601 | | | | | 1423.0 | | 951.0 | | | | | | | 2696.0 | | | | | 75.0 | | 27.0 | | | 349.0 | 27.0 | | | | | |
| 18JAN91 1601 | 494.0 | | | | 566.0 | | 338.0 | 8.0 | | | | | | 116.0 | | | | | 12.0 | | 144.0 | | | 84.0 | | | | | | |
| 11JAN90 1601 | 40.0 | | | | 150.0 | 150.0 | 216.0 | | | | | | | 1206.0 | | | | | | 6.0 | 82.0 | | | 102.0 | | | | | | |
| 06JAN88 1601 | 184.0 | | | | 570.0 | 540.0 | 1108.0 | | | | | | | 1162.0 | | | | | 20.0 | | 662.0 | | | 2.0 | | | | | | |
| 10JAN89 1601 | 40.0 | | 40.0 | | 286.0 | 1272.0 | 64.0 | | | | | | 12.0 | 650.0 | | | | | 80.0 | | | | | 28.0 | | | | | | |
| Average Seasonal #: | 151.6 | | 8.0 | | 599.0 | 392.4 | 535.4 | 1.6 | | | | | 2.4 | 1166.0 | | | | | 37.4 | 1.2 | 183.0 | | | 113.0 | 5.4 | 3196.4 | | | | |
| Subregional BOI: | 0.5 | | 0.3 | | 6.6 | 2.4 | 5.9 | 0.0 | | | | | 0.0 | 27.6 | | | | | 0.4 | 0.0 | 1.5 | | | 1.8 | 0.1 | 47.1 | 3.0 | | | |
| Area (sq. km): 209.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.0 | 1.0 | 1.0 |
| BOI/sq. km: | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | | | | | 0.0 | 0.1 | | | | | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 7.6 | 1.0 | | | |
| 15JAN87 1602 | 101.0 | | | | 251.0 | 8.0 | 186.0 | | | | | | | 914.0 | | | | | 12.0 | | 226.0 | 28.0 | | 695.0 | | | | | | |
| 18JAN91 1602 | | | | | 404.0 | | 632.0 | | | | | | | 234.0 | | | | | 6.0 | | 80.0 | | | 18.0 | | | | | | |
| 06JAN88 1602 | 22.0 | | | | 476.0 | 1746.0 | 368.0 | | 2.0 | | | | | 796.0 | | | | | | | 146.0 | 12.0 | | 218.0 | | | | | | |
| 11JAN90 1602 | 58.0 | | | | 126.0 | 286.0 | 254.0 | | | | | | | 1156.0 | | | | | 16.0 | | 8.0 | | | 14.0 | | | | | | |
| 04JAN89 1602 | | | | | 476.0 | 880.0 | 38.0 | | 26.0 | | | | | 1152.0 | | | | | 136.0 | | | | | 174.0 | | | | | | |
| Average Seasonal #: | 36.2 | | | | 346.6 | 584.0 | 295.6 | | 5.6 | | | | | 850.4 | | | | | 34.0 | | 92.0 | 8.0 | | 223.8 | | 2476.2 | | | | |
| Subregional BOI: | 0.1 | | | | 3.8 | 3.5 | 3.3 | | 0.0 | | | | | 20.2 | | | | | 0.4 | | 0.8 | 0.1 | | 3.5 | | 35.6 | 3.0 | | | |
| Area (sq. km): 134.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | 2.0 | 2.0 |
| BOI/sq. km: | 0.0 | | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | | | 0.1 | | | | | 0.0 | | 0.0 | 0.0 | | 0.0 | | 5.7 | 2.0 | | | |
| 30JAN91 1603 | 114.0 | | 24.0 | | 390.0 | 100.0 | 258.0 | | 2.0 | | | | | 928.0 | | | | | 74.0 | | 38.0 | | | 86.0 | 6.0 | | | | | |
| 06JAN88 1603 | 226.0 | | 6.0 | | 134.0 | 1232.0 | 44.0 | | | | | | | 530.0 | | | | | 20.0 | | 190.0 | | 8.0 | 162.0 | | | | | | |
| 11JAN90 1603 | 50.0 | 6.0 | | | 210.0 | 254.0 | 44.0 | | | | | | | 758.0 | | | | | 80.0 | | | | | 70.0 | | | | | | |
| 04JAN89 1603 | 16.0 | | | | 326.0 | 1902.0 | 20.0 | | | | | | | 1192.0 | | | | | 72.0 | | | | | 38.0 | 4.0 | | | | | |
| 15JAN87 1603 | 7.0 | | 232.0 | 158.0 | 378.0 | 1182.0 | 111.0 | 555.0 | | | | | | 508.0 | | | | | | | 6.0 | | | 365.0 | 4.0 | | | | | |
| Average Seasonal #: | 82.6 | 1.2 | 52.4 | 31.6 | 287.6 | 934.0 | 95.4 | 111.0 | 0.4 | | | | | 783.2 | | | | | 49.2 | | 46.8 | | 1.6 | 144.2 | 2.8 | 2624.0 | | | | |
| Subregional BOI: | 0.3 | 0.0 | 1.8 | 0.1 | 3.2 | 5.7 | 1.1 | 0.3 | 0.0 | | | | | 18.6 | | | | | 0.5 | | 0.4 | | 0.0 | 2.2 | 0.1 | 34.1 | 3.0 | | | |
| Area (sq. km): 124.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | 2.0 | 2.0 |
| BOI/sq. km: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | 0.1 | | | | | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 5.5 | 2.0 | | | |
| 30JAN91 1605 | 6.0 | | | | 262.0 | 68.0 | 89.0 | | | | | | | 1051.0 | | | | | 6.0 | | 33.0 | | | 23.0 | | | | | | |
| 03JAN90 1605 | 19.0 | | | | 79.0 | | 87.0 | | | | | | | 2538.0 | | | | | 48.0 | | | | | 299.0 | | | | | | |
| 06JAN88 1605 | 3.0 | | | | 68.0 | 93.0 | 83.0 | | 9.0 | | | | | 704.0 | | | | | 11.0 | | 181.0 | | 1.0 | | | | | | | |
| 10JAN89 1605 | | | | | 385.0 | 48.0 | 14.0 | | 4.0 | | | | | 1213.0 | | | | | 61.0 | | | | | 54.0 | 3.0 | | | | | |
| 15JAN87 1605 | 30.0 | 20.0 | | | 171.0 | 331.0 | 55.0 | | | | | | | 840.0 | | | | | 12.0 | 3.0 | | | | 96.0 | | | | | | |
| Average Seasonal #: | 11.6 | 4.0 | | | 193.0 | 108.0 | 65.6 | | 2.6 | | | | | 1269.2 | | | | | 27.6 | 0.6 | 42.8 | | 0.2 | 94.4 | 0.6 | 1820.2 | | | | |
| Subregional BOI: | 0.0 | 0.0 | | | 2.1 | 0.7 | 0.7 | | 0.0 | | | | | 30.1 | | | | | 0.3 | 0.0 | 0.4 | | 0.0 | 1.5 | 0.0 | 35.8 | 3.0 | | | |
| Area (sq. km): 141.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | 2.0 | 2.0 |
| BOI/sq. km: | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | | | 0.2 | | | | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 5.8 | 2.0 | | | |
| 04JAN89 1606 | | | | | 52.0 | 4.0 | 2.0 | | | | | | | 46.0 | | | | | 2.0 | | | | | | | | | | | |
| 30JAN91 1606 | 4.0 | | | | 34.0 | | 6.0 | | | | | | | 34.0 | | | | | 2.0 | | | | | | | | | | | |
| 15JAN87 1606 | 5.0 | | | | 29.0 | 47.0 | 67.0 | | | | | | | 76.0 | | | | | 5.0 | | 16.0 | | | 54.0 | | | | | | |
| 06JAN88 1606 | | | | | 10.0 | 14.0 | 2.0 | | | | | | | 34.0 | | | | | 2.0 | | 12.0 | | | | | | | | | |
| 03JAN90 1606 | | | | | 2.0 | | 16.0 | | | | | | | 22.0 | | | | | 4.0 | | | | | 10.0 | | | | | | |
| Average Seasonal #: | 1.8 | | | | 25.4 | 13.0 | 18.6 | | | | | | | 42.4 | | | | | 3.0 | | 5.6 | | | 12.8 | | 122.6 | | | | |
| Subregional BOI: | 0.0 | | | | 0.3 | 0.1 | 0.2 | | | | | | | 1.0 | | | | | 0.0 | | 0.0 | | | 0.2 | | 1.9 | 2.0 | | | |
| Area (sq. km): 40.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1.5 | 1.0 | 1.0 |
| BOI/sq. km: | 0.0 | | | | 0.0 | 0.0 | 0.0 | | | | | | | 0.0 | | | | | 0.0 | | 0.0 | | | 0.0 | | 0.3 | 1.0 | | | |

TABLE MB-4. Calculation of Winter BOI for Region 4, 14, 15 and 16 Subregions from Washington State Department of Wildlife (1991) Data.

| Species Group and ID#: | 1 MALLARD | 2 RINGNECK | 3 BRANT | 4 GADWALL | 5 GOLDENEYE | 6 WIDGEON | 7 BUFFLEHEAD | 8 GREEN-WINGED TEAL | 9 RUDDY | 10 BLUE-WINGED TEAL | 11 SHOVLER | 12 EIDER | 13 PINTAIL | 14 SCOTER | 15 OLDSQUAW | 16 TUNDRA SWAN | 17 TRUMPETER SWAN | 18 UNKNOWN SWAN | 19 MERGANSER | 20 REDHEAD | 21 UNIDENT. | 22 CANVAS BACK | 23 COOT | 24 SCAUP | 25 HARLQUIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species Group ID #: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| Species Group BOI: | 30.8 | 98.6 | 337.0 | 23.8 | 110.2 | 60.5 | 110.2 | 30.8 | 53.2 | 11.2 | 55.4 | 22.8 | 60.5 | 237.1 | 134.6 | 53.8 | 60.5 | 53.8 | 108.0 | 84.2 | 84.2 | 66.6 | 28.8 | 154.9 | 184.8 |

| DATE | SUBREGION | Area (sq. km) | SUBREG. TOTALS | AVERAGE RATING | INITIAL BOI RANK | SPECIAL? | FINAL BOI RANK |
|---|---|---|---|---|---|---|---|
| 15JAN87 | 1607 | | | | | | |
| 30JAN91 | 1607 | | | | | | |
| 10JAN89 | 1607 | | | | | | |
| 06JAN88 | 1607 | | | | | | |
| 03JAN90 | 1607 | | | | | | |
| Average Seasonal #: | | | 191.4 | | | | |
| Subregional BOI: | | | 3.1 | 2.0 | | | |
| Area (sq. km): | 14.0 | | | | 1.5 | 1.0 | 1.0 2.0 |
| BOI/sq. km: | | | 0.5 | 1.0 | | | |
| 30JAN91 | 1608 | | | | | | |
| 03JAN90 | 1608 | | | | | | |
| 10JAN89 | 1608 | | | | | | |
| Average Seasonal #: | | | 52.8 | | | | |
| Subregional BOI: | | | 0.9 | 2.0 | | | |
| Area (sq. km): | 10.3 | | | | 1.5 | 1.0 | 1.0 |
| BOI/sq. km: | | | 0.1 | 1.0 | | | |
| 15JAN87 | 1628 | | | | | | |
| 11JAN90 | 1628 | | | | | | |
| 30JAN91 | 1628 | | | | | | |
| 04JAN89 | 1628 | | | | | | |
| 06JAN88 | 1628 | | | | | | |
| Average Seasonal #: | | | 1341.8 | | | | |
| Subregional BOI: | | | 22.8 | 2.0 | | | |
| Area (sq. km): | 4.1 | | | | 4.5 | 2.0 | 2.0 |
| BOI/sq. km: | | | 3.7 | 7.0 | | | |
| 15JAN87 | 1629 | | | | | | |
| 04JAN89 | 1629 | | | | | | |
| 11JAN90 | 1629 | | | | | | |
| 30JAN91 | 1629 | | | | | | |
| Average Seasonal #: | | | 688.5 | | | | |
| Subregional BOI: | | | 11.3 | 2.0 | | | |
| Area (sq. km): | 6.8 | | | | 3.5 | 2.0 | 1.0 3.0 |
| BOI/sq. km: | | | 1.8 | 5.0 | | | |
| 11JAN90 | 1630 | | | | | | |
| 06JAN88 | 1630 | | | | | | |
| 30JAN91 | 1630 | | | | | | |
| 04JAN89 | 1630 | | | | | | |
| 15JAN87 | 1630 | | | | | | |
| Average Seasonal #: | | | 2373.4 | | | | |
| Subregional BOI: | | | 40.8 | 3.0 | | | |
| Area (sq. km): | 20.1 | | | | 4.0 | 2.0 | 2.0 |
| BOI/sq. km: | | | 6.6 | 5.0 | | | |
| 30JAN91 | 1631 | | | | | | |
| 11JAN90 | 1631 | | | | | | |
| 15JAN87 | 1631 | | | | | | |
| 06JAN88 | 1631 | | | | | | |
| 04JAN89 | 1631 | | | | | | |

| DATE | SUBREGION | 1 MALLARD | 2 RINGNECK | 3 BRANT | 4 GADWALL | 5 GOLDENEYE | 6 WIDGEON | 7 BUFFLEHEAD | 8 GREEN-WINGED TEAL | 9 RUDDY | 10 BLUE-WINGED TEAL | 11 SHOVLER | 12 EIDER | 13 PINTAIL | 14 SCOTER | 15 OLDSQUAW | 16 TUNDRA SWAN | 17 TRUMPETER SWAN | 18 UNKNOWN SWAN | 19 MERGANSER | 20 REDHEAD | 21 UNIDENT. | 22 CANVAS BACK | 23 COOT | 24 SCAUP | 25 HARLQUIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15JAN87 | 1607 | | | | 6.0 | | 12.0 | | | | | | | | | | | | | 195.0 | | | | 4.0 | |
| 30JAN91 | 1607 | | | . | 9.0 | | 37.0 | | . | | | | | 61.0 | | | | | | 3.0 | | | | 1.0 | |
| 10JAN89 | 1607 | 1.0 | | . | 35.0 | | 6.0 | | . | | | | | 83.0 | | | | 1.0 | | | | | | 19.0 | |
| 06JAN88 | 1607 | 1.0 | | . | 58.0 | | 17.0 | | | | | | | 48.0 | | | | 6.0 | | 12.0 | | | | | |
| 03JAN90 | 1607 | | | . | 3.0 | | 97.0 | | . | | | | | 231.0 | | | | 4.0 | | | | | | 7.0 | |
| Average Seasonal #: | | 0.4 | | | 22.2 | | 33.8 | | | | | | | 84.6 | | | | 2.2 | | 42.0 | | | | 6.2 | |
| Subregional BOI: | | 0.0 | | | 0.2 | | 0.4 | | | | | | | 2.0 | | | | 0.0 | | 0.4 | | | | 0.1 | |
| Area (sq. km): | 14.0 | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | | | 0.0 | | 0.0 | | | | | | | 0.1 | | | | 0.0 | | 0.0 | | | | 0.0 | |
| 30JAN91 | 1608 | | | | 9.0 | | 6.0 | | | | | | | 18.0 | | | | 2.0 | | | | | | | |
| 03JAN90 | 1608 | | | | | | 27.0 | | | | | | | 68.0 | | | | 59.0 | | | | | | | |
| 10JAN89 | 1608 | | | | 20.0 | | | | | | | | | | | | | 2.0 | | | | | | | |
| Average Seasonal #: | | 0.0 | | | 7.3 | | 8.3 | | | | | | | 21.5 | | | | 15.8 | | 0.0 | | | | 0.0 | |
| Subregional BOI: | | 0.0 | | | 0.1 | | 0.1 | | | | | | | 0.5 | | | | 0.2 | | 0.0 | | | | 0.0 | |
| Area (sq. km): | 10.3 | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | | | 0.0 | | 0.0 | | | | | | | 0.0 | | | | 0.0 | | 0.0 | | | | 0.0 | |
| 15JAN87 | 1628 | | | | 87.0 | 502.0 | 31.0 | | | | | | | 144.0 | | | | 10.0 | | | | | | | |
| 11JAN90 | 1628 | 86.0 | | . | 315.0 | 151.0 | 541.0 | | | | | | | 861.0 | | | | 4.0 | | 4.0 | | | | | |
| 30JAN91 | 1628 | | | . | 112.0 | | 92.0 | | | | | | | 1081.0 | | | | 25.0 | | 15.0 | | | | 87.0 | |
| 04JAN89 | 1628 | | | . | 194.0 | 15.0 | 25.0 | | 10.0 | | | | | 538.0 | | | | 66.0 | | | | | | 20.0 | |
| 06JAN88 | 1628 | | | . | 317.0 | 158.0 | 164.0 | | | | | | | 876.0 | | | | | | 56.0 | | 46.0 | | 76.0 | |
| Average Seasonal #: | | 17.2 | | | 205.0 | 165.2 | 170.6 | | 2.0 | | | | | 700.0 | | | | 21.0 | | 14.2 | | 9.2 | | 37.4 | |
| Subregional BOI: | | 0.1 | | | 2.3 | 1.0 | 1.9 | | 0.0 | | | | | 16.6 | | | | 0.2 | | 0.1 | | 0.0 | | 0.6 | |
| Area (sq. km): | 4.1 | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | | | 0.6 | 0.2 | 0.5 | | 0.0 | | | | | 4.0 | | | | 0.1 | | 0.0 | | 0.0 | | 0.1 | |
| 15JAN87 | 1629 | 42.0 | | | 36.0 | 235.0 | 29.0 | 25.0 | | | | | | 171.0 | | | | 1.0 | | | 6.0 | | | 15.0 | |
| 04JAN89 | 1629 | 25.0 | 54.0 | . | 23.0 | 134.0 | 15.0 | | 2.0 | . | | | 6.0 | 515.0 | | | | 78.0 | | | | | | 15.0 | |
| 11JAN90 | 1629 | 41.0 | | . | 39.0 | 152.0 | 42.0 | 4.0 | . | | | | | 276.0 | | | | 4.0 | | 1.0 | | | | 16.0 | |
| 30JAN91 | 1629 | 7.0 | | . | 52.0 | 87.0 | 34.0 | | . | | | | | 511.0 | | | | 9.0 | | | | | | 52.0 | |
| Average Seasonal #: | | 28.8 | 13.5 | | 37.5 | 152.0 | 30.0 | 7.3 | 0.5 | | | | 1.5 | 368.3 | | | | 23.0 | | 0.3 | 1.5 | | | 24.5 | |
| Subregional BOI: | | 0.1 | 0.1 | | 0.4 | 0.9 | 0.3 | 0.0 | 0.0 | | | | 0.0 | 8.7 | | | | 0.2 | | 0.0 | 0.0 | | | 0.4 | |
| Area (sq. km): | 6.8 | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | 0.0 | | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 1.3 | | | | 0.0 | | 0.0 | 0.0 | | | 0.1 | |
| 11JAN90 | 1630 | 37.0 | | . | 18.0 | 106.0 | 143.0 | | . | | | | | 761.0 | | | | | | 18.0 | | | | 28.0 | |
| 06JAN88 | 1630 | 15.0 | | . | 249.0 | 224.0 | 177.0 | | 6.0 | | | | | 967.0 | | | | 9.0 | | 190.0 | | 56.0 | | 34.0 | |
| 30JAN91 | 1630 | 8.0 | | . | 293.0 | 705.0 | 149.0 | | . | | | | | 1483.0 | | | | 206.0 | | 78.0 | | | | 12.0 | |
| 04JAN89 | 1630 | | 12.0 | . | 408.0 | 202.0 | 96.0 | | . | | | | | 1298.0 | | | | 96.0 | | | | | | | |
| 15JAN87 | 1630 | 75.0 | | | 267.0 | 750.0 | 253.0 | | | | | | | 2157.0 | | | | 36.0 | | 71.0 | | | | 165.0 | 9.0 |
| Average Seasonal #: | | 27.0 | 2.4 | | 247.0 | 397.4 | 163.6 | | 1.2 | | | | | 1333.2 | | | | 69.4 | | 71.4 | | 11.2 | | 47.8 | 1.8 |
| Subregional BOI: | | 0.1 | 0.0 | | 2.7 | 2.4 | 1.8 | | 0.0 | | | | | 31.6 | | | | 0.7 | | 0.6 | | 0.0 | | 0.7 | 0.0 |
| Area (sq. km): | 20.1 | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | 0.0 | | 0.1 | 0.1 | 0.1 | | 0.0 | | | | | 1.6 | | | | 0.0 | | 0.0 | | 0.0 | | 0.0 | 0.0 |
| 30JAN91 | 1631 | 46.0 | | . | 445.0 | 295.0 | 69.0 | | . | | | | | 1574.0 | | | | 15.0 | | 7.0 | 11.0 | | | 30.0 | |
| 11JAN90 | 1631 | 81.0 | | . | 143.0 | 1708.0 | 119.0 | | . | | | | | 935.0 | | | | | | 23.0 | | | | 19.0 | |
| 15JAN87 | 1631 | 178.0 | 264.0 | | 77.0 | 2630.0 | 24.0 | | 29.0 | | | | | 941.0 | | | | | | | | | | 96.0 | |
| 06JAN88 | 1631 | 115.0 | | . | 222.0 | 2204.0 | 165.0 | 42.0 | | | | | | 783.0 | | | | 11.0 | | 760.0 | | 65.0 | | 311.0 | |
| 04JAN89 | 1631 | 191.0 | | . | 253.0 | 2008.0 | 7.0 | | 11.0 | . | | | | 1850.0 | | | | 111.0 | | | | | | 311.0 | |

TABLE MB-4. Calculation of Winter BOI for Region 4, 14, 15 and 16 Subregions from Washington State Department of Wildlife (1991) Data.

| Species Group and ID#: | | 1 MALLARD | 2 RINGNECK | 3 BRANT | 4 GADWALL | 5 GOLDENEYE | 6 WIDGEON | 7 BUFFLEHEAD | 8 GREEN-WINGED TEAL | 9 RUDDY | 10 BLUE-WINGED TEAL | 11 SHOVLER | 12 EIDER | 13 PINTAIL | 14 SCOTER | 15 OLDSQUAW | 16 TUNDRA SWAN | 17 TRUMPETER SWAN | 18 UNKNOWN SWAN | 19 MERGANSER | 20 REDHEAD | 21 UNIDENT. | 22 CANVAS BACK | 23 COOT | 24 SCAUP | 25 HARLQUIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species Group ID #: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | SUBREG. TOTALS | AVERAGE RATING | INITIAL BOI RANK | SPECIAL? | FINAL BOI RANK |
| Species Group BOI: | | 30.8 | 98.6 | 337.0 | 23.8 | 110.2 | 60.5 | 110.2 | 30.8 | 53.2 | 11.2 | 55.4 | 22.8 | 60.5 | 237.1 | 134.6 | 53.8 | 60.5 | 53.8 | 108.0 | 84.2 | 84.2 | 66.6 | 28.8 | 154.9 | 184.8 | | | | | |
| DATE SUBREGION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Average Seasonal #: | | 122.2 | 52.8 | | 228.0 | 1769.0 | 76.8 | 8.4 | 8.0 | | | | | 1216.6 | | | | | | 27.4 | | 158.0 | 2.2 | 13.0 | 153.4 | | 3835.8 | | | | |
| Subregional BOI: | | 0.4 | 0.5 | | 2.5 | 10.7 | 0.8 | 0.0 | 0.0 | | | | | 28.8 | | | | | | 0.3 | | 1.3 | 0.0 | 0.0 | 2.4 | | 47.9 | 3.0 | | | |
| Area (sq. km): | 14.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | 0.0 | | 0.2 | 0.8 | 0.1 | 0.0 | 0.0 | | | | | 2.0 | | | | | | 0.0 | | 0.1 | 0.0 | 0.0 | 0.2 | | 7.7 | 6.0 | 4.5 | 2.0 | 1.0 | 3.0 |
| 30JAN91 | 1632 | 72.0 | | | 533.0 | 237.0 | 122.0 | | | | | | | 823.0 | | | | | | 29.0 | | 18.0 | | | 66.0 | | | | | | |
| 15JAN87 | 1632 | 152.0 | | | 480.0 | 319.0 | 93.0 | | | | | | | 852.0 | | | | | | 15.0 | | 12.0 | | | 328.0 | | | | | | |
| 04JAN89 | 1632 | 131.0 | | | 723.0 | 44.0 | | | | 16.0 | | | | 695.0 | 1.0 | | | | | 55.0 | | | | | 3.0 | | | | | | |
| 11JAN90 | 1632 | 139.0 | | | 213.0 | 706.0 | 133.0 | | | | | | | 1254.0 | | | | | | 3.0 | | 37.0 | | | 46.0 | | | | | | |
| 06JAN88 | 1632 | 114.0 | | | 1059.0 | 582.0 | 297.0 | | | 15.0 | | | | 2140.0 | | | | | | 30.0 | | 452.0 | 30.0 | 99.0 | 164.0 | | | | | | |
| Average Seasonal #: | | 121.6 | | | 601.6 | 377.6 | 129.0 | | | 6.2 | | | | 1152.8 | 0.2 | | | | | 26.4 | | 103.8 | 6.0 | 19.8 | 121.4 | | 2666.4 | | | | |
| Subregional BOI: | | 0.4 | | | 6.6 | 2.3 | 1.4 | | | 0.0 | | | | 27.3 | 0.0 | | | | | 0.3 | | 0.9 | 0.0 | 0.1 | 1.9 | | 41.2 | 3.0 | | | |
| Area (sq. km): | 15.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | | | 0.4 | 0.1 | 0.1 | | | 0.0 | | | | 1.7 | 0.0 | | | | | 0.0 | | 0.1 | 0.0 | 0.0 | 0.1 | | 6.6 | 6.0 | 4.5 | 2.0 | | 2.0 |
| 30JAN91 | 1633 | 42.0 | | | 148.0 | | 16.0 | | | 60.0 | | | | 96.0 | | | | | | 4.0 | | | | | 48.0 | | | | | | |
| 11JAN90 | 1633 | 21.0 | 28.0 | | 90.0 | 46.0 | 21.0 | | | 30.0 | | | | 184.0 | | | | | | 3.0 | | 5.0 | | | | | | | | | |
| 15JAN87 | 1633 | 3.0 | 58.0 | | 43.0 | 164.0 | 29.0 | | | 6.0 | | | | 46.0 | | | | | | | | | | | 66.0 | | | | | | |
| 06JAN88 | 1633 | | | | 89.0 | 3.0 | | | | | | | | 159.0 | | | | | | | | 53.0 | | 18.0 | 29.0 | | | | | | |
| 04JAN89 | 1633 | 374.0 | | | 33.0 | 18.0 | | | | 12.0 | | | | 259.0 | | | | | | 32.0 | | | | | 52.0 | 2.0 | | | | | |
| Average Seasonal #: | | 88.0 | 17.2 | | 80.6 | 46.2 | 13.2 | | | 21.6 | | | | 148.8 | | | | | | 7.8 | | 11.6 | | 3.6 | 39.0 | 0.4 | 478.0 | | | | |
| Subregional BOI: | | 0.3 | 0.2 | | 0.9 | 0.3 | 0.1 | | | 0.1 | | | | 3.5 | | | | | | 0.1 | | 0.1 | | 0.0 | 0.6 | 0.0 | 6.2 | 2.0 | | | |
| Area (sq. km): | 4.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.1 | 0.0 | | 0.2 | 0.1 | 0.0 | | | 0.0 | | | | 0.9 | | | | | | 0.0 | | 0.0 | | 0.0 | 0.2 | 0.0 | 1.0 | 5.0 | 3.5 | 2.0 | | 2.0 |
| 03JAN90 | 1634 | | | | 19.0 | | 26.0 | | | | | | | 2227.0 | | | | | | 337.0 | | | | | 165.0 | | | | | | |
| 06JAN88 | 1634 | 43.0 | | | 227.0 | 308.0 | 183.0 | | | | | | | 1298.0 | | | | | | 43.0 | | 183.0 | | 129.0 | 432.0 | | | | | | |
| 04JAN89 | 1634 | 27.0 | 16.0 | | 373.0 | 64.0 | 70.0 | | | | | | | 3786.0 | | | | | | 10.0 | | | | | 75.0 | | | | | | |
| 15JAN87 | 1634 | 179.0 | | | 260.0 | 395.0 | 319.0 | | | | | | | 2586.0 | | | | | | 38.0 | | | | | 146.0 | | | | | | |
| 30JAN91 | 1634 | | | | 340.0 | | 129.0 | | | | | | | 4473.0 | | | | | | 21.0 | | 37.0 | | | 54.0 | | | | | | |
| Average Seasonal #: | | 49.8 | 3.2 | | 243.8 | 153.4 | 145.4 | | | | | | | 2874.0 | | | | | | 89.8 | | 44.0 | | 25.8 | 174.4 | | 3803.6 | | | | |
| Subregional BOI: | | 0.2 | 0.0 | | 2.7 | 0.9 | 1.6 | | | | | | | 68.1 | | | | | | 1.0 | | 0.4 | | 0.1 | 2.7 | | 77.7 | 4.0 | | | |
| Area (sq. km): | 11.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BOI/sq. km: | | 0.0 | 0.0 | | 0.2 | 0.1 | 0.1 | | | | | | | 5.7 | | | | | | 0.1 | | 0.0 | | 0.0 | 0.2 | | 12.5 | 7.0 | 5.5 | 3.0 | | 3.0 |

TABLE MB-5. Calculation of Winter BOI Values from Washington State Department of Wildlife (1991) Data.

| | | HENDERSON INLET - 1617 | | | | | BUDD INLET - 1619 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIES | SPECIES BOI* | DEC | JAN | FEB | WINTER AVE. POP | WINTER BOI | DEC | JAN | FEB | WINTER AVE. POP | WINTER BOI |
| Western Grebe | 302.4 | 443 | 93 | 161 | 232.3 | 34757.1 | 654.00 | 733.00 | 641.00 | 676.00 | 204422.4 |
| Common Loon | 149.6 | 5 | 3 | 2 | 3.3 | 631.0 | 2.00 | 3.00 | | 2.50 | 374.0 |
| Glaucous-Winged Gull | 189.3 | | 90 | | 90.0 | 7866.0 | | 95.00 | | 95.00 | 17983.5 |
| California Gull | 87.4 | 5 | 100 | 55 | 53.3 | | 10.00 | 100.00 | 60.00 | 56.67 | 4952.7 |
| Black Tern | 51.8 | | 1 | | 1.0 | 51.8 | | | | | |
| Double-Crested Cormorant | 138.2 | 34 | 33 | 28 | 31.7 | 3648.0 | 25.00 | 25.00 | 74.00 | 41.33 | 5712.3 |
| Common Merganser | 115.2 | 22 | 25 | 9 | 18.7 | 574.9 | 16.00 | 47.00 | 62.00 | 41.67 | 4800.0 |
| Red-breasted Merganser | 132.0 | | | | | | | | | | |
| Mallard | 30.8 | 75 | 90 | 22 | 62.3 | 1483.5 | 51.00 | 14.00 | 17.00 | 27.33 | 841.9 |
| Gadwall | 23.8 | 2 | | | 2.0 | 121.0 | | | | | 0.0 |
| American Wigeon | 60.5 | 292 | 149 | 40 | 160.3 | 4938.3 | 55.00 | 54.00 | 20.00 | 43.00 | 2601.5 |
| American Green-Winged Teal | 30.8 | 53 | 67 | 20 | 46.7 | 2823.3 | | | | | 0.0 |
| Northern Pintail | 60.5 | 20 | 25 | 30 | 25.0 | | 156.00 | | | 156.00 | 9438.0 |
| Redhead | 84.2 | | | 14 | 14.0 | 1178.8 | | 2.00 | 20.00 | 11.00 | 926.2 |
| Canvasback | 66.6 | 29 | 45 | 23 | 32.3 | 5008.4 | 115.00 | 99.00 | 27.00 | 80.33 | 5350.2 |
| Greater Scaup | 154.9 | 63 | 80 | 60 | 67.7 | | 182.00 | 136.00 | 90.00 | 136.00 | 21066.4 |
| Ring-Necked Duck | 84.2 | 2 | | | 2.0 | 168.4 | 16.00 | | | 16.00 | 0.0 |
| Common Goldeneye | 110.2 | 57 | 72 | 51 | 60.0 | 6612.0 | 247.00 | 117.00 | 61.00 | 141.67 | 15611.7 |
| Bufflehead | 110.2 | 102 | 133 | 96 | 110.3 | 14850.9 | 105.00 | 101.00 | 27.00 | 77.67 | 8558.9 |
| Oldsquaw | 134.6 | | 8 | 3 | 5.5 | 1413.0 | | 20.00 | | 20.00 | 2692.0 |
| Harlequin Duck | 184.8 | | | | | | | | | | |
| Surf Scoter | 256.9 | 528 | 607 | 396 | 510.3 | 27149.7 | 1087.00 | 949.00 | 848.00 | 961.33 | 246966.5 |
| Ruddy Duck | 53.2 | 82 | 39 | 27 | 49.3 | 1277.7 | 45.00 | 260.00 | 36.00 | 113.67 | 6047.1 |
| Lesser Snow Goose | 116.2 | | | | | | | | | | |
| Canada Goose | 25.9 | | | | | | | | | | |
| Black Brant | 337.0 | | | | | | | | | | 0.0 |
| Great Blue Heron | 50.4 | 2 | 4 | 9 | 5.0 | 285.5 | 2.00 | 1.00 | 4.00 | 2.33 | 117.6 |
| American Coot | 28.8 | | | | | | | | | | 0.0 |
| Western Sandpiper | 57.1 | | 175 | 15 | 95.0 | 6811.5 | | 120.00 | | 120.00 | 6852.0 |
| Bald Eagle | 71.7 | | 1 | 2 | 1.5 | | | | 1.00 | 1.00 | 71.7 |
| | | 59 | 24 | 90 | 57.7 | | 20.00 | 1.00 | | 10.50 | 0.0 |
| | | ********** | | ********** | | | | | | | |
| | | 140 | 107 | 73 | | | | | | | |
| TOTAL SUBREGIONAL BOI: | | | | | | 12.17 | | | | | 56.54 |
| BOI RATING: | | | | | | 2.0 | | | | | 4.00 |
| SQ. KM OF SUBREGION: | | | | | | 22.5 | | | | | 21.40 |
| BOI/SQ. KM.: | | | | | | 0.5 | | | | | 2.64 |
| BOI/SQ. KM RATING: | | | | | | 2.0 | | | | | 6.00 |
| AVERAGE RATING: | | | | | | 2.0 | | | | | 5.00 |
| BOI RANK: | | | | | | 1.0 | | | | | 2.00 |

TABLE MB-5. Continued.

| SPECIES | Eld Inlet -1620 DEC | JAN | FEB | WINTER AVE. | WINTER BOI | TOTTIN INLET - 1621 DEC | JAN | FEB | WINTER AVE. POP | WINTER BOI |
|---|---|---|---|---|---|---|---|---|---|---|
| Western Grebe | 325.00 | 180.00 | 64.00 | 189.67 | 57355.20 | 227.00 | 481.00 | 616.00 | 441.33 | 133459.2 |
| Common Loon | 6.00 | 4.00 | 4.00 | 4.67 | 698.13 | 4.00 | 19.00 | 2.00 | 8.33 | 1246.7 |
| Glaucous-Winged Gull | | | | | | | 105.00 | | 105.00 | 19876.5 |
| California Gull | 27.00 | 35.00 | 60.00 | 40.67 | 3554.27 | 81.00 | 300.00 | 105.00 | 162.00 | 14158.8 |
| Black Tern | | | | | | | | | | |
| Double-Crested Cormorant | 24.00 | 34.00 | 12.00 | 23.33 | 3224.67 | 40.00 | 37.00 | 41.00 | 39.33 | 5435.9 |
| Common Merganser | 33.00 | 76.00 | 29.00 | 46.00 | 5299.20 | 22.00 | 70.00 | 21.00 | 37.67 | 4339.2 |
| Red-breasted Merganser | | | | | 0.00 | | | | | |
| Mallard | 72.00 | 84.00 | 27.00 | 61.00 | 1878.80 | 54.00 | 72.00 | 37.00 | 54.33 | 1673.5 |
| Gadwall | | | | | | | 25.00 | | 25.00 | 595.0 |
| American Wigeon | 104.00 | 71.00 | 9.00 | 61.33 | 3710.67 | 188.00 | 74.00 | 25.00 | 95.67 | 5787.8 |
| American Green-Winged Teal | 10.00 | 10.00 | | 10.00 | 308.00 | 50.00 | 44.00 | 25.00 | 39.67 | 1221.7 |
| Northern Pintail | 200.00 | 10.00 | | 105.00 | 6352.50 | 79.00 | 51.00 | 31.00 | 53.67 | 3246.8 |
| Redhead | 10.00 | 18.00 | 36.00 | 21.33 | 1802.67 | 12.00 | | | 12.00 | 1014.0 |
| Canvasback | 64.00 | 69.00 | 18.00 | 50.33 | 3352.20 | 74.00 | 61.00 | 82.00 | 72.33 | 4817.4 |
| Greater Scaup | 304.00 | 314.00 | 235.00 | 284.33 | 44043.23 | 261.00 | 734.00 | 246.00 | 413.67 | 64077.0 |
| Ring-Necked Duck | 1.00 | | 20.00 | 10.50 | 0.00 | | | 76.00 | 76.00 | 0.0 |
| Common Goldeneye | 150.00 | 107.00 | 129.00 | 128.67 | 14179.07 | 74.00 | 146.00 | 134.00 | 118.00 | 13003.6 |
| Bufflehead | 255.00 | 204.00 | 160.00 | 206.33 | 22737.93 | 130.00 | 219.00 | 99.00 | 149.33 | 16456.5 |
| Oldsquaw | | 14.00 | | 14.00 | 1884.40 | 3.00 | 7.00 | | 5.00 | 673.0 |
| Harlequin Duck | | | | | 0.00 | | 5.00 | | 5.00 | 924.0 |
| Surf Scoter | 1188.00 | 1245.00 | 651.00 | 1028.00 | 264093.2 | 1034.00 | 1342.00 | 1107.00 | 1161.00 | 298260.9 |
| Ruddy Duck | 97.00 | 397.00 | 45.00 | 179.67 | 9558.27 | 189.00 | 513.00 | | 351.00 | 18673.2 |
| Lesser Snow Goose | | | 2.00 | 2.00 | 232.40 | | | | | |
| Canada Goose | 2.00 | 20.00 | | 11.00 | 284.90 | | | | | |
| Black Brant | | | | | 0.00 | | | | | |
| Great Blue Heron | 6.00 | 3.00 | 2.00 | 3.67 | 184.80 | 9.00 | 6.00 | 5.00 | 6.67 | 336.0 |
| American Coot | 5.00 | | | 5.00 | 144.00 | | | | | 0.0 |
| Western Sandpiper | 50.00 | 50.00 | 70.00 | 56.67 | 3235.67 | 1404.00 | 987.00 | | 1195.50 | 68263.1 |
| Bald Eagle | | 2.00 | 1.00 | 1.50 | 107.55 | | 2.00 | 1.00 | 1.50 | 107.6 |
| | 11.00 | 14.00 | 7.00 | 10.67 | 0.00 | 5.00 | 1.00 | | 3.00 | 0.0 |
| | | | | | ********** | | | | | |
| TOTAL SUBREGIONAL BOI: | | | | | 44.82 | | | | | 67.76 |
| BOI RATING: | | | | | 3.00 | | | | | 4.00 |
| SQ. KM OF SUBREGION: | | | | | 14.60 | | | | | 22.50 |
| BOI/SQ. KM.: | | | | | 3.06 | | | | | 3.01 |
| BOI/SQ. KM RATING: | | | | | 6.00 | | | | | 6.00 |
| AVERAGE RATING: | | | | | 4.50 | | | | | 5.00 |
| BOI RANK: | | | | | 2.00 | | | | | 2.00 |

TABLE MB-5. Continued.

| SPECIES | Pickering Passage - 1622, 1624 DEC | JAN | FEB | WINTER AVE. POP | WINTER BOI | SKOOKUM INLET-1625 DEC | JAN | FEB | WINTER AVE. POP | WINTER BOI |
|---|---|---|---|---|---|---|---|---|---|---|
| Western Grebe | 122.00 | 201.00 | 40.00 | 121.00 | 36590.40 | | | | | 0.00 |
| Common Loon | 10.00 | 1.00 | | 5.50 | 822.80 | 2.00 | 3.00 | 3.00 | 2.67 | 398.93 |
| Glaucous-Winged Gull | | | | | | | | | | |
| California Gull | | | | | | 20.00 | 30.00 | 70.00 | 40.00 | 3496.00 |
| Black Tern | | | | | | | | | | |
| Double-Crested Cormorant | 13.00 | 20.00 | | 16.50 | 2280.30 | 11.00 | 5.00 | 7.00 | 7.67 | 1059.53 |
| Common Merganser | 15.00 | 5.00 | 7.00 | 9.00 | 1036.80 | 27.00 | 35.00 | 13.00 | 25.00 | 2880.00 |
| Red-breasted Merganser | | | | | | | | | | |
| Mallard | 39.00 | 5.00 | | 22.00 | 677.60 | 76.00 | 96.00 | 13.00 | 61.67 | 1899.33 |
| Gadwall | | | | | | | | | | |
| American Wigeon | | 7.00 | | 7.00 | 423.50 | 60.00 | 30.00 | 13.00 | 34.33 | 2077.17 |
| American Green-Winged Teal | | | | | 0.00 | 30.00 | 73.00 | 16.00 | 39.67 | 1221.73 |
| Northern Pintail | | | | | 0.00 | 80.00 | 23.00 | 24.00 | 42.33 | 2561.17 |
| Redhead | | | | | | 5.00 | | | 5.00 | 422.50 |
| Canvasback | | | | | | 22.00 | 31.00 | 5.00 | 19.33 | 1287.60 |
| Greater Scaup | 6.00 | 3.00 | 50.00 | 19.67 | 3046.37 | 133.00 | 173.00 | 263.00 | 189.67 | 29379.37 |
| Ring-Necked Duck | | | | | | | | | | |
| Common Goldeneye | 17.00 | 5.00 | 87.00 | 36.33 | 4003.93 | 84.00 | 139.00 | 131.00 | 118.00 | 13003.60 |
| Bufflehead | 10.00 | 9.00 | 12.00 | 10.33 | 1138.73 | 160.00 | 87.00 | 76.00 | 107.67 | 11864.87 |
| Oldsquaw | | | | | | | | | | |
| Harlequin Duck | | | | | | | | | | |
| Surf Scoter | 148.00 | 32.00 | 349.00 | 176.33 | 45300.03 | 124.00 | 172.00 | 206.00 | 167.33 | 42987.93 |
| Ruddy Duck | | | | | | 10.00 | 20.00 | 200.00 | 76.67 | 4078.67 |
| Lesser Snow Goose | | | | | | | | | | |
| Canada Goose | | | | | | | | | | |
| Black Brant | | | | | | | | | | |
| Great Blue Heron | | | | | | 3.00 | 4.00 | 5.00 | 4.00 | 201.60 |
| American Coot | | | | | | | | | | 0.00 |
| Western Sandpiper | | | | | | 175.00 | 100.00 | 300.00 | 191.67 | 10944.17 |
| Bald Eagle | | | | | | | 1.00 | | 1.00 | 71.70 |
| | | | | | | 7.00 | | | 7.00 | 0.00 |
| TOTAL SUBREGIONAL BOI: | | | | | 9.53 | | | | | 12.98 |
| BOI RATING: | | | | | 2.00 | | | | | 2.00 |
| SQ. KM OF SUBREGION: | | | | | 14.10 | | | | | 1.70 |
| BOI/SQ. KM.: | | | | | 0.68 | | | | | 7.61 |
| BOI/SQ. KM RATING: | | | | | 3.00 | | | | | 8.00 |
| AVERAGE RATING: | | | | | 2.50 | | | | | 5.00 |
| BOI RANK: | | | | | 2.00 | | | | | 2.00 |

TABLE MB-5. Continued.

| SPECIES | HAMMERSLEY INLET - 1626 DEC | JAN | FEB | WINTER AVE. POP | WINTER BOI | OAKLAND BAY - 1627 DEC | JAN | FEB | WINTER AVE. POP | WINTER BOI |
|---|---|---|---|---|---|---|---|---|---|---|
| Western Grebe | 50.00 | 49.00 | 45.00 | 48.00 | 11515.20 | 120.00 | 138.00 | 103.00 | 120.33 | 36388.80 |
| Common Loon | 3.00 | 5.00 | 1.00 | 3.00 | 448.80 | | 1.00 | | 1.00 | 149.60 |
| Glaucous-Winged Gull | | | | | | | | | | |
| California Gull | 20.00 | 15.00 | | 17.50 | 1529.50 | 52.00 | 50.00 | 100.00 | 67.33 | 5884.93 |
| Black Tern | | | | | | | | | | |
| Double-Crested Cormorant | 24.00 | 24.00 | 19.00 | 22.33 | 3086.47 | 9.00 | 12.00 | 9.00 | 10.00 | 1382.00 |
| Common Merganser | 58.00 | 21.00 | 11.00 | 30.00 | 3456.00 | 15.00 | 7.00 | 14.00 | 12.00 | 1382.40 |
| Red-breasted Merganser | | | | | 0.00 | | | | | |
| Mallard | 21.00 | 18.00 | | 19.50 | 600.60 | 54.00 | 44.00 | 159.00 | 85.67 | 2638.53 |
| Gadwall | 10.00 | | | 10.00 | 238.00 | | | | | |
| American Wigeon | 47.00 | 9.00 | 24.00 | 26.67 | 1613.33 | 63.00 | 63.00 | 48.00 | 58.00 | 3509.00 |
| American Green-Winged Teal | 25.00 | | | 25.00 | 770.00 | 25.00 | 30.00 | 24.00 | 26.33 | 811.07 |
| Northern Pintail | 50.00 | | | 50.00 | 3025.00 | 65.00 | 35.00 | | 50.00 | 3025.00 |
| Redhead | | | | | 0.00 | | | | | |
| Canvasback | 10.00 | | 8.00 | 9.00 | 599.40 | 24.00 | 17.00 | 5.00 | 15.33 | 1021.20 |
| Greater Scaup | 20.00 | 6.00 | 24.00 | 16.67 | 2581.67 | 115.00 | 62.00 | 44.00 | 73.67 | 11410.97 |
| Ring-Necked Duck | | | | | | | | | | |
| Common Goldeneye | 20.00 | 22.00 | 56.00 | 32.67 | 3599.87 | 23.00 | 19.00 | 33.00 | 25.00 | 2755.00 |
| Bufflehead | 17.00 | 14.00 | 19.00 | 16.67 | 1836.67 | 58.00 | 56.00 | 50.00 | 54.67 | 6024.27 |
| Oldsquaw | 1.00 | 2.00 | 6.00 | 3.00 | 0.00 | | | | | |
| Harlequin Duck | | | | | | | | | | |
| Surf Scoter | 250.00 | 154.00 | 248.00 | 217.33 | 55832.93 | 150.00 | 178.00 | 148.00 | 158.67 | 40761.47 |
| Ruddy Duck | | | | | | | | | | 0.00 |
| Lesser Snow Goose | | | | | | | | | | |
| Canada Goose | | | | | 0.00 | | | | | |
| Black Brant | | | | | | | | | | |
| Great Blue Heron | 1.00 | 2.00 | 2.00 | 1.67 | 84.00 | 3.00 | 1.00 | 3.00 | 2.33 | 117.60 |
| American Coot | | | | | | 30.00 | | 5.00 | 17.50 | 504.00 |
| Western Sandpiper | | | | | | 50.00 | 19.00 | | 34.50 | 1969.95 |
| Bald Eagle | | | | | 0.00 | 2.00 | | 2.00 | 2.00 | 143.40 |
| | 1.00 | 1.00 | | 1.00 | 0.00 | | | | | 0.00 |
| TOTAL SUBREGIONAL BOI: | | | | | 9.38 | | | | | 11.99 |
| BOI RATING: | | | | | 2.00 | | | | | 2.00 |
| SQ. KM OF SUBREGION: | | | | | 5.10 | | | | | 8.40 |
| BOI/SQ. KM.: | | | | | 1.84 | | | | | 1.43 |
| BOI/SQ. KM RATING: | | | | | 5.00 | | | | | 5.00 |
| AVERAGE RATING: | | | | | 3.50 | | | | | 3.50 |
| BOI RANK: | | | | | 2.00 | | | | | 2.00 |

TABLE MB-6. Calculation of Spring and Fall BOI Values for Region 4, 14, 15 and 16 Subregions.

| Compensation Schedule Subregion | WINTER Final Rank | SUMMER Final Rank | FA & SP RANK (ave. of SU&WI) | Exceptions |
|---|---|---|---|---|
| 402 | 3 | 1 | 2 | |
| 403 | 4 | 2 | 3 | |
| 404 | 2 | 2 | 2 | |
| 405 | 4 | 2 | 3 | |
| 1401 | 1 | 3 | 2 | in SP should be a 5 (Wahl, 1991) |
| 1402 | 1 | 3 | 2 | in SP should be a 5 (Wahl, 1991) |
| 1403 | 2 | 1 | 2 | in SP should be a 4 (Wahl, 1991) |
| 1404 | 3 | 2 | 3 | in SP should be a 2 (Wahl, 1991) |
| 1405 | 1 | 1 | 1 | in SP should be a 4 (Wahl, 1991) |
| 1406 | 2 | 1 | 3 | in SP should be a 3 (Wahl, 1991) |
| 1501 | 3 | 1 | 2 | |
| 1502 | 2 | 2 | 2 | |
| 1503 | 2 | 2 | 2 | |
| 1504 | 2 | 1 | 2 | |
| 1505 | 2 | 1 | 2 | |
| 1506 | 3 | 1 | 2 | |
| 1507 | 2 | 2 | 2 | |
| 1508 | 3 | 1 | 2 | |
| 1509 | 2 | 2 | 2 | |
| 1510 | 5 | 1 | 3 | |
| 1601 | 2 | 1 | 2 | in SP should be a 4 (Wahl, 1991) |
| 1602 | 2 | 1 | 2 | |
| 1603 | 2 | 1 | 2 | |
| 1604 | 1 | 2 | 2 | |
| 1605 | 2 | 1 | 2 | |
| 1606 | 2 | 1 | 2 | |
| 1607 | 2 | 2 | 2 | |
| 1608 | 4 | 2 | 3 | |
| 1609 | 3 | 1 | 2 | |
| 1610 | 3 | 1 | 2 | |
| 1611 | 2 | 2 | 2 | |
| 1612 | 3 | 2 | 3 | |
| 1613 | 4 | 1 | 3 | |
| 1614 | 2 | 2 | 2 | |
| 1615 | 2 | 2 | 2 | |
| 1616 | 3 | 1 | 2 | |
| 1617 | 1 | 2 | 2 | |
| 1618 | 1 | 2 | 2 | |
| 1619 | 2 | 2 | 2 | |
| 1620 | 2 | 2 | 2 | |
| 1621 | 2 | 2 | 2 | |
| 1622 | 2 | 2 | 2 | |
| 1623 | 1 | 2 | 2 | |
| 1624 | 2 | 2 | 2 | |
| 1625 | 2 | 2 | 2 | |
| 1626 | 2 | 2 | 2 | |
| 1627 | 2 | 2 | 2 | |
| 1628 | 2 | 2 | 2 | |
| 1629 | 3 | 2 | 3 | |
| 1630 | 2 | 2 | 2 | |
| 1631 | 3 | 2 | 3 | |
| 1632 | 2 | 2 | 2 | |
| 1633 | 2 | 2 | 2 | |
| 1634 | 3 | 2 | 3 | |
| 1635 | 2 | 2 | 2 | |
| 1636 | 2 | 2 | 2 | |

## 2.3 Marine Fisheries Vulnerability Ranking

The marine fisheries vulnerability ranking is a modification of the vulnerability ranking developed for marine birds (Wahl et al, 1981 and Manuwal et al, 1979) and was developed by the Marine Fisheries Committee (Appendix A). The marine fisheries vulnerability ranking rates the vulnerability of 61 marine fish species (Table MF-1) to oil spills. Only species and species groups with commercial or recreational harvests, or with importance as prey or environmental indicators were selected for inclusion in the marine fish vulnerability ranking. Marine fish species not included in this ranking contribute to the habitat vulnerability ranking as described in section 2.1 of this document.

**Table MF-1. Species & Species Groups Included in the Marine Fisheries Vulnerability Ranking**

| Common Name | Scientific Name |
|---|---|
| Pacific sleeper shark | Somniosus pacificus |
| Spiny dogfish | Squalus acanthias |
| Skates | Rajidae |
| Spotted ratfish | Hyrodlagus colleri |
| Green sturgeon | Acipenser medirostris |
| White sturgeon | Acipenser transmontanus |
| Pacific herring | Clupea pallasii |
| Northern anchovy | Engraulis mordax |
| Surf smelt | Hypomesus pretiosus |
| Night smelt | Spirinchus starksi |
| Longfin smelt | Spirinchus thaleichthys |
| Eulachon | Thaleichthys pacificus |
| Pacific cod | Gadus macrocephalus |
| Pacific tomcod | Microgadus proximus |
| Walleye pollock | Theragra chalcogramma |
| Whiting | Merluccius productus |
| Plainfin midshipman | Porichthys notatus |
| Tubesnout | Aulorhynchus favidus |
| Three-spine stickleback | Gasterosteus aculeatus |
| Pacific Ocean perch | Sebastes alutus |
| Brown rockfish | Sebastes auriculatus |
| Silvergray rockfish | Sebastes brevispinis |
| Copper rockfish | Sebastes caurinus |
| Puget Sound rockfish | Sebastes emphaeus |
| Widow rockfish | Sebastes entomelas |
| Yellowtail rockfish | Sebastes flavidus |
| Quillback rockfish | Sebastes maliger |
| Black rockfish | Sebastes melanops |
| Blue rockfish | Sebastes mystinus |
| China rockfish | Sebastes nebulosus |
| Bocaccio | Sebastes paucispinis |
| Canary rockfish | Sebastes pinniger |

| | |
|---|---|
| Yelloweye rockfish | Sebastes ruberrimus |
| Shortspine thornyhead | Sebastolobus alascanus |
| Longspine thornyhead | Sebastolobus altivelis |
| Sablefish | Anoplopoma fimbria |
| Kelp Greenling | Hexagrammos decragrammus |
| Lingcod | Ophiodon elongatus |
| Red Irish lord | Hemilepidotus[2] |
| Pacific staghorn sculpin | Leptocottus armatus |
| Cabezon | Scorpaenichthys marmoratus |
| Redtail surfperch | Amphistichus rhodoterus |
| Shiner surfperch | Cymatogaster aggregata |
| Pile surfperch | Damalichthys vacca |
| Striped surfperch | Embiotoca lateralis |
| Eelpouts | Zoarcidae |
| Snake prickleback | Lumpenus sagitta |
| Gunnels | Pholididae |
| Wolf-eel | Anarrhichthys ocellatus |
| Pacific sand lance | Ammodytes hexapterus |
| Pacific sanddab | Citharaichthys sordidus |
| Speckled sanddab | Citharichthys stigmaeus |
| Arrowtooth flounder | Atheresthes stomias |
| Petrale sole | Eposetta jordani |
| Rex sole | Glyptocephalus zachirus |
| Pacific halibut | Hippoglossus stenolepis |
| Rock sole | Lepidopsetta bilineata |
| Dover sole | Microstomus pacificus |
| English sole | Parophrys vetulus |
| Starry Flounder | Platichthys stellatus |
| Sand sole | Psettichthys melanostictus |

The following life history and other features of species biology were selected by the Marine Fisheries Committee to rate marine fish vulnerability to oil spills: presence and usual abundance (P) of species in subregion/region, current stock condition (SC), importance to commercial fisheries (CI), importance to recreational fisheries (RI), importance as a prey or indicator species (PI), normal distributional range (PD), adult sensitivity (AS), larval sensitivity (LS), and egg sensitivity (ES). Committee participants then developed the following 0 to 5 scoring system for each attribute to provide guidance for rating the attribute's contribution to the vulnerability score:

## SCORING CRITERIA FOR MARINE FISHERIES VULNERABILITY ATTRIBUTES

Presence/normal abundance in the subregion/region (P), approximates the unfished population:

1 = rare or accidental (e.g. present only during El Nino)
2 = uncommon
3 = common
4 = abundant
5 = very abundant

Current stock condition in the zone impacted (SC):

1 = exceptionally high abundance
2 = high abundance, or increasing trend
3 = normal abundance, or unknown
4 = low abundance, or declining trend
5 = very low abundance, identified conservation concerns

Commercial importance (CI), five-year average annual harvest in pounds:

| Puget Sound | Washington Coast |
|---|---|
| 0 = none, no harvest | 0 = none, no harvest |
| 1 = < 5,000 | 1 = < 10,000 |
| 2 = 5,001 - 50,000 | 2 = 10,001 - 100,000 |
| 3 = 50,001 - 250,000 | 3 = 100,001 - 500,000 |
| 4 = 250,001 - 500,000 | 4 = 500,001 - 1,000,000 |
| 5 = > 500,000 | 5 = > 1,000,000 |

Recreational importance (RI), five-year average annual harvest (pounds) including subsistence harvest:

| Puget Sound | Washington Coast |
|---|---|
| 0 = none, no known harvest | 0 = none, no known harvest |
| 1 = < 500 | 1 = < 1,000 |
| 2 = 501 - 5,000 | 2 = 1,001 - 10,000 |
| 3 = 5,001 - 25,000 | 3 = 10,001 - 50,000 |
| 4 = 25,001 - 50,000 | 4 = 50,001 - 100,000 |
| 5 = > 50,000 | 5 = > 100,000 |

exceptions: halibut and lingcod have relatively low catches but they are two of the most important species to sport anglers and divers

Prey importance or indicator species (PI):

1 = not known to be prey
2 = few bird, fish, or mammal predators
3 = unknown importance, or prey to several species
4 = common prey species
5 = prey for numerous species or main prey for highly important bird, mammal or other fish species

Population distribution (PD):

1 = widespread along the west coast
2 = at ends of its range
3 = separate stock in the region (e.g., Puget Sound whiting, St. of Georgia herring)
4 = rare throughout its range
5 = endemic species

Adult sensitivity to oil (AS):

0 = adults do not our in the region/subregion

1 = adults are primarily > 20 m deep and wide-ranging (migratory)
2 = adults are primarily > 20 m deep but non-migratory
3 = adults are primarily < 20 m deep
4 = adults are pelagic or near surface
5 = adults are territorial, deposit feeders, or near shore

Egg sensitivity to oil as measured by the proportion of the year class at risk, which is a function of their location and duration of exposure (ES):

0 = no risk
1 = negligible
2 = minor portion of year class at risk, eggs not concentrated near surface or shore
3 = unknown
4 = protracted spawning period, eggs concentrated near surface or shore
5 = major portion of year class at risk (nearly all eggs vulnerable at once)

Larval sensitivity to oil as measured by the proportion of the year class at risk, which is a function of their location and duration of exposure (LS):

0 = no risk
1 = negligible
2 = minor portion of year class at risk, larvae not concentrated near surface or shore
3 = unknown
4 = protracted spawning period, larvae concentrated near surface or shore
5 = major portion of year class at risk (nearly all larvae vulnerable at once)

The Subcommittee participants then rated each attribute for each marine fish species included in the ranking for each season. Attribute ratings were then employed in the following formula developed by the subcommittee to derive a species vulnerability score for a particular subregion/ region:

$$V_s = P * SC * (CI+RI+PI) * (PD+AS_s+ES_s+LS_s)$$

where: $V_s$ = marine fish vulnerability for a particular species and region,
P = presence and usual abundance,
SC = current stock condition ,
CI = importance to commercial fisheries,
RI = importance to recreational fisheries,
PI = importance as a prey or indicator species,
PD = normal distributional range,
AS = adult sensitivity,
LS = larval sensitivity,
ES = egg sensitivity, and
s = season.

The vulnerability scores for all species included in the ranking for a particular region/subregion and season were then summed to derive the total subregional/regional vulnerability score for the region/subregion and season.

Tables MF-2 through MF-16 present attribute ratings for each species, the species vulnerability score by season and subregion/region, and the total subregional vulnerability scores by season. Catch data supporting the commercial and recreational harvest importance rankings (CI & RI) are provided in Tables MF-17 through MF-20. The total regional/subregional vulnerability scores were then scaled to the final one to five Marine Fish Vulnerability Scores (MFVS) for each season and subregion as they appear in Table MF-21.

**Table MF-21. Subregional Marine Fisheries Vulnerability Scores (MFVS)**

| | | SEASON | | | |
|---|---|---|---|---|---|
| SUBREGION | | SP | SU | FA | WI |
| 101 | NORTHERN OUTER COAST | 5 | 3 | 3 | 5 |
| 102 | KALALOCH | 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 |
| 604 | SEMIAHOO SPIT | 5 | 3 | 3 | 5 |
| 605 | DRAYTON HARBOR | 5 | 3 | 3 | 5 |
| 607 | SAN JUAN ISLANDS-NORTHERN TIER | 5 | 3 | 3 | 4 |
| 608 | GEORGIA STRAIT-EASTERN | 5 | 3 | 3 | 5 |
| 701 | PT. ROBERTS | 5 | 3 | 3 | 5 |
| 703 | GEORGIA STRAIT-WESTERN | 5 | 3 | 3 | 5 |
| 801 | NORTHERN HARO STRAIT | 5 | 3 | 3 | 4 |
| 802 | SOUTHERN HARO STRAIT | 5 | 3 | 3 | 4 |
| 901 | SOUTHERN ROSARIO STRAIT | 5 | 3 | 3 | 4 |
| 902 | CENTRAL ROSARIO STRAIT | 5 | 3 | 3 | 4 |
| 903 | NORTHERN ROSARIO STRAIT | 5 | 3 | 3 | 4 |
| 1001 | PRESIDENT CHANNEL | 5 | 3 | 3 | 4 |
| 1002 | NORTHERN AREAS | 5 | 3 | 3 | 4 |
| 1101 | SPEIDEN CHANNEL | 5 | 3 | 3 | 4 |
| 1102 | NORTHERN SAN JUAN CHANNEL | 5 | 3 | 3 | 4 |
| 1103 | SOUTHERN SAN JUAN CHANNEL | 5 | 3 | 3 | 4 |
| 1104 | WASP PASS | 5 | 3 | 3 | 4 |
| 1105 | UPRIGHT CHANNEL | 5 | 3 | 3 | 4 |
| 1106 | HARNEY CHANNEL | 5 | 3 | 3 | 4 |
| 1107 | OBSTRUCTION PASS | 5 | 3 | 3 | 4 |
| 1108 | THATCHER PASS | 5 | 3 | 3 | 4 |
| 1201 | MOSQUITO/ROCHE COMPLEX | 5 | 3 | 3 | 4 |
| 1202 | FRIDAY HARBOR | 5 | 3 | 3 | 4 |
| 1203 | GRIFFIN BAY | 5 | 3 | 3 | 4 |
| 1205 | FISHERMAN BAY | 5 | 3 | 3 | 4 |
| 1206 | SWIFTS/SHOAL BAYS | 5 | 3 | 3 | 4 |
| 1207 | DEER HARBOR | 5 | 3 | 3 | 4 |
| 1208 | WEST SOUND | 5 | 3 | 3 | 4 |
| 1209 | EAST SOUND | 5 | 3 | 3 | 4 |
| 1210 | LOPEZ SOUND | 5 | 3 | 3 | 4 |
| 1401 | SKAGIT BAY | 5 | 4 | 3 | 5 |
| 1402 | PENN COVE/CRESCENT HARBOR | 5 | 4 | 3 | 5 |
| 1403 | SARATOGA PASSAGE | 5 | 4 | 3 | 5 |
| 1404 | HOLMES HARBOR | 5 | 4 | 3 | 5 |
| 1405 | PORT SUSAN | 5 | 4 | 3 | 5 |
| 1406 | POSSESSION SOUND | 5 | 4 | 3 | 5 |
| 1501 | HOOD CANAL ENTRANCE | 2 | 1 | 1 | 2 |
| 1502 | PORT LUDLOW | 2 | 1 | 1 | 2 |
| 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 |
| 1610 | NISQUALLY | 4 | 3 | 2 | 3 |
| 1611 | TREBLE-JOHNSON | 4 | 3 | 2 | 3 |

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

Table MF-2. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 101.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| | | | | | | | Adult Sensitivity | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species/Species Group | P | SC | CI | RI | PI | PD | Wi | Sp | Su | Au | Wi | Sp | Su | Au | Wi | Sp | Su | Au | WI | SP | SU | AU |
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 270 | 270 | 270 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 504 | 504 | 420 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 1152 | 1152 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 5 | 5 | 5 | 3 | 5 | 5 | 5 | 840 | 2160 | 2160 | 2160 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 3 | 5 | 5 | 5 | 378 | 972 | 972 | 486 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 324 | 288 | 216 | 324 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 756 | 756 | 756 | 972 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 960 | 960 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 567 | 630 | 630 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 63 | 315 | 567 | 63 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 540 | 360 | 360 | 540 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 4 | 420 | 672 | 672 | 672 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 180 | 600 | 600 | 360 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 252 | 324 | 360 | 288 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| | | | | | | | | | | | | | | | | | | | | | | |
| Total Subregional Vulnerability: | | | | | | | | | | | | | | | | | | | 33771 | 39050 | 32323 | 29749 |

Table MF-3. Calculation of Marine Fish Vulnerability to Spilled Oil for Compensation Schedule Subregion 102
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | P | SC | CI | RI | PI | PD | Adult Sensitivity | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Wi | Sp | Su | Au | Wi | Sp | Su | Au | Wi | Sp | Su | Au | WI | SP | SU | AU |
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 270 | 270 | 270 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 504 | 504 | 420 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 1152 | 1152 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 5 | 5 | 5 | 3 | 5 | 5 | 5 | 840 | 2160 | 2160 | 2160 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 3 | 5 | 5 | 5 | 378 | 972 | 972 | 486 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 324 | 288 | 216 | 324 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 756 | 756 | 756 | 972 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 960 | 960 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 567 | 630 | 630 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 63 | 315 | 567 | 63 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 540 | 360 | 360 | 540 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 4 | 420 | 672 | 672 | 672 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 180 | 600 | 600 | 360 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 252 | 324 | 360 | 288 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | Total Subregional Vulnerability: | 33771 | 39050 | 32323 | 29749 |

Table MF-4. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 103.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | P | SC | CI | RI | PI | PD | Adult Sensitivity Wi | Sp | Su | Au | Egg Sensitivity Wi | Sp | Su | Au | Larval Sensitivity Wi | Sp | Su | Au | SPECIES VULNERABILITY WI | SP | SU | AU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 270 | 270 | 270 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 504 | 504 | 420 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 1152 | 1152 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 5 | 5 | 5 | 3 | 5 | 5 | 5 | 840 | 2160 | 2160 | 2160 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 3 | 5 | 5 | 5 | 378 | 972 | 972 | 486 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 324 | 288 | 216 | 324 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 756 | 756 | 756 | 972 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 960 | 960 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 567 | 630 | 630 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 63 | 315 | 567 | 63 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 540 | 360 | 360 | 540 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 4 | 420 | 672 | 672 | 672 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 180 | 600 | 600 | 360 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 252 | 324 | 360 | 288 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| Total Subregional Vulnerability: | | | | | | | | | | | | | | | | | | | 33771 | 39050 | 32323 | 29749 |

Table MF-5. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 104
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| | | | | | | | Adult Sensitivity | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species/Species Group | P | SC | CI | RI | PI | PD | Wi | Sp | Su | Au | Wi | Sp | Su | Au | Wi | Sp | Su | Au | WI | SP | SU | AU |
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 270 | 270 | 270 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 504 | 504 | 420 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 1152 | 1152 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 840 | 1320 | 1560 | 1560 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 5 | 378 | 702 | 702 | 486 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 324 | 288 | 216 | 324 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 756 | 756 | 756 | 972 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 960 | 960 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 567 | 630 | 630 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 63 | 315 | 567 | 63 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 540 | 360 | 360 | 540 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 4 | 420 | 672 | 672 | 672 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 180 | 600 | 600 | 360 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 252 | 324 | 360 | 288 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| | | | | | | | | | | | | | | | Total Subregional Vulnerability: | | | | 33771 | 37940 | 31453 | 29149 |

Table MF-6. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 106.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | P | SC | CI | RI | PI | PD | Adult Sensitivity Wi | Sp | Su | Au | Egg Sensitivity Wi | Sp | Su | Au | Larval Sensitivity Wi | Sp | Su | Au | VULNERABILITY WI | SP | SU | AU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 270 | 270 | 270 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 504 | 504 | 420 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 1152 | 1152 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 840 | 1320 | 1560 | 1560 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 5 | 378 | 702 | 702 | 486 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 324 | 288 | 216 | 324 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 756 | 756 | 756 | 972 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 960 | 960 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 567 | 630 | 630 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 63 | 315 | 567 | 63 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 540 | 360 | 360 | 540 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 4 | 420 | 672 | 672 | 672 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 180 | 600 | 600 | 360 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 252 | 324 | 360 | 288 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | Total Subregional Vulnerability: | | | | | | | | 33771 | 37940 | 31453 | 29149 |

Table MF-7. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 108.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | P | SC | CI | RI | PI | PD | Adult Sensitivity Wi | Sp | Su | Au | Egg Sensitivity Wi | Sp | Su | Au | Larval Sensitivity Wi | Sp | Su | Au | SPECIES VULNERABILITY WI | SP | SU | AU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 270 | 270 | 270 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 504 | 504 | 420 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 1152 | 1152 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 840 | 1320 | 1560 | 1560 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 5 | 378 | 702 | 702 | 486 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 324 | 288 | 216 | 324 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 756 | 756 | 756 | 972 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 960 | 960 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 567 | 630 | 630 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 63 | 315 | 567 | 63 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 540 | 360 | 360 | 540 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 4 | 420 | 672 | 672 | 672 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 180 | 600 | 600 | 360 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 252 | 324 | 360 | 288 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| Total Subregional Vulnerability: | | | | | | | | | | | | | | | | | | | 33771 | 37940 | 31453 | 29149 |

Table MF-8. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 109.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | P | SC | CI | RI | PI | PD | Adult Sensitivity Wi | Sp | Su | Au | Egg Sensitivity Wi | Sp | Su | Au | Larval Sensitivity Wi | Sp | Su | Au | SPECIES VULNERABILITY WI | SP | SU | AU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 270 | 270 | 270 | 270 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 504 | 504 | 420 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 5 | 5 | 1 | 1 | 3 | 3 | 0 | 0 | 5 | 5 | 5 | 5 | 1008 | 1008 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 3 | 1 | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 5 | 840 | 1560 | 1560 | 1560 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 5 | 378 | 702 | 702 | 486 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 324 | 288 | 216 | 324 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 756 | 756 | 756 | 972 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 960 | 960 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 567 | 630 | 630 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 63 | 315 | 567 | 63 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 540 | 360 | 360 | 540 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 2 | 420 | 588 | 588 | 504 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 2 | 180 | 540 | 540 | 360 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 288 | 324 | 288 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| Total Subregional Vulnerability: | | | | | | | | | | | | | | | | | | | 33627 | 37856 | 31273 | 28981 |

Table MF-9. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 110.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | P | SC | CI | RI | PI | PD | Adult Sensitivity Wi | Sp | Su | Au | Egg Sensitivity Wi | Sp | Su | Au | Larval Sensitivity Wi | Sp | Su | Au | SPECIES VULNERABILITY WI | SP | SU | AU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 162 | 162 | 162 | 162 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 252 | 252 | 252 | 252 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 504 | 504 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 840 | 840 | 1080 | 1080 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 378 | 486 | 486 | 378 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 252 | 252 | 180 | 252 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 540 | 756 | 756 | 756 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 81 | 432 | 432 | 189 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 243 | 243 | 270 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1280 | 1280 | 960 | 960 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 33 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 30 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1760 | 1584 | 1584 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 540 | 540 | 486 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 378 | 378 | 441 | 441 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 189 | 441 | 693 | 189 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 420 | 420 | 420 | 756 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 468 | 288 | 252 | 396 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 360 | 252 | 252 | 360 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 336 | 336 | 336 | 336 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 1 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 120 | 240 | 240 | 240 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 144 | 180 | 216 | 180 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 144 | 144 | 144 | 144 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 3 | 4 | 3 | 468 | 468 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 360 | 360 | 252 | 360 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | Total Subregional Vulnerability: | 31367 | 34630 | 28755 | 26802 |

Table MF-10. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 111.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | P | SC | CI | RI | PI | PD | Adult Sensitivitiy | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Wi | Sp | Su | Au | Wi | Sp | Su | Au | Wi | Sp | Su | Au | WI | SP | SU | AU |
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 162 | 162 | 162 | 162 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 252 | 252 | 252 | 252 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 504 | 504 | 504 | 504 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 882 | 882 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 840 | 840 | 840 | 840 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 378 | 486 | 486 | 378 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 252 | 252 | 180 | 252 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 3 | 540 | 540 | 540 | 756 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 972 | 1134 | 729 | 648 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 288 | 396 | 252 | 252 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 3 | 3 | 1 | 0 | 3 | 3 | 0 | 1 | 3 | 3 | 3 | 81 | 270 | 270 | 135 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 189 | 189 | 189 | 189 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 288 | 288 | 288 | 288 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1280 | 1280 | 960 | 960 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 2 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 27 | 30 | 33 | 33 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 324 | 432 | 432 | 378 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 252 | 324 | 324 | 324 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 18 | 21 | 24 | 24 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1080 | 1080 | 810 | 810 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 1320 | 1320 | 990 | 990 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 2 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 270 | 360 | 405 | 405 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1584 | 1584 | 1408 | 1408 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 486 | 486 | 486 | 432 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 378 | 378 | 441 | 441 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 378 | 432 | 432 | 378 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 792 | 792 | 594 | 594 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 540 | 720 | 720 | 540 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 189 | 441 | 693 | 189 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 420 | 420 | 420 | 756 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 5 | 5 | 2 | 2 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1638 | 1755 | 819 | 702 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 396 | 288 | 252 | 396 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 360 | 252 | 252 | 360 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 4 | 4 | 4 | 4 | 495 | 495 | 360 | 360 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 84 | 84 | 84 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 240 | 60 | 60 | 60 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 | 36 | 36 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 144 | 144 | 144 | 144 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 252 | 252 | 252 | 252 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 360 | 360 | 252 | 360 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 324 | 243 | 243 | 324 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 450 | 540 | 360 | 315 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1440 | 1584 | 1008 | 864 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1188 | 1296 | 864 | 756 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | Total Subregional Vulnerability: | | | | 30533 | 32921 | 26974 | 25423 |

Table MF-11. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregion 112.
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| | | | | | | | Adult Sensitivity | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species/Species Group | P | SC | CI | RI | PI | PD | Wi | Sp | Su | Au | Wi | Sp | Su | Au | Wi | Sp | Su | Au | WI | SP | SU | AU |
| Dogfish | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 360 | 360 | 360 | 360 |
| Rajidae (skates) | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 324 | 324 | 324 | 324 |
| Ratfish | 3 | 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 72 | 72 | 108 | 108 |
| Green Sturgeon | 3 | 3 | 3 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 54 | 54 | 54 |
| White Sturgeon | 3 | 4 | 3 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 84 | 84 | 84 |
| Pacific Herring | 4 | 3 | 0 | 1 | 5 | 1 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 648 | 648 | 504 | 432 |
| Anchovy | 3 | 3 | 2 | 0 | 5 | 1 | 3 | 0 | 0 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 630 | 567 | 567 | 882 |
| Surf Smelt | 4 | 3 | 2 | 3 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 600 | 600 | 600 | 600 |
| Night Smelt | 3 | 3 | 0 | 1 | 5 | 3 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 378 | 378 | 378 | 378 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 180 | 180 | 108 | 180 |
| Eulachon | 4 | 3 | 2 | 2 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 3 | 324 | 540 | 540 | 540 |
| Pacific Cod | 3 | 3 | 5 | 1 | 3 | 2 | 1 | 1 | 1 | 1 | 5 | 5 | 0 | 0 | 2 | 5 | 5 | 4 | 810 | 1053 | 648 | 567 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 324 | 432 | 216 | 216 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 252 | 360 | 216 | 216 |
| Whiting | 5 | 3 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 330 | 330 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 1 | 1 | 1 | 1 | 0 | 3 | 3 | 0 | 1 | 3 | 3 | 3 | 81 | 216 | 216 | 135 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 108 | 108 | 108 | 108 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Pacific Ocean Perch | 4 | 5 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 3 | 3 | 800 | 800 | 640 | 640 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 21 | 21 | 24 | 24 |
| Silvergray Rockfish | 3 | 3 | 2 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 4 | 216 | 324 | 324 | 270 |
| Copper Rockfish | 3 | 3 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 180 | 180 | 216 | 216 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 12 | 12 | 15 | 15 |
| Widow Rockfish | 5 | 3 | 5 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 810 | 810 | 540 | 540 |
| Yellowtail Rockfish | 5 | 3 | 5 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 990 | 990 | 660 | 660 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 5 | 180 | 180 | 270 | 270 |
| Black Rockfish | 4 | 4 | 3 | 5 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 1056 | 1056 | 880 | 880 |
| Blue Rockfish | 3 | 3 | 1 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 4 | 324 | 324 | 324 | 270 |
| China Rockfish | 3 | 3 | 1 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 315 | 315 | 378 | 378 |
| Bocaccio | 3 | 3 | 2 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 5 | 4 | 270 | 324 | 324 | 270 |
| Canary Rockfish | 3 | 3 | 5 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 3 | 594 | 594 | 396 | 396 |
| Yelloweye Rockfish | 3 | 3 | 3 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 3 | 360 | 540 | 540 | 360 |
| Thornyhead | 3 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 0 | 189 | 441 | 693 | 189 |
| Sablefish | 3 | 3 | 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 4 | 4 | 0 | 324 | 648 | 648 | 324 |
| Kelp Greenling | 4 | 3 | 1 | 2 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 420 | 420 | 420 | 756 |
| Lingcod | 3 | 3 | 5 | 5 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 468 | 585 | 585 | 468 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 180 | 180 | 144 | 288 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 252 |
| Cabezon | 3 | 3 | 0 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 225 | 225 | 225 | 225 |
| Redtail Surfperch | 4 | 3 | 1 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 84 | 84 | 84 |
| Shiner Surfperch | 4 | 3 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 60 | 60 | 60 |
| Pile Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 | 36 | 36 |
| Striped Surfperch | 3 | 3 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 | 36 | 36 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 252 |
| Wolf-eel | 3 | 3 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 2 | 81 | 135 | 135 | 81 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 3 | 3 | 3 | 3 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 975 | 900 | 525 | 525 |
| Sanddabs | 4 | 3 | 2 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 216 | 504 | 360 | 360 |
| Arrowtooth Flounder | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 972 | 756 | 648 | 648 |
| Petrale Sole | 3 | 4 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 0 | 1 | 2 | 3 | 3 | 2 | 972 | 1080 | 648 | 648 |
| Rex Sole | 4 | 3 | 4 | 0 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 756 | 756 | 504 | 504 |
| Pacific Halibut | 3 | 4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 336 | 588 | 588 | 168 |
| Rock Sole | 3 | 3 | 1 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 315 | 405 | 225 | 180 |
| Dover Sole | 4 | 3 | 5 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 972 | 972 | 756 | 540 |
| English Sole | 4 | 4 | 5 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1152 | 1296 | 720 | 576 |
| Starry Flounder | 4 | 3 | 4 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 864 | 972 | 540 | 432 |
| Sand Sole | 3 | 3 | 4 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 576 | 648 | 360 | 288 |
| | | | | | | | | | | | Total Subregional Vulnerability: | | | | | | | | 22796 | 25403 | 20732 | 19235 |

Table MF-12. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregions 1605 - 1627, 1634 - 1636 (South Puget Sound). Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| | Vulnerability Variables | | | | | | Adult Sensitivity | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | SC | CI | RI | PI | PD | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU |
| Species/Species Group | | | | | | | | | | | | | | | | | | | | | | |
| | 4 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 288 | 288 | 288 | 288 |
| Dogfish | 3 | 3 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 162 | 162 | 162 | 162 |
| Rajidae (skates) | 4 | 3 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 144 | 144 | 216 | 216 |
| Ratfish | 1 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 15 | 15 | 15 |
| Green Sturgeon | 2 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 30 | 30 |
| White Sturgeon | 4 | 3 | 3 | 2 | 5 | 3 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 2160 | 2160 | 1080 | 1080 |
| Pacific Herring | 2 | 3 | 0 | 0 | 5 | 3 | 3 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 360 | 420 | 420 | 420 |
| Anchovy | 4 | 3 | 1 | 2 | 5 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 1728 | 1728 | 1728 | 1728 |
| Surf Smelt | 1 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 1 | 5 | 5 | 1 | 3 | 5 | 5 | 5 | 84 | 156 | 156 | 108 |
| Night Smelt | 3 | 3 | 0 | 1 | 4 | 3 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 495 | 450 | 360 | 495 |
| Longfin Smelt | 1 | 3 | 0 | 0 | 4 | 1 | 5 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 132 | 132 | 84 | 84 |
| Eulachon | 3 | 5 | 0 | 5 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 1320 | 1560 | 1080 | 1080 |
| Pacific Cod | 3 | 3 | 0 | 3 | 3 | 1 | 3 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 486 | 594 | 378 | 378 |
| Tomcod | 4 | 5 | 0 | 5 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 1600 | 2080 | 1440 | 1440 |
| Pollock | 4 | 3 | 0 | 3 | 5 | 3 | 1 | 1 | 1 | 1 | 5 | 5 | 0 | 0 | 3 | 3 | 3 | 1 | 1152 | 1152 | 672 | 480 |
| Whiting | 4 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 108 | 576 | 576 | 252 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Tubesnout | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Three-Spine Stickleback | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Pacific Ocean Perch | 3 | 3 | 0 | 3 | 2 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 405 | 540 | 495 | 495 |
| Brown Rockfish | 2 | 3 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 72 | 72 | 72 | 72 |
| Silvergray Rockfish | 3 | 4 | 0 | 3 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 420 | 600 | 540 | 540 |
| Copper Rockfish | 3 | 3 | 0 | 0 | 3 | 2 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 5 | 216 | 243 | 297 | 270 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Widow Rockfish | 3 | 3 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 252 | 252 | 252 | 252 |
| Yellowtail Rockfish | 3 | 4 | 0 | 4 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 720 | 648 | 648 |
| Quillback Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 360 | 405 | 450 | 450 |
| Black Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 48 | 54 | 60 | 60 |
| Blue Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 48 | 54 | 60 | 60 |
| China Rockfish | 2 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 108 | 108 | 108 | 108 |
| Bocaccio | 2 | 3 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Canary Rockfish | 2 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 108 | 108 | 108 | 108 |
| Yelloweye Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 18 | 36 | 30 | 18 |
| Thornyhead | 3 | 3 | 0 | 3 | 3 | 1 | 2 | 2 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 270 | 378 | 378 | 216 |
| Sablefish | 3 | 3 | 0 | 2 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 756 | 540 | 540 | 756 |
| Kelp Greenling | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 2 | 5 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 630 | 675 | 315 | 405 |
| Lingcod | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Red Irish Lord | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 675 | 450 | 450 | 675 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 675 | 675 | 450 | 450 |
| Cabezon | 1 | 3 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 2 | 36 | 48 | 48 | 36 |
| Redtail Surfperch | 5 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 225 | 750 | 750 | 450 |
| Shiner Surfperch | 4 | 4 | 3 | 4 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 1120 | 960 | 1600 | 1440 |
| Pile Surfperch | 4 | 4 | 2 | 3 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 896 | 768 | 1280 | 1152 |
| Striped Surfperch | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Eelpout | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 468 | 504 | 360 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Gunnel | 3 | 3 | 0 | 1 | 2 | 1 | 5 | 5 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 351 | 270 | 243 | 324 |
| Wolf-eel | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Pacific Sandlance | 4 | 3 | 0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Sanddabs | 2 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 162 | 126 | 108 | 108 |
| Arrowtooth Flounder | 2 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 1 | 2 | 3 | 3 | 2 | 144 | 162 | 108 | 108 |
| Petrale Sole | 4 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 216 | 216 | 144 | 144 |
| Rex Sole | 1 | 4 | 0 | 0 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 32 | 56 | 56 | 16 |
| Pacific Halibut | 4 | 3 | 0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 720 | 864 | 576 | 504 |
| Rock Sole | 3 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 243 | 243 | 189 | 135 |
| Dover Sole | 4 | 3 | 0 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 660 | 720 | 480 | 420 |
| English Sole | 4 | 3 | 0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| Starry Flounder | 3 | 3 | 0 | 2 | 2 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 396 | 432 | 288 | 252 |
| Sand Sole | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | Total Subregional Vulnerability: | | | | | | | | 25923 | 28305 | 23837 | 22930 |

Table MF-13. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregions 401 - 405, 1401 - 1406, 1601-1603, and 1628-1633 (Central Puget Sound). Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| | Vulnerability Variables | | | | | | Adult Sensitivity | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species/Species Group | P | SC | CI | RI | PI | PD | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU |
| Dogfish | 4 | 3 | 4 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 384 | 384 | 384 | 384 |
| Rajidae (skates) | 3 | 3 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 216 | 216 | 216 | 216 |
| Ratfish | 4 | 3 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 144 | 144 | 216 | 216 |
| Green Sturgeon | 1 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 15 | 15 | 15 |
| White Sturgeon | 2 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 30 | 30 |
| Pacific Herring | 4 | 3 | 3 | 2 | 5 | 3 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 2160 | 2160 | 1080 | 1080 |
| Anchovy | 2 | 3 | 0 | 0 | 5 | 3 | 3 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 360 | 420 | 420 | 420 |
| Surf Smelt | 4 | 3 | 1 | 4 | 5 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 2160 | 2160 | 2160 | 2160 |
| Night Smelt | 1 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 1 | 5 | 5 | 1 | 3 | 5 | 5 | 5 | 84 | 156 | 156 | 108 |
| Longfin Smelt | 3 | 3 | 0 | 1 | 4 | 3 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 495 | 450 | 360 | 495 |
| Eulachon | 1 | 3 | 0 | 0 | 4 | 1 | 5 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 132 | 132 | 84 | 84 |
| Pacific Cod | 3 | 5 | 1 | 4 | 3 | 3 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 1560 | 1800 | 1080 | 1080 |
| Tomcod | 3 | 3 | 0 | 2 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 495 | 585 | 315 | 315 |
| Pollock | 3 | 5 | 0 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 900 | 1170 | 810 | 810 |
| Whiting | 5 | 3 | 5 | 3 | 5 | 3 | 2 | 1 | 1 | 1 | 5 | 5 | 0 | 0 | 3 | 3 | 3 | 1 | 2535 | 2340 | 1365 | 975 |
| Midshipman | 4 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 108 | 576 | 576 | 252 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Brown Rockfish | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 486 | 648 | 594 | 594 |
| Silvergray Rockfish | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Copper Rockfish | 3 | 4 | 2 | 3 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 588 | 840 | 756 | 756 |
| Puget Sound Rockfish | 3 | 3 | 0 | 0 | 3 | 2 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 5 | 216 | 243 | 297 | 270 |
| Widow Rockfish | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Yellowtail Rockfish | 3 | 3 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 252 | 252 | 252 | 252 |
| Quillback Rockfish | 3 | 4 | 2 | 3 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 588 | 840 | 756 | 756 |
| Black Rockfish | 3 | 3 | 0 | 2 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 360 | 405 | 450 | 450 |
| Blue Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 48 | 54 | 60 | 60 |
| China Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 48 | 54 | 60 | 60 |
| Bocaccio | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Canary Rockfish | 2 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 216 | 216 | 216 | 216 |
| Yelloweye Rockfish | 2 | 3 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Thornyhead | 1 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 18 | 36 | 30 | 18 |
| Sablefish | 3 | 3 | 1 | 3 | 3 | 1 | 2 | 2 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 315 | 441 | 441 | 252 |
| Kelp Greenling | 3 | 3 | 0 | 3 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 882 | 630 | 630 | 882 |
| Lingcod | 3 | 3 | 1 | 2 | 3 | 1 | 5 | 5 | 2 | 5 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 756 | 810 | 378 | 486 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 675 | 450 | 450 | 675 |
| Cabezon | 3 | 3 | 1 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 810 | 810 | 540 | 540 |
| Redtail Surfperch | 1 | 3 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 2 | 36 | 48 | 48 | 36 |
| Shiner Surfperch | 5 | 3 | 0 | 2 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 270 | 900 | 900 | 540 |
| Pile Surfperch | 4 | 4 | 3 | 3 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 1008 | 864 | 1440 | 1296 |
| Striped Surfperch | 4 | 4 | 2 | 2 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 784 | 672 | 1120 | 1008 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 468 | 504 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 1 | 1 | 2 | 1 | 5 | 5 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 468 | 360 | 324 | 432 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 432 | 720 | 576 | 576 |
| Arrowtooth Flounder | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 216 | 168 | 144 | 144 |
| Petrale Sole | 2 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 1 | 2 | 3 | 3 | 2 | 144 | 162 | 108 | 108 |
| Rex Sole | 4 | 3 | 1 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 324 | 324 | 216 | 216 |
| Pacific Halibut | 1 | 4 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 48 | 84 | 84 | 24 |
| Rock Sole | 4 | 3 | 2 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 960 | 1152 | 768 | 672 |
| Dover Sole | 3 | 3 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 405 | 405 | 315 | 225 |
| English Sole | 4 | 3 | 4 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1320 | 1440 | 960 | 840 |
| Starry Flounder | 4 | 3 | 3 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1056 | 1152 | 768 | 672 |
| Sand Sole | 3 | 3 | 2 | 2 | 2 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 594 | 648 | 432 | 378 |
| | | | | | | | | | | | | | | | Total Subregional Vulnerability: | | | | 29932 | 32277 | 26419 | 25158 |

Table MF-14. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregions 201, 203 - 209, 301 - 317, 501 - 504, 607, 801, 802, 901 - 903, 1001, 1002, 1101 - 1108, 1202 - 1203, and 1205 - 1210 (Strait of Juan de Fuca & San Juan Islands).

Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| | Vulnerability Variables | | | | | | Adult Sensitivity | | | | Egg Sensitivity | | | | Larval Sensitivity | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | SC | CI | RI | PI | PD | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU |
| Species/Species Group | | | | | | | | | | | | | | | | | | | | | | |
| Dogfish | 4 | 3 | 5 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 432 | 432 | 432 | 432 |
| Rajidae (skates) | 3 | 3 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 270 | 270 | 270 | 270 |
| Ratfish | 4 | 3 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 192 | 192 | 288 | 288 |
| Green Sturgeon | 1 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 15 | 15 | 15 |
| White Sturgeon | 2 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 30 | 30 |
| Pacific Herring | 4 | 3 | 4 | 1 | 5 | 3 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 2160 | 2160 | 1080 | 1080 |
| Anchovy | 2 | 3 | 0 | 0 | 5 | 3 | 3 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 360 | 420 | 420 | 420 |
| Surf Smelt | 4 | 3 | 1 | 3 | 5 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 1944 | 1944 | 1944 | 1944 |
| Night Smelt | 2 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 1 | 5 | 5 | 1 | 3 | 5 | 5 | 5 | 168 | 312 | 312 | 216 |
| Longfin Smelt | 3 | 3 | 0 | 1 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 405 | 360 | 270 | 405 |
| Eulachon | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 396 | 396 | 252 | 252 |
| Pacific Cod | 3 | 5 | 4 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 3 | 3 | 4 | 1500 | 1650 | 1200 | 1350 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 3 | 3 | 4 | 288 | 324 | 216 | 252 |
| Pollock | 3 | 3 | 1 | 1 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 3 | 3 | 4 | 405 | 450 | 315 | 360 |
| Whiting | 2 | 3 | 3 | 1 | 5 | 3 | 1 | 1 | 1 | 1 | 5 | 5 | 0 | 0 | 2 | 3 | 3 | 1 | 594 | 648 | 378 | 270 |
| Midshipman | 4 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 108 | 576 | 576 | 252 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 2 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 30 | 30 | 30 | 30 |
| Brown Rockfish | 2 | 3 | 0 | 1 | 2 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 162 | 216 | 198 | 198 |
| Silvergray Rockfish | 2 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 30 | 30 | 30 | 30 |
| Copper Rockfish | 3 | 4 | 1 | 4 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 588 | 840 | 756 | 756 |
| Puget Sound Rockfish | 3 | 3 | 0 | 0 | 3 | 2 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 5 | 216 | 243 | 297 | 270 |
| Widow Rockfish | 2 | 3 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 60 | 60 | 60 | 60 |
| Yellowtail Rockfish | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 378 | 378 | 378 | 378 |
| Quillback Rockfish | 3 | 4 | 2 | 4 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 672 | 960 | 864 | 864 |
| Black Rockfish | 3 | 4 | 2 | 4 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 864 | 972 | 1080 | 1080 |
| Blue Rockfish | 3 | 3 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 180 | 180 | 180 | 180 |
| China Rockfish | 3 | 3 | 1 | 2 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 360 | 405 | 450 | 450 |
| Bocaccio | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Canary Rockfish | 3 | 3 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 216 | 216 | 216 | 216 |
| Yelloweye Rockfish | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Thornyhead | 2 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 36 | 72 | 60 | 36 |
| Sablefish | 3 | 3 | 2 | 2 | 3 | 1 | 2 | 2 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 315 | 441 | 441 | 252 |
| Kelp Greenling | 4 | 3 | 0 | 3 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1176 | 840 | 840 | 1176 |
| Lingcod | 3 | 4 | 2 | 4 | 3 | 1 | 5 | 5 | 2 | 5 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1512 | 1620 | 756 | 972 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 405 | 270 | 270 | 405 |
| Cabezon | 3 | 3 | 1 | 2 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 810 | 810 | 540 | 540 |
| Redtail Surfperch | 2 | 3 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 72 | 72 | 72 | 72 |
| Shiner Surfperch | 5 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 225 | 750 | 750 | 450 |
| Pile Surfperch | 4 | 3 | 1 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 420 | 360 | 600 | 540 |
| Striped Surfperch | 4 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 504 | 432 | 720 | 648 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 468 | 504 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 1 | 1 | 2 | 1 | 5 | 5 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 468 | 360 | 324 | 432 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 360 | 600 | 480 | 480 |
| Arrowtooth Flounder | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 216 | 168 | 144 | 144 |
| Petrale Sole | 2 | 3 | 1 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 1 | 2 | 3 | 3 | 2 | 144 | 162 | 108 | 108 |
| Rex Sole | 4 | 3 | 1 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 324 | 324 | 216 | 216 |
| Pacific Halibut | 3 | 4 | 4 | 5 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 528 | 924 | 924 | 264 |
| Rock Sole | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 720 | 864 | 576 | 504 |
| Dover Sole | 3 | 3 | 1 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 243 | 243 | 189 | 135 |
| English Sole | 4 | 4 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1056 | 1152 | 768 | 672 |
| Starry Flounder | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| Sand Sole | 3 | 3 | 1 | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 396 | 432 | 288 | 252 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | Total Subregional Vulnerability: | | | | 27702 | 30306 | 25344 | 24360 |

Table MF-15. Calculation of Marine Fish Vulnerability to Spilled Oil (Vs) for Compensation Schedule Subregions 505 - 507, 601 - 606, 608, 701 and 703 (Gulf-Bellingham). Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| | Vulnerability Variables | | | | | | Adult Vulnerability | | | | Egg Vulnerability | | | | Larval Vulnerability | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | SC | CI | RI | PI | PD | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU | WI | SP | SU | AU |
| Species/Species Group | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | 3 | 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 480 | 480 | 480 | 480 |
| Dogfish | 4 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 432 | 432 | 432 | 432 |
| Rajidae (skates) | 5 | 3 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 180 | 180 | 270 | 270 |
| Ratfish | 1 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 15 | 15 | 15 |
| Green Sturgeon | 2 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 30 | 30 |
| White Sturgeon | 5 | 4 | 5 | 1 | 5 | 3 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 3960 | 3960 | 1980 | 1980 |
| Pacific Herring | 2 | 3 | 0 | 0 | 5 | 3 | 3 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 360 | 420 | 420 | 420 |
| Anchovy | 4 | 3 | 1 | 3 | 5 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 1944 | 1944 | 1944 | 1944 |
| Surf Smelt | 1 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 1 | 5 | 5 | 1 | 3 | 5 | 5 | 5 | 84 | 156 | 156 | 108 |
| Night Smelt | 3 | 3 | 0 | 2 | 4 | 3 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 594 | 540 | 432 | 594 |
| Longfin Smelt | 3 | 3 | 0 | 0 | 4 | 1 | 5 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 396 | 396 | 252 | 252 |
| Eulachon | 4 | 5 | 4 | 1 | 3 | 3 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 2080 | 2400 | 1440 | 1440 |
| Pacific Cod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 5 | 5 | 0 | 0 | 2 | 5 | 4 | 4 | 396 | 468 | 252 | 252 |
| Tomcod | 4 | 3 | 1 | 0 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 480 | 624 | 432 | 432 |
| Pollock | 3 | 3 | 5 | 0 | 5 | 3 | 1 | 1 | 1 | 1 | 5 | 5 | 0 | 0 | 3 | 3 | 3 | 1 | 1080 | 1080 | 630 | 450 |
| Whiting | 4 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 108 | 576 | 576 | 252 |
| Midshipman | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Tubesnout | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Three-Spine Stickleback | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Pacific Ocean Perch | 2 | 3 | 0 | 1 | 2 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 162 | 216 | 198 | 198 |
| Brown Rockfish | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Silvergray Rockfish | 3 | 4 | 1 | 2 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 420 | 600 | 540 | 540 |
| Copper Rockfish | 4 | 3 | 0 | 0 | 3 | 2 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 5 | 288 | 324 | 396 | 360 |
| Puget Sound Rockfish | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Widow Rockfish | 3 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 252 | 252 | 252 | 252 |
| Yellowtail Rockfish | 3 | 4 | 2 | 2 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 504 | 720 | 648 | 648 |
| Quillback Rockfish | 3 | 4 | 0 | 1 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 384 | 432 | 480 | 480 |
| Black Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 48 | 54 | 60 | 60 |
| Blue Rockfish | 2 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 96 | 108 | 120 | 120 |
| China Rockfish | 2 | 3 | 1 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 108 | 108 | 108 | 108 |
| Bocaccio | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Canary Rockfish | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 144 | 144 | 144 | 144 |
| Yelloweye Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 18 | 36 | 30 | 18 |
| Thornyhead | 3 | 3 | 2 | 0 | 3 | 1 | 2 | 2 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 225 | 315 | 315 | 180 |
| Sablefish | 4 | 3 | 0 | 1 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 840 | 600 | 600 | 840 |
| Kelp Greenling | 3 | 4 | 4 | 2 | 3 | 1 | 5 | 5 | 2 | 5 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 1512 | 1620 | 756 | 972 |
| Lingcod | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Red Irish Lord | 3 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 405 | 270 | 270 | 405 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 540 | 540 | 360 | 360 |
| Cabezon | 1 | 3 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 2 | 36 | 48 | 48 | 36 |
| Redtail Surfperch | 5 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 225 | 750 | 750 | 450 |
| Shiner Surfperch | 4 | 3 | 1 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 420 | 360 | 600 | 540 |
| Pile Surfperch | 4 | 3 | 1 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 420 | 360 | 600 | 540 |
| Striped Surfperch | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Eelpout | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 468 | 504 | 360 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Gunnel | 3 | 3 | 1 | 1 | 2 | 1 | 5 | 5 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 468 | 360 | 324 | 432 |
| Wolf-eel | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Pacific Sandlance | 4 | 3 | 0 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 288 | 480 | 384 | 384 |
| Sanddabs | 2 | 3 | 2 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 216 | 168 | 144 | 144 |
| Arrowtooth Flounder | 1 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 1 | 2 | 3 | 3 | 2 | 48 | 54 | 36 | 36 |
| Petrale Sole | 4 | 3 | 1 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 324 | 324 | 216 | 216 |
| Rex Sole | 2 | 4 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 128 | 224 | 224 | 64 |
| Pacific Halibut | 4 | 4 | 3 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 1120 | 1344 | 896 | 784 |
| Rock Sole | 3 | 3 | 2 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 324 | 324 | 252 | 180 |
| Dover Sole | 4 | 4 | 4 | 0 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1232 | 1344 | 896 | 784 |
| English Sole | 4 | 4 | 4 | 0 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 1232 | 1344 | 896 | 784 |
| Starry Flounder | 3 | 3 | 2 | 0 | 2 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 396 | 432 | 288 | 252 |
| Sand Sole | | | | | | | | | | | | | | | | | | | | | | |
| Total Subregional Vulnerability: | | | | | | | | | | | | | | | | | | | 29129 | 31523 | 24467 | 23602 |

Table MF-16. Calculation of Marine Fish Vulnerability Scores for Compensation Schedule Subregions 1501 - 1510 (Hood Canal).
Vs = P*SC*(CI+RI+PI)*(PD+AS+ES+LS)

| Species/Species Group | Vulnerability Variables | | | | | | Adult Vulnerability | | | | Egg Vulnerability | | | | Larval Vulnerability | | | | SPECIES VULNERABILITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | SC | CI | RI | PI | PD | WI | SP | SU | AU | WI | SP | SU | FA | WI | SP | SU | AU | WI | SP | SU | AU |
| Dogfish | 4 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 288 | 288 | 288 | 288 |
| Rajidae (skates) | 3 | 3 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 162 | 162 | 162 | 162 |
| Ratfish | 4 | 3 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 144 | 144 | 216 | 216 |
| Green Sturgeon | 1 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 15 | 15 | 15 |
| White Sturgeon | 2 | 3 | 0 | 0 | 1 | 1 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 30 | 30 |
| Pacific Herring | 4 | 3 | 3 | 1 | 5 | 3 | 5 | 5 | 1 | 1 | 5 | 5 | 0 | 0 | 5 | 5 | 5 | 5 | 1944 | 1944 | 972 | 972 |
| Anchovy | 2 | 3 | 0 | 0 | 5 | 3 | 3 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 360 | 420 | 420 | 420 |
| Surf Smelt | 4 | 3 | 1 | 3 | 5 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 1944 | 1944 | 1944 | 1944 |
| Night Smelt | 1 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 1 | 5 | 5 | 1 | 3 | 5 | 5 | 5 | 84 | 156 | 156 | 108 |
| Longfin Smelt | 2 | 3 | 0 | 0 | 4 | 1 | 5 | 4 | 4 | 5 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 216 | 192 | 144 | 216 |
| Eulachon | 1 | 3 | 0 | 0 | 4 | 1 | 5 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 132 | 132 | 84 | 84 |
| Pacific Cod | 3 | 5 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 990 | 1170 | 810 | 810 |
| Tomcod | 3 | 3 | 0 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 324 | 396 | 252 | 252 |
| Pollock | 3 | 3 | 0 | 1 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 5 | 4 | 4 | 324 | 432 | 288 | 288 |
| Whiting | 2 | 3 | 0 | 1 | 5 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 3 | 3 | 3 | 1 | 288 | 288 | 252 | 180 |
| Midshipman | 4 | 3 | 0 | 0 | 3 | 1 | 1 | 5 | 5 | 1 | 0 | 5 | 5 | 0 | 1 | 5 | 5 | 5 | 108 | 576 | 576 | 252 |
| Tubesnout | 3 | 3 | 0 | 0 | 3 | 1 | 4 | 4 | 4 | 4 | 0 | 5 | 5 | 0 | 4 | 4 | 5 | 5 | 243 | 378 | 405 | 270 |
| Three-Spine Stickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 4 | 4 | 4 | 0 | 1 | 0 | 0 | 4 | 4 | 4 | 4 | 360 | 360 | 324 | 324 |
| Pacific Ocean Perch | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Brown Rockfish | 3 | 3 | 1 | 1 | 2 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 324 | 432 | 396 | 396 |
| Silvergray Rockfish | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Copper Rockfish | 3 | 4 | 1 | 2 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 420 | 600 | 540 | 540 |
| Puget Sound Rockfish | 3 | 3 | 0 | 0 | 3 | 2 | 2 | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 5 | 216 | 243 | 297 | 270 |
| Widow Rockfish | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 18 | 18 | 18 | 18 |
| Yellowtail Rockfish | 3 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 189 | 189 | 189 | 189 |
| Quillback Rockfish | 3 | 4 | 1 | 2 | 2 | 1 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 420 | 600 | 540 | 540 |
| Black Rockfish | 3 | 4 | 0 | 1 | 3 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 384 | 432 | 480 | 480 |
| Blue Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 48 | 54 | 60 | 60 |
| China Rockfish | 1 | 3 | 0 | 0 | 2 | 1 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 5 | 5 | 48 | 54 | 60 | 60 |
| Bocaccio | 2 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 72 | 72 | 72 | 72 |
| Canary Rockfish | 2 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 108 | 108 | 108 | 108 |
| Yelloweye Rockfish | 2 | 3 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 108 | 108 | 108 | 108 |
| Thornyhead | 1 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 18 | 36 | 30 | 18 |
| Sablefish | 3 | 3 | 0 | 1 | 3 | 1 | 2 | 2 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 180 | 252 | 252 | 144 |
| Kelp Greenling | 4 | 3 | 0 | 1 | 4 | 1 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 840 | 600 | 600 | 840 |
| Lingcod | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 2 | 5 | 5 | 5 | 0 | 0 | 3 | 4 | 4 | 3 | 504 | 540 | 252 | 324 |
| Red Irish Lord | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 3 | 2 | 540 | 360 | 324 | 468 |
| Pacific Staghorn Sculpin | 3 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 4 | 4 | 4 | 4 | 405 | 270 | 270 | 405 |
| Cabezon | 3 | 3 | 0 | 1 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 4 | 540 | 540 | 360 | 360 |
| Redtail Surfperch | 1 | 3 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 2 | 36 | 48 | 48 | 36 |
| Shiner Surfperch | 5 | 3 | 0 | 1 | 4 | 1 | 1 | 5 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 225 | 750 | 750 | 450 |
| Pile Surfperch | 4 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 504 | 432 | 720 | 648 |
| Striped Surfperch | 4 | 3 | 1 | 1 | 3 | 1 | 3 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 4 | 420 | 360 | 600 | 540 |
| Eelpout | 3 | 3 | 0 | 0 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 324 | 324 | 324 | 324 |
| Snake Prickleback | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 468 | 504 | 360 | 324 |
| Gunnel | 4 | 3 | 0 | 0 | 3 | 1 | 5 | 5 | 5 | 5 | 5 | 3 | 0 | 3 | 3 | 4 | 4 | 3 | 504 | 468 | 360 | 432 |
| Wolf-eel | 3 | 3 | 1 | 1 | 2 | 1 | 5 | 5 | 4 | 4 | 5 | 0 | 0 | 5 | 2 | 4 | 4 | 2 | 468 | 360 | 324 | 432 |
| Pacific Sandlance | 5 | 3 | 0 | 0 | 5 | 1 | 4 | 4 | 4 | 4 | 5 | 4 | 0 | 0 | 4 | 4 | 3 | 3 | 1050 | 975 | 600 | 600 |
| Sanddabs | 4 | 3 | 0 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 0 | 4 | 0 | 0 | 2 | 2 | 4 | 4 | 360 | 600 | 480 | 480 |
| Arrowtooth Flounder | 2 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 0 | 0 | 3 | 3 | 3 | 3 | 108 | 84 | 72 | 72 |
| Petrale Sole | 1 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 1 | 2 | 3 | 3 | 2 | 48 | 54 | 36 | 36 |
| Rex Sole | 4 | 3 | 1 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | 324 | 324 | 216 | 216 |
| Pacific Halibut | 1 | 4 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 48 | 84 | 84 | 24 |
| Rock Sole | 4 | 3 | 1 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 2 | 4 | 4 | 3 | 720 | 864 | 576 | 504 |
| Dover Sole | 3 | 3 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 162 | 162 | 126 | 90 |
| English Sole | 4 | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 792 | 864 | 576 | 504 |
| Starry Flounder | 4 | 3 | 1 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 660 | 720 | 480 | 420 |
| Sand Sole | 3 | 3 | 1 | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 0 | 0 | 3 | 4 | 4 | 3 | 396 | 432 | 288 | 252 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | Total Subregional Vulnerability: | | | | | | | | | 20991 | 22980 | 19350 | 18651 |

Table MF-17. Washington Coastal Five-Year Average Annual Commercial Harvest of Marine Fish.

Five-Year Average for Trawl Areas 3A, 3B & 3C-US; 1984-1988
"Other" Rockfish Pro-rated by 1983-1987 TSC Report
"Other" Flatfish Pro-rated by 1984-1988 TSC Report

Catch for Gears Other than Trawl Extracted
from Washington Catch Records for 1986-90
Rockfish Species Composition is Based on Professional Judgement

| | DOMESTIC | | FOREIGN & JV | | TOTAL | TRAWL | OTH-GEAR | TOTAL COMMERCIAL |
|---|---|---|---|---|---|---|---|---|
| SPECIES | 3A | 3B+3C-US | 3A | 3B+3C-US | (MT) | (POUNDS) | (POUNDS) | (POUNDS) |
| WHITING | 81 | 0 | 285576 | 38609.7 | 324266.7 | 715,008,074 | 2,861 | 715,010,935 |
| WIDOW RK | 3591 | 484 | 88.4 | 92.2 | 4255.6 | 9,383,598 | 5,000 | 9,388,598 |
| DOVER | 1950 | 2276 | 0 | | 4226 | 9,318,330 | | 9,318,330 |
| YELLOWTAIL RK | 2006 | 1236 | 110.7 | 140.3 | 3493 | 7,702,065 | 961,230 | 8,663,295 |
| SABLEFISH | 748 | 953 | 14.4 | 13.3 | 1728.7 | 3,811,784 | 4,292,834 | 8,104,618 |
| ARROWTOOTH | 544 | 1642 | 0 | | 2186 | 4,820,130 | 47,396 | 4,867,526 |
| LINGCOD | 556 | 836 | 2 | 1.2 | 1395.2 | 3,076,416 | 441,848 | 3,518,264 |
| CANARY RK | 464 | 834 | 2.5 | 3.4 | 1303.9 | 2,875,100 | 20,000 | 2,895,100 |
| PACIFIC COD | 332 | 890 | 1 | 7.4 | 1230.4 | 2,713,032 | 51,456 | 2,764,488 |
| P.O.P | 407 | 467 | 4.3 | 3.4 | 881.7 | 1,944,149 | 823 | 1,944,972 |
| DOGFISH | | | | | 744 | 1,640,520 | 205,637 | 1,846,157 |
| PETRALE | 408 | 308 | 0 | | 716 | 1,578,780 | | 1,578,780 |
| ENGLISH | 353 | 349 | 0 | | 702 | 1,547,910 | | 1,547,910 |
| OTH. RNDFSH | 28 | 186 | 44.5 | 247.4 | 505.9 | 1,115,510 | | 1,115,510 |
| SAND SOLE | | | | | 427.5 | 942,638 | 377 | 943,015 |
| REX SOLE | | | | | 417.3 | 920,147 | 1,571 | 921,718 |
| STARRY FLNDR | | | | | 411 | 906,255 | 898 | 907,153 |
| THORNYHEADS | 144 | 104 | | | 248 | 546,840 | 31,894 | 578,734 |
| BLACK RK | | | | | 3.1 | 6,836 | 355,000 | 361,836 |
| MISC FLATFISH | | | | | 105.8 | 233,289 | | 233,289 |
| STURGEON, WHITE | | | | | | | | 209,634 |
| SKATES | | | | | 88 | 194,040 | 11,287 | 205,327 |
| SHORTRAKER RK | | | | | 2.3 | 5,072 | 150,000 | 155,072 |
| ROUGHEYE RK | | | | | 0.8 | 1,764 | 150,000 | 151,764 |
| REDBANDED RK | | | | | 0.7 | 1,544 | 150,000 | 151,544 |
| YELLOWEYE RK | | | | | 0.2 | 441 | 150,000 | 150,441 |
| STURGEON, GREEN | | | | | | | | 124,476 |
| SILVERGREY RK | | | | | 13.8 | 30,429 | | 30,429 |
| BOCACCIO RK | | | | | 4.6 | 10,143 | 20,000 | 30,143 |
| REDSTRIPE RK | | | | | 2.9 | 6,395 | | 6,395 |
| DARKBLOTCHED RK | | | | | 2.3 | 5,072 | | 5,072 |
| SPLITNOSE RK | | | | | 0.6 | 1,323 | | 1,323 |
| GREENSTRIPE RK | | | | | 0.4 | 882 | | 882 |
| SHARPCHIN RK | | | | | 0.2 | 441 | | 441 |
| YELLOWMOUTH RK | | | | | 0.1 | 221 | | 221 |

SOURCES: Rickey, M.H. Geographical distribution of trawl caught groundfish in the INPFC Columbia and US-Vancouver areas from 1984 through 1988.
Wash. Dept. of Fisheries Progress Report No. 287. March, 1991
Washington Groundfish Technical Subcommittee Groundfish Reports

Table MF- 18. WASHINGTON COASTAL FIVE-YEAR AVERAGE ANNUAL RECREATIONAL MARINE FISH CATCH
BOAT ANGLERS ONLY (Numbers of fish)

| SPECIES | 1986 | 1987 | 1988 | 1989 | 1990 | TOTAL | 5-YEAR AVERAGE (NUMBERS) | #/lb CONV. FACTOR | 5-YEAR AVERAGE (POUNDS) |
|---|---|---|---|---|---|---|---|---|---|
| Black Rockfish | 306,036 | 307,814 | 324,876 | 285,213 | 319,771 | 1,543,710 | 617,484 | 2.56 | 1,580,759 |
| Lingcod | 18,152 | 20,910 | 10,377 | 27,622 | 23,214 | 100,275 | 20,055 | 5.89 | 118,124 |
| Yellowtail Rockfish | 9,185 | 8,045 | 7,200 | 9,972 | 17,917 | 52,319 | 20,928 | 2.12 | 44,367 |
| Canary Rockfish | 6,195 | 6,297 | 6,002 | 9,210 | 9,730 | 37,434 | 14,974 | 2.51 | 37,585 |
| Kelp Greenling | 3,436 | 4,985 | 4,917 | 5,937 | 8,395 | 27,670 | 5,534 | 1.01 | 5,589 |
| China Rockfish | 3,751 | 4,036 | 4,431 | 5,655 | 7,980 | 25,853 | 10,342 | 2.11 | 21,822 |
| Yelloweye Rockfish | 4,017 | 4,962 | 3,869 | 6,733 | 5,864 | 25,445 | 10,178 | 5.07 | 51,602 |
| Blue Rockfish | 3,338 | 4,092 | 3,107 | 6,379 | 8,115 | 25,031 | 10,012 | 2.75 | 27,533 |
| Flatfish | 1,348 | 2,506 | 8,540 | 4,532 | 2,742 | 19,668 | 3,934 | 2.01 | 7,907 |
| Quilback Rockfish | 2,203 | 3,064 | 2,432 | 5,026 | 5,428 | 18,153 | 7,262 | 1.76 | 12,781 |
| Cabezon | 1,673 | 2,337 | 2,460 | 3,212 | 2,579 | 12,261 | 2,452 | 2.11 | 5,174 |
| Albacore | 563 | 3,742 | 7,212 | 502 | 211 | 12,230 | 2,446 | 17 | 41,582 |
| Pacific Cod | 229 | 1,721 | 3,001 | 3,095 | 2,571 | 10,617 | 2,123 | 2.47 | 5,244 |
| Copper Rockfish | 1,111 | 1,393 | 1,263 | 1,285 | 1,806 | 6,858 | 2,744 | 1.48 | 4,061 |
| Surfperch | 102 | 285 | 135 | 2,479 | 100 | 3,101 | 620 | 0.99 | 614 |
| Tiger Rockfish | 183 | 278 | 260 | 399 | 496 | 1,616 | 646 | 3 | 1,938 |
| Vermillion Rockfish | 123 | 190 | 231 | 455 | 389 | 1,388 | 556 | 3 | 1,668 |
| Sharks/Skates | 145 | 209 | 460 | 279 | 268 | 1,361 | 272 | 10 | 2,720 |
| Boccacio | 159 | 268 | 81 | 125 | 177 | 810 | 324 | 8.99 | 2,913 |

Table MF-19. Average commercial catches (lbs.), 1984-1988

| Species/Species Group | Gulf of Bellingham | San Juan Islands * | Juan de Fuca * | SJ I& JDF * | Hood Canal | Central Sound | South Sound | W. Juan de Fuca * | Puget Sound |
|---|---|---|---|---|---|---|---|---|---|
| Pacific Halibut | 448 | 2066 | 6701 | 8767 | 0 | 0 | 4 | 4333 | 13552 |
| Butter Sole | 2191 | 11 | 0 | 11 | 0 | 0 | 0 | 0 | 2202 |
| Dover Sole | 22441 | 104 | 1965 | 2069 | 0 | 37959 | 1805 | 1357 | 65632 |
| English Sole | 421153 | 7619 | 16677 | 24296 | 6427 | 326177 | 268892 | 545 | 1047490 |
| Rock Sole | 50489 | 2067 | 20558 | 22625 | 2051 | 17186 | 7595 | 235 | 100182 |
| Sand Sole | 40095 | 706 | 2150 | 2856 | 84 | 19254 | 11690 | 1384 | 75364 |
| Sanddabs | 0 | 0 | 30 | 30 | 0 | 0 | 753 | 0 | 783 |
| Starry Flounder | 284084 | 9476 | 12297 | 21773 | 648 | 150377 | 29568 | 364 | 486814 |
| Arrowtooth Flounder | 8981 | 0 | 1163 | 1163 | 0 | 191 | 0 | 246 | 10581 |
| Misc. Flatfish | 271 | 4 | 107 | 111 | 0 | 115 | 16654 | 72 | 17222 |
| Sablefish | 9209 | 3014 | 2694 | 5708 | 0 | 332 | 24 | 471 | 15744 |
| Greenlings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lingcod | 120403 | 3059 | 24617 | 27676 | 0 | 637 | 22 | 13398 | 162137 |
| Black Rockfish | 1 | 77 | 380 | 457 | 0 | 0 | 0 | 32289 | 32746 |
| Bocaccio | 16 | 0 | 101 | 101 | 0 | 128 | 6 | 144 | 395 |
| Brown Rockfish | 0 | 0 | 0 | 0 | 69 | 11378 | 12288 | 0 | 23735 |
| Canary Rockfish | 377 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 377 |
| Copper Rockfish | 1299 | 877 | 1877 | 2754 | 275 | 12644 | 4043 | 237 | 21251 |
| Quillback Rockfish | 8960 | 6969 | 4005 | 10974 | 241 | 6438 | 9384 | 2741 | 38736 |
| Yelloweye Rockfish | 1871 | 187 | 4083 | 4270 | 0 | 0 | 0 | 8209 | 14351 |
| Yellowtail Rockfish | 116 | 191 | 12845 | 13036 | 0 | 0 | 0 | 14413 | 27566 |
| Misc. Rockfish | 566 | 287 | 712 | 999 | 118 | 2297 | 1 | 5053 | 9034 |
| Pacific Cod | 1224081 | 35751 | 352531 | 388282 | 3884 | 147999 | 13799 | 3850 | 1781895 |
| Pacific Tomcod | 0 | 0 | 0 | 0 | 0 | 0 | 7315 | 4 | 7319 |
| Walleye Pollock | 34618 | 2 | 1919 | 1921 | 1 | 1303 | 7309 | 709 | 45860 |
| Pacific Whiting | 22479 | 0 | 0 | 0 | 0 | 4189889 | 1293 | 0 | 4213661 |
| Striped Seaperch | 138 | 0 | 18 | 18 | 538 | 12298 | 8799 | 0 | 21790 |
| Pile Perch | 485 | 13 | 479 | 492 | 5143 | 50177 | 46326 | 0 | 102623 |
| Sculpins | 0 | 60 | 361 | 421 | 0 | 322 | 1666 | 552 | 2961 |
| Skates | 128567 | 10503 | 28645 | 39148 | 0 | 13020 | 24839 | 440 | 206014 |
| Spiny Dogfish | 1387983 | 423806 | 346647 | 770453 | 71830 | 411384 | 34303 | 25160 | 2701113 |
| Plainfin Midshipman | 0 | 0 | 0 | 0 | 0 | 0 | 21596 | 0 | 21596 |
| Ratfish | 0 | 1008 | 0 | 1008 | 0 | 0 | 647 | 0 | 1655 |
| Misc. Foodfish | 21841 | 1873 | 0 | 1873 | 488 | 17147 | 12723 | 22 | 54095 |
| Total Catch | 3793164 | 509730 | 843561 | 1353292 | 91797 | 5428653 | 543343 | 116229 | 11326476 |

* Juan de Fuca Region for the Marine Fisheries Ranking includes the San Juan Islands, Juan de Fuca and West Juan de Fuca areas.

Table MF-20. Average recreational catches (numbers of fish), 1983-1987.

| Species/ Species Groups | N. Puget Sound | Hood Canal | Central Sound | S. Puget Sound | Puget Sound |
|---|---|---|---|---|---|
| Pacific Halibut | 9850 | 54 | 494 | 38 | 10436 |
| Butter Sole | 323 | 0 | 43 | 1168 | 1534 |
| Dover Sole | 0 | 0 | 36 | 44 | 80 |
| English Sole | 1 | 82 | 5757 | 5432 | 11271 |
| Rock Sole | 495 | 1189 | 16493 | 16767 | 34945 |
| Sand Sole | 18 | 20 | 642 | 1629 | 2309 |
| Sanddabs | 217 | 1746 | 21238 | 11177 | 34378 |
| Starry Flounder | 58 | 250 | 3858 | 6078 | 10245 |
| Arrowtooth Flounder | 10 | 0 | 36 | 23 | 69 |
| Misc. Flatfish | 1413 | 2093 | 4561 | 4876 | 12943 |
| Sablefish | 620 | 237 | 23701 | 5229 | 29787 |
| Greenlings | 18262 | 109 | 5393 | 1454 | 25217 |
| Lingcod | 42207 | 117 | 2455 | 2622 | 47400 |
| Black Rockfish | 33563 | 165 | 3361 | 2079 | 39167 |
| Bocaccio | 110 | 0 | 79 | 225 | 414 |
| Brown Rockfish | 345 | 170 | 4122 | 19645 | 24281 |
| Canary Rockfish | 2028 | 16 | 566 | 884 | 3494 |
| Copper Rockfish | 33725 | 3946 | 16742 | 19788 | 74201 |
| Quillback Rockfish | 32233 | 1295 | 16167 | 23074 | 72768 |
| Yelloweye Rockfish | 2491 | 30 | 1061 | 21 | 3602 |
| Yellowtail Rockfish | 4316 | 69 | 1071 | 1141 | 6598 |
| Misc. Cockfish | 15133 | 3464 | 8254 | 8909 | 35760 |
| Pacific Cod | 12163 | 1255 | 42941 | 54619 | 110979 |
| Pacific Tomcod | 187 | 73 | 1733 | 10059 | 12052 |
| Walleye Pollock | 8 | 202 | 10877 | 180206 | 191294 |
| Pacific Whiting | 274 | 36 | 5714 | 11194 | 17218 |
| Striped Seaperch | 1332 | 252 | 1470 | 6748 | 9803 |
| Pile Perch | 417 | 683 | 5970 | 7293 | 14363 |
| Sculpins | 2821 | 171 | 2116 | 3396 | 8504 |
| Skates | 77 | 1 | 19 | 494 | 591 |
| Spiny Dogfish | 600 | 104 | 1366 | 1270 | 3341 |
| Plainfin Midshipman | 0 | 0 | 0 | 0 | 0 |
| Ratfish | 18 | 16 | 235 | 14 | 284 |
| Misc. Foodfish | 3706 | 1328 | 20655 | 6839 | 32528 |
| Total Catch | 219021 | 219021 | 229226 | 414432 | 881852 |

## 2.4 Shellfish Vulnerability Ranking

As with the marine fisheries vulnerability ranking, the methodology used to derive the shellfish vulnerability ranking was based on the marine bird vulnerability ranking developed by Wahl et al. (1981) and Manuwal et al. (1979). The shellfish vulnerability ranking ranks the vulnerability of 38 shellfish and shellfish species groups to spilled oil (Table SF-1). Shellfish species were selected for the ranking based on current importance to commercial, recreational and subsistence harvest. The vulnerability of invertebrates not specifically included in this ranking contribute to the habitat vulnerability scores as described in section 2.1 of this report.

**TABLE SF-1. SPECIES INCLUDED IN THE SHELLFISH VULNERABILITY RANKING**

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

| | |
|---|---|
| Ghost Shrimp | *Callianassa spp.* |
| Mud Shrimp | *Upogebia pugettensis* |
| Humpback Shrimp | *Pandalus hypsinotus* |

Attributes of shellfish biology affecting susceptibility to spilled oil were selected by the Shellfish Advisory Committee (Table SF-2). The Committee then developed a scoring system to rank the attributes for each species. The scoring system presented below provides guidance to rate species vulnerability to oil spills for each attribute on a one to five scale.

**Table SF-2. Attributes Affecting Susceptibility of Shellfish to Spilled Oil**

| Susceptibility Class | Attributes |
|---|---|
| Direct contact with oil | Adult/juvenile habitat<br>Location of larvae<br>Location of eggs<br>Length of spawning period |
| Potential for WA population effects | WA population concentration<br>Population size in WA<br>Species distribution |
| Ability for WA population to recover following spill impacts | Reproductive potential<br>Age at sexual maturity |

## SCORING CRITERIA FOR SHELLFISH VULNERABILITY ATTRIBUTES

Adult/Juvenile Habitat (AJH)
5 - primarily occurs intertidally or at depths of less than 3 meters;
4 - primarily occurs at depths of 10 meters or less;
3 - primarily occurs at depths of 20 meters or less, or migrates diurnally from deep to shallow depths;
2 - occurs both shallow and deep (deep = depths greater than 20 meters);
1 - primarily found at depths greater than 20 meters.

Location of Larvae (LH)
same scoring scheme as for Adult/Juvenile Habitat

Location of Eggs (LE)
same scoring scheme as for Adult/Juvenile Habitat

Species Distribution (i.e., relative significance of WA population), (SD)
5 - species found only in Washington waters;
3 - Washington waters account for a moderate proportion of species range (i.e., species found in Pacific Northwest only, or from Alaska to Oregon);
1 - wide population distribution (i.e., found from Alaska to Southern California and further south, or with temperate water distribution); or Washington is at edge of distribution range.

Washington Population Concentration (PC)
5 - species population concentrated in very few locations statewide;
3 - known to occur in moderate number of areas statewide;
1 - ubiquitous in WA marine waters, not known to concentrate.

Population Size in Washington (PS)
5 - rare or uncommon or listed as threatened or endangered;
3 - common or population of moderate size;
1 - abundant or large population.

Length of Spawning Period (SP)
5 - annual spawning period limited to a few days;
3 - spawning takes place primarily during one season;
1 - spawning occurs during more than one season with a peak in one season, or has bimodal spawning;
0 - spawns throughout the year.

Reproductive Potential (number of eggs spawned per female annually), (RP)
5 - relatively low, less than 100,000 eggs per female;
3 - moderate, 100,000 to 1 million eggs per female;
1 - relatively high, more than 1 million eggs per female.

Age at Sexual Maturity (SM)
5 - more than 3 years;
3 - one to three years;
1 - less than one year.

Through literature review and consensus of the Committee, each attribute was scored for the selected species (Table SF-3). To account for the seasonality of larval and egg presence, the following attributes were scored for each season (spring = March through May, summer = June through August, fall = September through November, winter = December through February): location of larvae, location of eggs, and length of spawning period. For example, species with larvae present only during spring received a score of zero for "location of larvae" in summer, fall and winter; and if the length of the spawning period for spring-only spawners is a few days, then "length of spawning period" received a score of five in spring and a score of zero in summer, fall and winter. Each attribute was then rated by the Committee for relative contribution to oil spill vulnerability, with the sum of the attribute contributions totalling 100 percent. The Committee's consensus rating is provided in Table SF-4 below.

**Table SF-4. Relative Contribution of Attributes to Oil Spill Vulnerability**

| Shellfish Attribute | Relative Contribution to Oil Spill Vulnerability |
|---|---|
| Adult/juvenile habitat (AJH) | 40% |
| Location of larvae (LH) | 15% |
| Location of eggs (LE) | 15% |
| Length of spawning period (SP) | 5% |
| WA population concentration (PC) | 5% |
| Population size in WA (PS) | 5% |
| Species distribution (SD) | 5% |
| Reproductive potential (RP) | 5% |
| Age at sexual maturity (SM) | 5% |

The following shellfish sensitivity index (SFSI) for each species was derived by summing the weighted attribute scores where weighting was defined by relative contribution of the attribute to oil spill vulnerability (Table SF-4).

SFSI =.40AJH+.15LH+.15LE+.05PC+.05SP+.05SP+.05SD+.05PS+.05RP+.05SM.

The seasonal SFSI scores for each species are listed in Table SF-5.

**Table SF-5. Shellfish Sensitivity Index (SFSI) by Season**

| COMMON NAME | SP | SU | FA | WI |
|---|---|---|---|---|
| Pacific Oyster | 275 | 335 | 245 | 200 |
| Olympia Oyster | 200 | 335 | 245 | 200 |
| Pacific Razor Clam | 305 | 305 | 305 | 160 |
| Geoduck | 225 | 210 | 120 | 225 |
| Butter Clam | 200 | 305 | 245 | 200 |
| Native Little Neck | 305 | 305 | 200 | 200 |
| Manila Clam | 245 | 305 | 245 | 200 |
| Gaper Clam | 160 | 255 | 205 | 160 |
| Horse Clam | 205 | 160 | 160 | 255 |
| Eastern Soft Shell Clam | 295 | 295 | 295 | 245 |
| Cockle | 160 | 265 | 205 | 160 |
| Pink Scallop | 115 | 80 | 115 | 80 |
| Spiny Scallop | 80 | 145 | 145 | 80 |
| Rock Scallop | 145 | 145 | 145 | 145 |
| Weathervane Scallop | 45 | 60 | 40 | 45 |
| Bay Mussel | 245 | 245 | 305 | 305 |
| California Mussel | 290 | 290 | 290 | 290 |
| Goose(neck) Barnacle | 325 | 325 | 325 | 245 |

| | | | | |
|---|---|---|---|---|
| Squid | 195 | 150 | 120 | 165 |
| Octopus | 215 | 210 | 210 | 215 |
| Northern Abalone | 160 | 265 | 205 | 160 |
| Subsistence limpets | 295 | 290 | 250 | 250 |
| Subsistence whelks | 295 | 295 | 280 | 160 |
| Moon Snail | 220 | 295 | 220 | 160 |
| Subsistence chitons | 55 | 255 | 255 | 255 |
| Sea Cucumber | 175 | 215 | 95 | 95 |
| Red Sea Urchin | 255 | 165 | 120 | 195 |
| Green Sea Urchin | 285 | 160 | 160 | 285 |
| Purple Sea Urchin | 295 | 160 | 160 | 310 |
| Dungeness Crab | 240 | 235 | 205 | 285 |
| Red (Rock) Crab | 160 | 285 | 285 | 235 |
| Spot Shrimp | 195 | 180 | 180 | 180 |
| Coon Stripe Shrimp | 195 | 195 | 180 | 180 |
| Side Stripe Shrimp | 195 | 195 | 100 | 100 |
| Pink Shrimp | 195 | 180 | 180 | 195 |
| Ghost or Sand Shrimp | 275 | 355 | 200 | 200 |
| Mud Shrimp | 290 | 275 | 200 | 275 |
| Humpback Shrimp | 95 | 80 | 80 | 80 |

To rate shellfish vulnerability by subregion, a relative measure of species importance or abundance had to be developed. Abundance information was only available, however, for a few of the species considered in the vulnerability ranking. Five year average annual harvest information was used as the next best measure of species importance by region or subregion due to the availability of this information for all of the species included in the ranking. Average annual harvest is the sum of commercial, recreational and subsistence harvest. Subsistence harvest information was only available for subregions 101 through 104 and region 2. Species average annual harvest for a subregion (where available) or region was multiplied by the seasonal SFSI to derive relative species vulnerability for a region or subregion in a particular season. All subregional species vulnerability scores were then summed to derive a composite shellfish vulnerability score for the region or subregion during a particular season (Table SF-6).

To derive the one to five ranking of shellfish vulnerability incorporated into the Rule, the top one-fifth of the raw shellfish vulnerability scores were assigned a score of 5, the second one-fifth were assigned a score of 4, and so on as described in Table SF-7. The final one to five scores derived by this method appear in the Rule and in Table SF-8 below.

## Table SF-7. Final Shellfish Vulnerability Score Assignments

| Raw Score | Final Score |
|---|---|
| greater than 183,000 | 5 |
| 122,000 to 183,000 | 4 |
| 69,500 to 121,999 | 3 |
| 18,500 to 69,499 | 2 |
| less than 18,500 | 1 |

### Table SF-8. Final Shellfish Vulnerability Scores (SFVS)

| 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 |
| 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 |
| 10 | 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 |
| 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 |

TABLE SF-3. SCORING OF SHELLFISH ATTRIBUTES

| | | | | | |
|---|---|---|---|---|---|
| Common Name: | Pacific Oyster | Olympia Oyster | Pacific Razor Clam | Geoduck | Butter Clam |
| Scientific Name: | Crassostrea gigas | Ostrea lurida | Siliqua patula | Panope generosa | Saxidomus giganteus |
| Adult/Juvenile Habitat (AJH): | intertidal/shallow subtidal | intertidal/shallow subtidal | intertidally to -30 feet | primarily at < 20m; up to 100+m | primarily intertidal |
| Reference: | | | Cumbow,1978 | Dinnel, 1991 | Cumbow, 1978; committee |
| Score SP: | 5 | 5 | 4 | 3 | 5 |
| SU: | 5 | 5 | 4 | 3 | 5 |
| FA: | 5 | 5 | 4 | 3 | 5 |
| WI: | 5 | 5 | 4 | 3 | 5 |
| Location of Larvae (LH): | planktonic for 3-4 weeks | | planktonic for about 4 wks | planktonic for about 4 wks | planktonic for about 4 wks |
| Reference: | Cumbow, 1978 | | Cumbow,1978 | Cumbow, 1978 | Cumbow,1978 |
| Score SP: | 0 | 0 | 3 | 3 | 0 |
| SU: | 3 | 3 | 3 | 3 | 3 |
| F: | 3 | 3 | 3 | 0 | 3 |
| W: | 0 | 0 | 0 | 3 | 0 |
| Location of Eggs (LE): | active gametogenesis during SP | female retains eggs approx. 2 wks | egg becomes larvae in 1.5-10 days | egg becomes larvae in 1.5-10 days | egg becomes larvae in 1.5-10 days |
| Reference: | Quayle, 1988 | Cumbow,1978 | Cumbow, 1978 | Cumbow, 1978 | Cumbow, 1978 |
| Score SP: | 5 | 0 | 5 | 3 | 0 |
| SU: | 5 | 5 | 5 | 3 | 3 |
| F: | 0 | 0 | 5 | 0 | 0 |
| W: | 0 | 0 | 0 | 3 | 0 |
| WA Population Conc. (PC): | found thoroughout WA marine wate | a few areas in S. Sound & Willapa | found on 60 mi. of s. outer coast | found in many locations | found in many locations |
| Reference: | WDOF, 1989 | WDOF, 1989 | Barry, 1991 | | |
| Score: | 1 | 5 | 3 | 1 | 1 |
| Length of Spawning (SP): | July and August | June and July | Spring thru Fall, primarily Spring | Late Winter to early Summer | Summer |
| Reference: | Ricketts et al., 1985 | Brittell et al., 1976 | Cumbow, 1978 | Goodwin and Pease, 1987 | Cumbow, 1978 |
| Score SP: | 0 | 0 | 5 | 3 | 0 |
| SU: | 3 | 3 | 5 | 0 | 3 |
| FA: | 0 | 0 | 5 | 0 | 0 |
| WI: | 0 | 0 | 0 | 3 | 0 |
| Species Distribution (SD): | Native to Japan | Alaska to California | Aluetins to N. California | primarily in WA & B.C., also CA | AK to Monterey |
| Reference: | Rickets et al., 1985 | Kozloff, 1973 | Cumbow, 1978 | Dinnel, 1991 | Ricketts et al., 1985 |
| Score: | 1 | 1 | 1 | 3 | 1 |
| Population Size in WA (PS): | annual harvest: several mill. lbs. | threatened population | abundant (approx. 15 million) | 2 - 3 mil.lbs. harvested annually | abundant |
| Reference: | WDOF, 1989 | Brittell et al., 1976 | Ayers & Simons, 1989 | Goodwin, 1973b | Goodwin & Shaul, 1978 |
| Score: | 1 | 5 | 1 | 1 | 1 |
| Reproductive Potential (RP): | up to 2 mill. per season | approx. 250,000 per season | six to ten million | | |
| Reference: | Cumbow, 1978 | Cumbow, 1978 | Cumbow, 1978 | | |
| Score: | 1 | 3 | 1 | 1 | 1 |
| Age at Sexual Maturity (SM): | 1 to 3 years | 2 years | two years | more than 3 years | |
| Reference: | Barry, 1991 | Cheney, 1991 | | Dinnel, 1991 | see other species |
| Score: | 3 | 3 | 3 | 5 | 3 |

TABLE SF-3. Continued

| | | | | | |
|---|---|---|---|---|---|
| Common Name: | Native Little Neck | Manila Clam | Gaper Clam | Horse Clam | Eastern Soft Shell Clam |
| Scientific Name: | Protothaca staminea | Venerupis japonica | Tresus nuttalli | Tresus capax | Mya arenaria |
| Adult/Juvenile Habitat (AJH): | primarily intertidal | primarily intertidal | primarily at depths <10m | primarily at depths <10m | primarily intertidal as adults |
| Reference: | Cumbow, 1978; committee | Cheney, 1991;Dinnel, 1991 | Cumbow,1978; committee | Cumbow,1978; committee | Brouseau, 1987; Scapti, 1984 |
| Score SP: | 5 | 5 | 4 | 4 | 5 |
| SU: | 5 | 5 | 4 | 4 | 5 |
| FA: | 5 | 5 | 4 | 4 | 5 |
| WI: | 5 | 5 | 4 | 4 | 5 |
| Location of Larvae (LH): | planktonic for about 4 wks | planktonic for about 4 wks | planktonic for about 4 wks | planktonic for about 4 wks | planktonic for about 4 wks |
| Reference: | Cumbow,1978 | Cumbow,1978 | Cumbow,1978 | Cumbow,1978 | Cumbow,1978 |
| Score SP: | 3 | 3 | 0 | 3 | 3 |
| SU: | 3 | 3 | 3 | 0 | 3 |
| F: | 0 | 3 | 3 | 0 | 3 |
| W: | 0 | 0 | 0 | 3 | 3 |
| Location of Eggs (LE): | egg becomes larvae in 1.5-10 days | egg becomes larvae in 1.5-10 days | egg becomes larvae in 1.5-10 days | egg becomes larvae in 1.5-10 days | egg becomes larvae in 1.5-10 days |
| Reference: | Cumbow, 1978 | Cumbow, 1978 | Cumbow, 1978 | Cumbow, 1978 | Cumbow, 1978 |
| Score SP: | 3 | 0 | 0 | 0 | 3 |
| SU: | 3 | 3 | 3 | 0 | 3 |
| F: | 0 | 0 | 0 | 0 | 3 |
| W: | 0 | 0 | 0 | 3 | 0 |
| WA Population Conc. (PC): | found in many locations | found in many locations | found in many locations | found in many locations | ubiquitous |
| Reference: | | | | | Mills & Solomon, 1983; WDOF, 19 |
| Score: | 1 | 1 | 1 | 1 | 1 |
| Length of Spawning (SP): | Spring and early Summer | Summer | Summer | Winter | Bimodal in Sp/Su and early Fa |
| Reference: | Ricketts et al., 1985;Cumbow, 1978 | | Cumbow, 1978 | Cumbow, 1978 | Brousseau, 1987 |
| Score SP: | 3 | 0 | 0 | 0 | 1 |
| SU: | 3 | 3 | 1 | 0 | 1 |
| FA: | 0 | 0 | 0 | 0 | 1 |
| WI: | 0 | 0 | 0 | 1 | 0 |
| Species Distribution (SD): | Aluetins to Baja | B.C. to So. California | B.C. to Scammons Lagoon | AK to Central Calif. | AK to Elkhorn Slough |
| Reference: | Ricketts et al., 1985 | Ricketts et al., 1985 | Ricketts et al., 1985 | Ricketts et al., 1985 | Ricketts et al., 1985 |
| Score: | 1 | 1 | 1 | 1 | 1 |
| Population Size in WA (PS): | super abundant | super abundant | abundant | abundant | common |
| Reference: | Ricketts et al., 1985 | Ricketts et al., 1985 | Goodwin & Shaul, 1978 | Goodwin & Shaul, 1978 | Mills & Solomon, 1983; Dinnel, 199 |
| Score: | 1 | 1 | 1 | 1 | 3 |
| Reproductive Potential (RP): | | | | | |
| Reference: | | | | | |
| Score: | 1 | 1 | 1 | 1 | 1 |
| Age at Sexual Maturity (SM): | two to three years | one to three years | two years | two years | |
| Reference: | Ricketts et al., 1985;Cheney, 1991 | | Ricketts et al., 1985 | Ricketts et al., 1985 | see other species |
| Score: | 3 | 3 | 3 | 3 | 3 |

TABLE SF-3. Continued

| | | | | |
|---|---|---|---|---|
| Common Name: | Cockle | Pink Scallop | Spiny Scallop | Rock Scallop |
| Scientific Name: | Clinocardium nuttalli | Chlamys rubida | Chlamys hastata | Hinnites multirugous (aka Crassadoma gigantea) |
| Adult/Juvenile Habitat (AJH): | subtidally to -60 feet | primarily at depths of 40-60m | 2 - 150 meters | found at 0 - 50 meters |
| Reference: | Cumbow, 1978 | Mottet, 1979 | Hodgson & Bourne, 1988 | Mottet, 1979 |
| Score SP: | 4 | 2 | 2 | 2 |
| SU: | 4 | 2 | 2 | 2 |
| FA: | 4 | 2 | 2 | 2 |
| WI: | 4 | 2 | 2 | 2 |
| Location of Larvae (LH): | planktonic for about 4 wks | planktonic | planktonic 1 -4 mo. | planktonic for approx. 1 mo. |
| Reference: | Cumbow,1978 | Mottet, 1979; Zahradnik, 1985 | Hodgson & Bourne, 1988 | Mottet, 1979; Malachowski, 1988 |
| Score SP: | 0 | 2 | 0 | 2 |
| SU: | 3 | 0 | 3 | 2 |
| F: | 3 | 2 | 3 | 2 |
| W: | 0 | 0 | 0 | 2 |
| Location of Eggs (LE): | egg becomes larvae in 1.5-10 days | eggs go to bottom/adhere to female | become larvae in approx. 50 hrs. | eggs go to bottom/adhere to female |
| Reference: | Cumbow, 1978 | Mottet, 1979 | Hodgson & Bourne, 1988 | Mottet, 1979 |
| Score SP: | 0 | 0 | 0 | 2 |
| SU: | 3 | 0 | 1 | 2 |
| F: | 0 | 0 | 1 | 2 |
| W: | 0 | 0 | 0 | 2 |
| WA Population Conc. (PC): | found in many locations | | spotty distribution | |
| Reference: | Barry, 1991 | | Dinnel, 1991 | |
| Score: | 1 | 1 | 3 | 3 |
| Length of Spawning (SP): | Summer | March and Sept. | late summer/early fall | May/June & Sept. - Dec. |
| Reference: | Cumbow, 1978 | Zahradnik, 1985 | Hodgson & Bourne, 1988 | Malachowski, 1988 |
| Score SP: | 0 | 1 | 0 | 1 |
| SU: | 3 | 0 | 1 | 1 |
| FA: | 0 | 1 | 1 | 1 |
| WI: | 0 | 0 | 0 | 1 |
| Species Distribution (SD): | Bering Sea to Baja | West Coast Canada & U.S. | AK to So. Calif. | Aluetins to So. CA |
| Reference: | Ricketts et al., 1985 | Mottet, 1979 | Hodgson & Bourne, 1988 | Mottet, 199 |
| Score: | 1 | 1 | 1 | 1 |
| Population Size in WA (PS): | common | very abundant | uncommon | not abundant enough for commercial harves |
| Reference: | Cumbow, 1978 | | Dinnel, 1991 | Mottet, 1979;Bourne, 1988 |
| Score: | 3 | 1 | 5 | 5 |
| Reproductive Potential (RP): | | extremely high | probably same as Pink Scallop | extremely high |
| Reference: | | Mottet, 1979 | Dinnel, 1991 | Mottet, 1979 |
| Score: | 1 | 1 | 1 | 1 |
| Age at Sexual Maturity (SM): | two years | one - two years | 1 - 3 years | one - two years |
| Reference: | Ricketts et al., 1985 | Mottet, 1979 | MacDonald & Thompson, 1991 | Mottet, 1979 |
| Score: | 3 | 3 | 3 | 3 |

TABLE SF-3. Continued

| | | | | |
|---|---|---|---|---|
| Common Name: | Weathervane Scallop | Bay Mussel | California Mussel | Goose(neck) Barnacle |
| Scientific Name: | Pecten caurinus | Mytilus spp. | Mytilus californianus | Pollicipes polymerus |
| Adult/Juvenile Habitat (AJH): | found at depths >10 fathoms | | | +4 to 0 (lower midlittoral) |
| Reference: | Cumbow, 1978 | Ricketts et al., 1985 | Ricketts et al., 1985 | Kozloff, 1983 |
| Score SP: | 1 | 5 | 5 | 5 |
| SU: | 1 | 5 | 5 | 5 |
| FA: | 1 | 5 | 5 | 5 |
| WI: | 1 | 5 | 5 | 5 |
| Location of Larvae (LH): | planktonic | planktonic for about 3 wks | planktonic for about 3 wks | planktonic |
| Reference: | Mottet, 1979 | Dinnel, 1991; Bayne, 1976 | Bayne, 1976 | Hoffman, 1987 |
| Score SP: | 0 | 3 | 3 | 3 |
| SU: | 1 | 3 | 3 | 3 |
| F: | 0 | 3 | 3 | 3 |
| W: | 0 | 3 | 3 | 3 |
| Location of Eggs (LE): | eggs go to bottom/adhere to female | pelagic eggs | pelagic eggs | Brooded on adults |
| Reference: | Mottet, 1979 | Seed, 1976 | Seed, 1976 | Ricketts et al., 1985 |
| Score SP: | 0 | 0 | 3 | 5 |
| SU: | 0 | 0 | 3 | 5 |
| F: | 0 | 3 | 3 | 5 |
| W: | 0 | 3 | 3 | 0 |
| WA Population Conc. (PC): | St. of Georgia (sparse) & offshore | in WA bays, except s. outer coast & estuaries | found outer coast and straits | Outer coast, Strait & San Juans |
| Reference: | Dinnel, 1991 | WDOF, 1989; Barry, 1991 | WDOF, 1989 | Kozloff, 1983 |
| Score: | 3 | 3 | 1 | 3 |
| Length of Spawning (SP): | mid-Jan thru June | late Fall or Winter | throughout year | April to October, peak in July |
| Reference: | Robinson, 1984 | Ricketts et al., 1985 | Ricketts et al., 1985 | Ricketts et al., 1985 |
| Score SP: | 1 | 0 | 0 | 1 |
| SU: | 1 | 0 | 0 | 1 |
| FA: | 0 | 3 | 0 | 1 |
| WI: | 1 | 3 | 0 | 0 |
| Species Distribution (SD): | So. Alaska to San Francisco | northern temperate regions | AK to So. Baja | Sitka to Baja |
| Reference: | Mottet, 1979 | Ricketts et al, 1985 | Ricketts et al., 1985 | Ricketts et al., 1985 |
| Score: | 1 | 1 | 1 | 1 |
| Population Size in WA (PS): | not abundant enough for commercial harvest | tremendous abundance | abundant | common on exposed open coasts |
| Reference: | | Ricketts et al., 1985 | | |
| Score: | 5 | 1 | 1 | 3 |
| Reproductive Potential (RP): | extremely high | high | high | broods w/100,000 to 240,000 larvae |
| Reference: | Mottet, 1979 | Bayne, 1976 | Bayne, 1976 | Ricketts et al., 1985 |
| Score: | 1 | 1 | 1 | 3 |
| Age at Sexual Maturity (SM): | one - two years | one or more years | one or more years | within first year |
| Reference: | Mottet, 1979 | Seed, 1976 | Seed, 1976 | Ricketts et al, 1985 |
| Score: | 3 | 3 | 3 | 1 |

TABLE SF-3. Continued

| | | | | | |
|---|---|---|---|---|---|
| Common Name: | Squid | Octopus | Northern Abalone | Limpets harvested for subsistence | Whelks harvested for subsistence |
| Scientific Name: | Loligo opalescens | Octopus dolfleini | Haliotis kamschatkana | Collisella, Megatebennus, Acmea, Notoacmea | Nassarius, Searlesia, Ceratostoma, Fusitriton |
| Adult/Juvenile Habitat (AJH): | | primarily occurs in photic zone | intertidally to 15 meters | intertidal and subtidal | intertidal and subtidal |
| Reference: | Recksiek & Frey, 1978 | Kyte, 1991; Mottet, 1975 | Mottet, 1978 | Ricketts et al., 1985 | |
| Score SP: | 3 | 3 | 4 | 5 | 4 |
| SU: | 3 | 3 | 4 | 5 | 4 |
| FA: | 3 | 3 | 4 | 5 | 4 |
| WI: | 3 | 3 | 4 | 5 | 4 |
| Location of Larvae (LH): | surface to bottom in WA waters | planktonic, primarily shallow | planktonic | planktonic | embryos metamorphose before hatching |
| Reference: | Recksiek & Frey, 1978 | Kyte, 1991; Mottet, 1975 | Mottet, 1975 | Phillips, 1981 | Spight et al., 1974 |
| Score SP: | 2 | 3 | 0 | 3 | 4 |
| SU: | 2 | 3 | 3 | 3 | 4 |
| F: | 0 | 3 | 3 | 3 | 4 |
| W: | 0 | 3 | 0 | 0 | 0 |
| Location of Eggs (LE): | eggs laid in shallows; then sink | eggs laid in dens primarily shallow | eggs in water column short period | released into water column | eggs in capsules attached to rocks |
| Reference: | Recksiek & Frey, 1978 | Kyte, 1991; Mottet, 1975 | Mottet, 1975 | Ricketts et al., 1985 | Spight et al., 1974 |
| Score SP: | 2 | 3 | 0 | 3 | 4 |
| SU: | 0 | 3 | 3 | 3 | 4 |
| F: | 0 | 3 | 0 | 0 | 4 |
| W: | 2 | 3 | 0 | 3 | 0 |
| WA Population Conc. (PC): | | known to occur in many locations | occurs in aggregations | found in specific habitats | found in specific habitats |
| Reference: | Recksiek & Frey, 1978 | Mottet, 1975 | Kyte, 1991; Ricketts et al., 1985 | Kyte, 1991 | Kyte, 1991 |
| Score: | 1 | 1 | 3 | 3 | 3 |
| Length of Spawning (SP): | winter/spring | hatching primarily in WI & early SP | June through August | Winter, Spring and Fall | February and March |
| Reference: | Recksiek & Frey, 1978 | Kyte, 1991; Mottet, 1975 | Mottet, 1978 | Ricketts et al., 1985 | Spight et al., 1974 |
| Score SP: | 3 | 1 | 0 | 1 | 3 |
| SU: | 0 | 0 | 3 | 0 | 3 |
| FA: | 0 | 0 | 0 | 1 | 0 |
| WI: | 3 | 1 | 0 | 1 | 0 |
| Species Distribution (SD): | | Japan to California | B.C., WA and OR | AK to California | AK to California |
| Reference: | Recksiek & Frey, 1978 | Kyte, 1991; Mottet, 1975 | Mottet, 1978 | Ricketts et al., 1985 | Ricketts et al., 1985 |
| Score: | 1 | 1 | 3 | 1 | 1 |
| Population Size in WA (PS): | some years harvested commercially | not enough for viable commer. fish. | rare; no commercial harvest | common | common |
| Reference: | Barry, 1991 | Kyte, 1991 | Mottet, 1978 | Kyte, 1991; Ricketts et al., 1985 | |
| Score: | 3 | 4 | 5 | 3 | 3 |
| Reproductive Potential (RP): | _6,500 | approx. 50,000 | _1,000 to several million | | 340 to 11,000 embryos per year |
| Reference: | Recksiek & Frey, 1978 | Kyte, 1991; Mottet, 1975 | Mottet, 1978 | | Spight et al., 1974 |
| Score: | 5 | 5 | 1 | 3 | 5 |
| Age at Sexual Maturity (SM): | _14 lunar months | 2 to 3 years | four years or more | within one year | 19 mo. to 2 years |
| Reference: | Spratt, 1978 | Kyte, 1991; Mottet, 1975 | Ricketts et al., 1985 | Ricketts et al., 1985 | Spight et al., 1974 |
| Score: | 3 | 3 | 5 | 1 | 3 |

TABLE SF-3. Continued

| | | | | |
|---|---|---|---|---|
| Common Name: | Moon Snail | Chitons harvested for subsistence | Sea Cucumber | Red Sea Urchin |
| Scientific Name: | Polinices lewisii | Cryptochiton,Tonicella,Lepidozona, Ischnochito,Lepidochitona,Nuttallina,etc. | Parastichopus californicus | Strongylocentrotus franciscanus |
| Adult/Juvenile Habitat (AJH): | intertidal & shallow subtidal | intertidal and subtidal | 0 to 80m.;<20m in SU to spawn | typically 5-10 m.; up to 125m. |
| Reference: | Ricketts et al., 1985 | | Mottet, 1976a; Cameron, 1985 | Mottet, 1976b |
| Score SP: | 4 | 4 | 2 | 3 |
| SU: | 4 | 4 | 3 | 3 |
| FA: | 4 | 4 | 2 | 3 |
| WI: | 4 | 4 | 2 | 3 |
| Location of Larvae (LH): | larvae released in late summer | | same habitat as adult | planktonic for 2 months |
| Reference: | Ricketts et al., 1985 | | Cameron, 1985 | Mottet, 1976b |
| Score SP: | 0 | 3 | 3 | 3 |
| SU: | 4 | 3 | 3 | 3 |
| F: | 4 | 3 | 1 | 0 |
| W: | 0 | 3 | 1 | 0 |
| Location of Eggs (LE): | egg collars laid where adults occur | planktonic | 4-11m MLW near where spawning occurs | eggs have a floating stage |
| Reference: | Bernard, 1967 | Ricketts et al., 1985 | Cameron, 1985 | Dinnel, 1991; Mottet, 1976b |
| Score SP: | 4 | 3 | 3 | 5 |
| SU: | 4 | 3 | 3 | 0 |
| F: | 0 | 3 | 0 | 0 |
| W: | 0 | 3 | 0 | 5 |
| WA Population Conc. (PC): | found in sand and mud flats | found in specific habitats | most of Puget Sound | rocky substr. w/ current/kelp;Straits & SJIs |
| Reference: | | Kyte, 1991 | Mills & Solomon, 1983;Dinnel, 1991 | Kyte, 1991; Mottet, 1976b |
| Score: | 3 | 4 | 1 | 5 |
| Length of Spawning (SP): | | | late Su through Su | Spring |
| Reference: | | | Mottet, 1976a; Cameron, 1985 | Mottet, 1976b;Cumbow, 1978 |
| Score SP: | 0 | 1 | 1 | 3 |
| SU: | 3 | 1 | 1 | 0 |
| FA: | 0 | 1 | 0 | 0 |
| WI: | 0 | 1 | 0 | 0 |
| Species Distribution (SD): | B.C. to Baja | AK to Calif. | B.C. to Mexico | North Pacific; so. to Baja in EPac. |
| Reference: | Ricketts et al., 1985 | Ricketts et al., 1985 | Mottet, 1976a | Mottet, 1976b |
| Score: | 1 | 1 | 1 | 1 |
| Population Size in WA (PS): | common | moderate population size | Abundant | common |
| Reference: | | Kyte, 1991 | Dinnel, 1991 | Kyte, 1991; Cumbow, 1978 |
| Score: | 3 | 3 | 3 | 3 |
| Reproductive Potential (RP): | half million eggs per case | 100,000 to 200,000 eggs per female | 500,000 to 3 mill. eggs | 100,000 to 2 million |
| Reference: | Ricketts et al., 1985 | Ricketts et al., 1985 | Mottet, 1976a | Mottet, 1976b |
| Score: | 3 | 3 | 3 | 1 |
| Age at Sexual Maturity (SM): | 1 - 3 years | | 4+ years | 1 to 3 years |
| Reference: | | | Cameron, 1985 | |
| Score: | 3 | 1 | 5 | 3 |

TABLE SF-3. Continued

| | | | | | |
|---|---|---|---|---|---|
| Common Name: | Green Sea Urchin | Purple Sea Urchin | Dungeness Crab | Red (Rock) Crab | Spot Shrimp |
| Scientific Name: | Strongylocentrotus droebachiensis | Strongylocentrotus purpuratus | Cancer magister | Cancer productus | Pandalus Platyceros |
| Adult/Juvenile Habitat (AJH): | intertidal to 70 fathoms | intertidally to 64 meters | 80% of juveniles in intertidal | Intertidal to 80m | intertidal to 487m; migrate into shallows diurnally |
| Reference: | Mottet,1976b; committee | Mottet, 1976b | Dinnel, 1991 | Orensanz & Gallucci, 1988; Hart, 1982 | Sloan, 1987; Chew, 1991; Butler, 1982; Bumgarner, 1991 |
| Score SP: | 4 | 4 | 4 | 4 | 3 |
| SU: | 4 | 4 | 4 | 4 | 3 |
| FA: | 4 | 4 | 4 | 4 | 3 |
| WI: | 4 | 4 | 4 | 4 | 3 |
| Location of Larvae (LH): | planktonic for 2-3 months | planktonic 2 - 3 months | 3-4 mo., w/ daily trip to surface | larvae in bay shallow waters | in shallower waters |
| Reference: | Mottet,1976b | Mottet, 1976b | Monaco & Emmett, 1988;Cumbow,1978 Barry, 1991 | Orensanz & Gallucci, 1988 | Sloan, 1987 |
| Score SP: | 3 | 4 | 5 | 0 | 3 |
| SU: | 0 | 0 | 5 | 5 | 3 |
| F: | 0 | 0 | 0 | 5 | 3 |
| W: | 3 | 4 | 5 | 5 | 3 |
| Location of Eggs (LE): | eggs have a floating stage | spawn in WI; eggs have float stage | eggs remain on females | eggs held on females that move deeper | eggs held on female |
| Reference: | Mottet, 1976b | Mottet, 1976b | Dinnel, 1991; Monaco & Emmett, 1988 | Orensanz & Gallucci, 1988 | |
| Score SP: | 5 | 5 | 0 | 0 | 1 |
| SU: | 0 | 0 | 0 | 3 | 1 |
| F: | 0 | 0 | 3 | 3 | 1 |
| W: | 5 | 5 | 3 | 0 | 1 |
| WA Population Conc. (PC): | most inland waters | coast & outer Str. Juan de Fuca | all waters; sparse in So. Sound | | commerc. densities only in Hood C. |
| Reference: | Dinnel, 1991 | Dinnel, 1991 | Monaco and Emmett, 1988; Dinnel, 199 | Kyte, 1991 | Bumgarner, 1983 |
| Score: | 3 | 3 | 1 | 3 | 5 |
| Length of Spawning (SP): | Winter or Early Spring | winter | late Winter to Spring | Su and Fall | spawn in Sp |
| Reference: | Mottet, 1976b;Ricketts et al., 1985 | Mottet, 1976b | Ricketts et al., 1985 | Orensanz & Gallucci, 1988 | Butler, 1980 |
| Score SP: | 1 | 0 | 1 | 0 | 3 |
| SU: | 0 | 0 | 0 | 1 | 0 |
| FA: | 0 | 0 | 0 | 1 | 0 |
| WI: | 1 | 3 | 1 | 0 | 0 |
| Species Distribution (SD): | Circumpolar | Sitka, AK to Baja | AK to So. CA | AK to Baja | Alaska to So. Calif. |
| Reference: | Mottet, 1976b | Mottet, 1976b | Ricketts et al., 1985 | Ricketts et al., 1985 | Butler, 1980 |
| Score: | 1 | 1 | 1 | 1 | 1 |
| Population Size in WA (PS): | abundant; dominant sea urchin in Pu | can occur in tremendous abundance | ave. state yield, about 10 mil.lbs. | abundant enough for commer. harvest | 95 mt harvested in '81 and '82 |
| Reference: | Mottet, 1976b | Mottet, 1976b | Barry, 1991 | Dinnel, 1991; Ricketts et al., 1985 | Bumgarner, 1983 |
| Score: | 1 | 1 | 1 | 3 | 3 |
| Reproductive Potential (RP): | 100,000 to 2 million | 100,000 to 2 million | up to 2.5 million | | low; 2,000 to 4,000 eggs |
| Reference: | Mottet, 1976b | Mottet, 1976b | Monaco and Emmett, 1988 | | Chew, 1991; Butler, 1980 |
| Score: | 1 | 1 | 1 | | 5 |
| Age at Sexual Maturity (SM): | 1 - 3 years | 1 - 3 years | most at 2 years | at least 2 years | 2-4 years |
| Reference: | | | Barry, 1991 | Dinnel, 1991 | Kyte, 1991 |
| Score: | 3 | 3 | 3 | 3 | 3 |

TABLE SF-3. Continued

| | | | | |
|---|---|---|---|---|
| Common Name: | Coon Stripe Shrimp | Side Stripe Shrimp | Pink Shrimp | Ghost or Sand Shrimp | Mud Shrimp |
| Scientific Name: | Pandalus danae | Pandalopsis dispar | Pandalus jordani and P. borealis | Callianassa spp. | Upogebia pugettensis |
| Adult/Juvenile Habitat (AJH): | intertidal to 185m | deep, mud bottoms | diurnal migration to shallow waters | optimum depth: 0 to +1 ft. | intertidal |
| Reference: | Wicksten, 1984; Chew, 1991; Dinnel, 1991; Butler, 1980 | Chew, 1991; Dinnel, 1991 | Barry, 1991; Chew, 1991 | Ricketts et al., 1985 | Ricketts et al., 1985 |
| Score SP: | 3 | 3 | 3 | 5 | 5 |
| SU: | 3 | 3 | 3 | 5 | 5 |
| FA: | 3 | 1 | 3 | 5 | 5 |
| WI: | 3 | 1 | 3 | 5 | 5 |
| Location of Larvae (LH): | in shallower waters | in shallower waters | in shallower waters | larvae present during the summer | larval for 1 - 2 months |
| Reference: | Sloan, 1987 | Sloan, 1987 | Sloan, 1987 | Dumbald et al., 1989 | Dumbald et al., 1989 |
| Score SP: | 3 | 3 | 3 | 0 | 0 |
| SU: | 3 | 3 | 3 | 5 | 5 |
| F: | 3 | 3 | 3 | 0 | 0 |
| W: | 3 | 3 | 3 | 0 | 0 |
| Location of Eggs (LE): | eggs held on female | eggs held on female | eggs held on female | females carry eggs well into SU | eggs on females DEC-APRIL |
| Reference: | | Butler, 1980 | Butler, 1980 | Dumbald et al., 1989 | Ricketts et al., 1985; Dumbald et al., 1989 |
| Score SP: | 1 | 1 | 1 | 5 | 5 |
| SU: | 1 | 1 | 1 | 5 | 0 |
| F: | 1 | 1 | 1 | 0 | 0 |
| W: | 1 | 1 | 1 | 0 | 5 |
| WA Population Conc. (PC): | all waters | deep areas of Puget Sound | all waters, primarily deep | found in a moderate number of areas | moderate number of areas |
| Reference: | | Dinnel, 1991 | Barry, 1991 | | |
| Score: | 3 | 3 | 1 | 3 | 3 |
| Length of Spawning (SP): | spawn in Sp/early Su | spawn in Sp/early Su | spawn in Winter/early Spring | spawns throughout year w/peak in SU | spawns primarily in SP |
| Reference: | Butler, 1980 | Butler, 1980 | Barry, 1991 | Ricketts et al., 1985 | Dumbald et al., 1989 |
| Score SP: | 3 | 3 | 3 | 0 | 3 |
| SU: | 3 | 3 | 0 | 1 | 0 |
| FA: | 0 | 0 | 0 | 0 | 0 |
| WI: | 0 | 0 | 3 | 0 | 0 |
| Species Distribution (SD): | Ak. to So, Calif. | Bering Sea Alaska to Oregon | widely distributed | B.C. to Mexico | AK to B.C. |
| Reference: | Butler, 1980 | Butler, 1980 | Butler, 1980 | Ricketts et al., 1985 | Ricketts et al., 1985 |
| Score: | 3 | 3 | 1 | 1 | 1 |
| Population Size in WA (PS): | moderate in shallow areas | moderate | abundant in outer shelf area | adundant | abundant |
| Reference: | Dinnel, 1991 | Dinnel, 1991 | Barry, 1991 | | |
| Score: | 3 | 3 | 1 | 1 | 1 |
| Reproductive Potential (RP): | low; 1,000 - 2,000 | low; 1,000 t0 4,000 eggs | relatively low; 1,000 to 2,000 eggs | low; 1,000 to 10,000 | high |
| Reference: | Chew, 1991; Butler, 1980 | Chew, 1991; Butler, 1980 | Barry, 1991; Chew, 1991; Butler, 19 | Dinnel, 1991 | |
| Score: | 5 | 5 | 5 | 5 | 1 |
| Age at Sexual Maturity (SM): | 2-4 years | 2-4 years | 1.5 to 2.5 years | 1 - 3 years | 1 - 3 years |
| Reference: | Kyte, 1991 | Kyte, 1991 | Butler, 1980 | | |
| Score: | 3 | 3 | 3 | 3 | 3 |

TABLE SF-3. Continued

Common Name: Humpback Shrimp
Scientific Name: Pandalus hypsinotus

Adult/Juvenile Habitat (AJH): subtidal; 5 - 460m
Reference: Butler, 1980

Score SP: 2
SU: 2
FA: 2
WI: 2

Location of Larvae (LH): shallow and deep waters
Reference: Butler, 1980

Score SP: 2
SU: 2
F: 0
W: 0

Location of Eggs (LE): eggs held on female
Reference: Butler, 1980

Score SP: 2
SU: 2
F: 0
W: 0

WA Population Conc. (PC): patchy through N. sound & straits
Reference: Dinnel, 1991
Score: 3

Length of Spawning (SP): spawns in SP
Reference: Butler, 1980
Score SP: 3
SU: 0
FA: 0
WI: 0

Species Distribution (SD): AK to Puget Sound
Reference: Butler, 1980
Score: 3

Population Size in WA (PS): low to moderate
Reference: Dinnel, 1991
Score: 3

Reproductive Potential (RP): low
Reference: Butler, 1980
Score: 5

Age at Sexual Maturity (SM): 2 - 4 years
Reference: Butler, 1980
Score: 3

TABLE SF-6. THE SHELLFISH VULNERABILITY SCORE (SFVS) FOR SPRING

SFVI = shellfish vulnerability index (from Table SF-5) Regional/Subregional SFVS = Species SFVI * HARV * .001
HARV = Five Year Average Annual Commercial, Recreational and Subsistence Harvest for Region/Subregion in Round LBS.

| Shellfish Species | | REGION/SUBREGION | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Spring SFVI | 101 | | 102 | | 103 | | 104 | | 105 | | 106 | | 107 | | 108 | |
| | | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS |
| Pacific Oyster | 275 | | | | | | | | | | | | | 192,000 | 52,800 | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | 12,500 | 3,813 | 19,167 | 5,846 | 192,500 | 58,713 | 192,500 | 58,713 | 12,500 | 3,813 | 127,778 | 38,972 | | | 157,333 | 47,987 |
| Geoduck | 225 | | | | | | | | | | | | | | | | |
| Butter Clam | 200 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | | | | | | |
| Native Little Neck | 305 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | | | | | | |
| Manila Clam | 245 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | | | | | | |
| Gaper Clam | 160 | | | | | | | | | | | | | | | | |
| Horse Clam | 205 | | | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | | | | | | |
| Cockles | 160 | 3,125 | 500 | 3,125 | 500 | 3,125 | 500 | 3,125 | 500 | 3,125 | 500 | | | | | | |
| Pink & Spiny Scallops | 115 | 63 | 7 | 63 | 7 | 63 | 7 | 63 | 7 | 63 | 7 | | | | | | |
| Rock Scallop | 145 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | | | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | | | |
| California Mussel | 290 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | | | | | | |
| Goose(neck) Barnacle | 325 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | | | | | | |
| Squid | 195 | | | | | | | | | | | | | | | | |
| Octopus | 215 | | | | | | | | | | | | | | | | |
| Northern Abalone | 160 | | | | | | | | | | | | | | | | |
| Limpets | 295 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | | | | | | |
| Whelks | 295 | 125 | 37 | 125 | 37 | 125 | 37 | 125 | 37 | 125 | 37 | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | |
| Chitons | 255 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | | | | | | |
| Sea Cucumber | 175 | 125 | 22 | 125 | 22 | 125 | 22 | 125 | 22 | 125 | 22 | | | | | | |
| Red Sea Urchin | 255 | 413 | 105 | 413 | 105 | 413 | 105 | 413 | 105 | 413 | 105 | | | | | | |
| Green Sea Urchin | 285 | 413 | 118 | 413 | 118 | 413 | 118 | 413 | 118 | 413 | 118 | | | | | | |
| Purple Sea Urchin | 295 | 413 | 122 | 413 | 122 | 413 | 122 | 413 | 122 | 413 | 122 | | | | | | |
| Dungeness Crab | 240 | 561,000 | 134,640 | 1,200,000 | 288,000 | 187,200 | 44,928 | 358,800 | 86,112 | 160,000 | 38,400 | 140,400 | 33,696 | 400,000 | 96,000 | 312,000 | 74,880 |
| Red (Rock) Crab | 160 | | | | | | | | | | | | | | | | |
| Spot Shrimp | 195 | 125 | 24 | 125 | 24 | 125 | 24 | 125 | 24 | 125 | 24 | | | | | | |
| Coon Stripe Shrimp | 195 | | | | | | | | | | | | | | | | |
| Sidestripe Shrimp | 195 | | | | | | | | | | | | | | | | |
| Pink Shrimp | 195 | | | | | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 275 | | | | | | | | | | | | | | | | |
| Mud Shrimp | 290 | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 95 | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 616,490 | | 1,262,157 | | 422,690 | | 594,290 | | 215,490 | | 268,178 | | 592,000 | | 469,333 | |
| Regional/Subregional SFVS: | | | 150,484 | | 305,878 | | 115,672 | | 156,856 | | 54,244 | | 72,668 | | 148,800 | | 122,867 |
| FINAL SPRING SFVS RANK: | | | 4 | | 5 | | 3 | | 4 | | 2 | | 3 | | 4 | | 4 |

TABLE SF-6. Continued

| Shellfish Species | Spring SFVI | 109 HARV | 109 SFVS | 110 HARV | 110 SFVS | 111 HARV | 111 SFVS | 112 HARV | 112 SFVS | 2 HARV | 2 SFVS | 3 HARV | 3 SFVS | Admiralty Inlet 401 HARV | Admiralty Inlet 401 SFVS | Admiralty Inlet 402,404 HARV | Admiralty Inlet 402,404 SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 275 | | | | | | | | | | | | | | | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | 12,500 | 3,813 | | | | | | | 25,000 | 7,625 | | | | | | |
| Geoduck | 225 | | | | | | | | | | | 415 | 93 | | | 134,881 | 30,348 |
| Butter Clam | 200 | 3,125 | 625 | | | | | | | 6,250 | 1,250 | 54,611 | 10,922 | | | | |
| Native Little Neck | 305 | 3,125 | 953 | | | | | | | 3,279 | 1,000 | 69,271 | 21,128 | 1,501 | 368 | 148,630 | 36,414 |
| Manila Clam | 245 | 3,125 | 766 | | | | | | | 3,192 | 782 | 4,556 | 1,116 | 132 | 21 | 13,097 | 2,096 |
| Gaper Clam | 160 | | | | | | | | | | | | | | | | |
| Horse Clam | 205 | | | | | | | | | | | 119 | 24 | | | | |
| Eastern Soft Shell | 295 | 1,250 | 369 | | | | | | | 2,500 | 738 | | | | | | |
| Cockles | 160 | 3,125 | 500 | | | | | | | 6,250 | 1,000 | 5 | 1 | | | | |
| Pink & Spiny Scallops | 115 | 63 | 7 | | | | | | | 174 | 20 | 2,930 | 337 | 1,953 | 283 | 17,583 | 2,550 |
| Rock Scallop | 145 | 63 | 9 | | | | | | | 3,576 | 519 | 12,283 | 1,781 | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | | | |
| California Mussel | 290 | 12,500 | 3,625 | | | | | | | 25,003 | 7,251 | | | | | | |
| Goose(neck) Barnacle | 325 | 12,500 | 4,063 | | | | | | | 25,000 | 8,125 | | | | | | |
| Squid | 195 | | | | | | | | | 12 | 2 | 18 | 4 | | | 1 | 0 |
| Octopus | 215 | | | | | | | | | 936 | 201 | 18,943 | 4,073 | 628 | 101 | 628 | 101 |
| Northern Abalone | 160 | | | | | | | | | 2,550 | 408 | 8,700 | 1,392 | | | | |
| Limpets | 295 | 1,250 | 369 | | | | | | | 2,500 | 738 | | | | | | |
| Whelks | 295 | 125 | 37 | | | | | | | 250 | 74 | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | |
| Chitons | 255 | 1,250 | 319 | | | | | | | 2,500 | 638 | | | | | | |
| Sea Cucumber | 175 | 125 | 22 | | | | | | | 117,526 | 20,567 | 293,277 | 51,323 | 43,899 | 11,194 | 87,798 | 22,388 |
| Red Sea Urchin | 255 | 413 | 105 | | | | | | | 2,678,505 | 683,019 | 1,706,849 | 435,246 | | | 8,966 | 2,555 |
| Green Sea Urchin | 285 | 413 | 118 | | | | | | | 23,312 | 6,644 | 12,847 | 3,661 | 36,760 | 10,844 | 36,760 | 10,844 |
| Purple Sea Urchin | 295 | 413 | 122 | | | | | | | 826 | 244 | | | | | | |
| Dungeness Crab | 240 | 4,680,000 | 1,123,200 | | | | | | | 9,784 | 2,348 | 143,600 | 34,464 | 385 | 62 | 7,320 | 1,171 |
| Red (Rock) Crab | 160 | | | | | | | | | | | 3,051 | 488 | 49 | 10 | 926 | 181 |
| Spot Shrimp | 195 | 125 | 24 | | | | | | | 532 | 104 | 23,163 | 4,517 | | | 12 | 2 |
| Coon Stripe Shrimp | 195 | | | | | | | | | 538 | 105 | 18,965 | 3,698 | | | 18 | 4 |
| Sidestripe Shrimp | 195 | | | | | | | | | | | 10 | 2 | | | | |
| Pink Shrimp | 195 | 8,000,000 | 1,560,000 | | | | | | | 27 | 5 | 10,243 | 1,997 | | | 73 | 20 |
| Ghost (or Sand) Shrimp | 275 | | | | | | | | | | | | | | | | |
| Mud Shrimp | 290 | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 95 | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 12,735,490 | | | | | | | | 2,940,021 | | 2,383,855 | | 85,308 | | 456,693 | |
| Regional/Subregional SFVS: | | | 2,699,044 | | | | | | | | 743,405 | | 576,268 | | 22,882 | | 108,674 |
| FINAL SPRING SFVS RANK: | | | 5 | | 1 | | 1 | | 1 | | 5 | | 5 | | 2 | | 3 |

TABLE SF-6. Continued

| Shellfish Species | Spring SFVI | 403,405 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS |
| Pacific Oyster | 275 | | | 200 | 55 | | | | | | | | | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | |
| Geoduck | 225 | 533,508 | 120,039 | 1,851,268 | 416,535 | | | | | 63 | 14 | 63 | 14 | 63 | 14 |
| Butter Clam | 200 | 46 | 14 | 67,307 | 13,461 | 80,655 | 16,131 | 80,655 | 16,131 | 8,220 | 1,644 | 8,220 | 1,644 | 8,220 | 1,644 |
| Native Little Neck | 305 | 21,846 | 5,352 | 49,887 | 15,215 | 15,770 | 4,810 | 15,770 | 4,810 | 2,522 | 769 | 2,522 | 769 | 2,522 | 769 |
| Manila Clam | 245 | 4,585 | 734 | 45,952 | 11,258 | 10,597 | 2,596 | 10,597 | 2,596 | 41 | 10 | 41 | 10 | 41 | 10 |
| Gaper Clam | 160 | | | | | | | | | | | | | | |
| Horse Clam | 205 | | | 6 | 1 | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | |
| Cockles | 160 | | | 6 | 1 | | | | | | | | | | |
| Pink & Spiny Scallops | 115 | 76 | 11 | 349 | 40 | | | | | 6,504 | 748 | 6,504 | 748 | 6,504 | 748 |
| Rock Scallop | 145 | | | 9,333 | 1,353 | | | 0 | | 1,867 | 271 | 1,867 | 271 | 1,867 | 271 |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | |
| Squid | 195 | | | 15 | 3 | 1,993 | 389 | 1,993 | 389 | 5 | 1 | 5 | 1 | 5 | 1 |
| Octopus | 215 | 16 | 2 | 385 | 83 | 13,548 | 2,913 | 13,548 | 2,913 | 148 | 32 | 148 | 32 | 148 | 32 |
| Northern Abalone | 160 | | | 8,700 | 1,392 | | | | | 1,740 | 278 | 1,740 | 278 | 1,740 | 278 |
| Limpets | 295 | | | | | | | | | | | | | | |
| Whelks | 295 | | | | | | | | | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 175 | 25,459 | 6,492 | 39,393 | 6,894 | 9,370 | 1,640 | 9,370 | 1,640 | 12,552 | 2,197 | 12,552 | 2,197 | 12,552 | 2,197 |
| Red Sea Urchin | 255 | | | 86,424 | 22,038 | 76,721 | 19,564 | 76,721 | 19,564 | 585,671 | 149,346 | 585,671 | 149,346 | 585,671 | 149,346 |
| Green Sea Urchin | 285 | | | 1,906 | 543 | 2,495 | 711 | 2,495 | 711 | 50,273 | 14,328 | 50,273 | 14,328 | 50,273 | 14,328 |
| Purple Sea Urchin | 295 | | | | | | | | | | | | | | |
| Dungeness Crab | 240 | 17,563 | 2,810 | 560,171 | 134,441 | 563,115 | 135,148 | 563,115 | 135,148 | 29,276 | 7,026 | 29,276 | 7,026 | 29,276 | 7,026 |
| Red (Rock) Crab | 160 | 647 | 126 | 4,749 | 760 | 844 | 135 | 844 | 135 | 409 | 65 | 409 | 65 | 409 | 65 |
| Spot Shrimp | 195 | 21 | 4 | 18 | 4 | | | | | 1,531 | 299 | 1,531 | 299 | 1,531 | 299 |
| Coon Stripe Shrimp | 195 | 78 | 15 | 2,820 | 550 | 35 | 7 | 35 | 7 | 11,806 | 2,302 | 11,806 | 2,302 | 11,806 | 2,302 |
| Sidestripe Shrimp | 195 | | | | | | | | | 19 | 4 | 19 | 4 | 19 | 4 |
| Pink Shrimp | 195 | | | 279 | 54 | | | | | 1,815 | 354 | 1,815 | 354 | 1,815 | 354 |
| Ghost (or Sand) Shrimp | 275 | | | | | | | | | | | | | | |
| Mud Shrimp | 290 | | | | | | | | | | | | | | |
| Humpback Shrimp | 95 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 603,843 | | 2,729,167 | | 775,142 | | 775,142 | | 714,463 | | 714,463 | | 714,463 | |
| Regional/Subregional SFVS: | | | 135,600 | | 624,682 | | 184,043 | | 184,043 | | 179,688 | | 179,688 | | 179,688 |
| FINAL SPRING SFVS RANK: | | | 4 | | 5 | | 5 | | 5 | | 4 | | 4 | | 4 |

TABLE SF-6. Continued

| Shellfish Species | Spring SFVI | Waters East of Whidbey Island | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11 | | 12 | | 1401 | | 1402,1403 | | 1404 | | 1405 | | 1406 | | 1501 1502,1503 | | | |
| | | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | | |
| Pacific Oyster | 275 | | | | | | | | | | | | | | | 700 | 193 | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | | | | | |
| Geoduck | 225 | 63 | 14 | 63 | 14 | | | | | | | | | 139 | 31 | 1,897 | 427 | | |
| Butter Clam | 200 | 8,220 | 1,644 | 8,220 | 1,644 | | | 24 | 7 | | | 17,696 | 5,397 | 18,614 | 5,677 | | | | |
| Native Little Neck | 305 | 2,522 | 769 | 2,522 | 769 | 77,281 | 18,934 | 1,013 | 248 | | | 12,691 | 3,109 | 18,736 | 4,590 | 53,891 | 13,203 | | |
| Manila Clam | 245 | 41 | 10 | 41 | 10 | 9,421 | 1,507 | 4,323 | 692 | | | 480 | 77 | 1,567 | 251 | 44,498 | 7,120 | | |
| Gaper Clam | 160 | | | | | | | | | | | | | | | | | | |
| Horse Clam | 205 | | | | | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | | | | | |
| Cockles | 160 | | | | | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 115 | 6,504 | 748 | 6,504 | 748 | | | | | | | 106 | 15 | 146 | 21 | 98 | 14 | | |
| Rock Scallop | 145 | 1,867 | 271 | 1,867 | 271 | | | | | | | | | | | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | | | | | |
| Squid | 195 | 5 | 1 | 5 | 1 | | | 35 | 8 | 1 | 0 | | | 1 | 0 | | | | |
| Octopus | 215 | 148 | 32 | 148 | 32 | | | 780 | 125 | 14 | 2 | | | 141 | 23 | 31 | 5 | | |
| Northern Abalone | 160 | 1,740 | 278 | 1,740 | 278 | | | | | | | | | | | | | | |
| Limpets | 295 | | | | | | | | | | | | | | | | | | |
| Whelks | 295 | | | | | | | | | | | | | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | | | | | |
| Sea Cucumber | 175 | 12,552 | 2,197 | 12,552 | 2,197 | 2,842 | 725 | 513 | 131 | | | 728 | 186 | 2,558 | 652 | 24,276 | 6,190 | | |
| Red Sea Urchin | 255 | 585,671 | 149,346 | 585,671 | 149,346 | 872 | 248 | | | | | | | | | | | | |
| Green Sea Urchin | 285 | 50,273 | 14,328 | 50,273 | 14,328 | 13,909 | 4,103 | | | | | | | 605 | 179 | | | | |
| Purple Sea Urchin | 295 | | | | | | | | | | | | | | | | | | |
| Dungeness Crab | 240 | 29,276 | 7,026 | 29,276 | 7,026 | 197,049 | 31,528 | 28,336 | 4,534 | 10 | 2 | 45,090 | 7,214 | 36,828 | 5,892 | 16,228 | 2,596 | | |
| Red (Rock) Crab | 160 | 409 | 65 | 409 | 65 | 4,280 | 835 | 1,082 | 211 | | | | | 617 | 120 | 877 | 171 | | |
| Spot Shrimp | 195 | 1,531 | 299 | 1,531 | 299 | 26 | 5 | | | | | 638 | 124 | 142 | 28 | | | | |
| Coon Stripe Shrimp | 195 | 11,806 | 2,302 | 11,806 | 2,302 | 501 | 98 | 1,464 | 285 | | | 353 | 69 | 46 | 9 | | | | |
| Sidestripe Shrimp | 195 | 19 | 4 | 19 | 4 | | | | | | | 302 | 59 | 66 | 13 | | | | |
| Pink Shrimp | 195 | 1,815 | 354 | 1,815 | 354 | 12 | 3 | 2,889 | 794 | | | 2,250 | 619 | 500 | 137 | 27 | 7 | | |
| Ghost (or Sand) Shrimp | 275 | | | | | | | 3,381 | 980 | | | | | | | | | | |
| Mud Shrimp | 290 | | | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 95 | | | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 714,463 | | 714,463 | | 306,192 | | 43,839 | | 26 | | 80,334 | | 80,706 | | 142,523 | | | |
| Regional/Subregional SFVS: | | | 179,688 | | 179,688 | | 57,986 | | 8,015 | | 4 | | 16,870 | | 17,624 | | 29,927 | | |
| FINAL SPRING SFVS RANK: | | | 4 | | 4 | | 2 | | 1 | | 1 | | 1 | | 1 | | 2 | | |

TABLE SF-6. Continued

| Shellfish Species | Spring SFVI | 1504-1507 | | 1508-1510 | | 1601 | | 1602-1604 | | 1605 to 1607, 1634,1635 | | 1608 | | 1609 to 1615, 1617,1636 | | 1616,1622 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS |
| Pacific Oyster | 275 | 29,800 | 8,195 | 25,800 | 7,095 | | | | | | | | | | | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | | 500 | 138 |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | | | |
| Geoduck | 225 | 555 | 125 | 23,899 | 5,377 | | | 869 | 196 | | | | | | | | |
| Butter Clam | 200 | 67,700 | 20,649 | 95,760 | 29,207 | 40,325 | 12,299 | 57,503 | 17,538 | 56,525 | 17,240 | 4,925 | 1,502 | 1,645,681 | 370,278 | 862,493 | 194,061 |
| Native Little Neck | 305 | 17,467 | 4,279 | 41,512 | 10,170 | 26,003 | 6,371 | 44,106 | 10,806 | 41,625 | 10,198 | 5,038 | 1,234 | 99,410 | 30,320 | 32,307 | 9,854 |
| Manila Clam | 245 | 63,345 | 10,135 | 71,125 | 11,380 | 2,350 | 376 | 10,398 | 1,664 | 2,788 | 446 | 356 | 57 | 142,331 | 34,871 | 45,733 | 11,205 |
| Gaper Clam | 160 | | | | | | | | | | | | | 18,214 | 2,914 | 16,851 | 2,696 |
| Horse Clam | 205 | | | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | | | |
| Cockles | 160 | | | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 115 | | | | | | | | | | | | | | | | |
| Rock Scallop | 145 | | | | | 358 | 52 | 219 | 32 | | | | | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | | | |
| Squid | 195 | | | | | | | | | | | | | | | | |
| Octopus | 215 | | | | | 1 | 0 | 53 | 11 | 91 | 20 | | | 58 | 12 | 9 | 2 |
| Northern Abalone | 160 | | | | | 141 | 23 | 289 | 46 | 527 | 84 | 2,259 | 361 | 678 | 108 | 333 | 53 |
| Limpets | 295 | | | | | | | | | | | | | | | | |
| Whelks | 295 | | | | | | | | | | | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | | | |
| Sea Cucumber | 175 | 31,203 | 7,957 | 7,696 | 1,962 | 89,658 | 22,863 | 20,856 | 5,318 | 13,810 | 3,521 | 36,140 | 9,216 | 113,363 | 28,907 | 86,875 | 22,153 |
| Red Sea Urchin | 255 | 196 | 56 | 474 | 135 | | | 2,322 | 662 | 1,451 | 413 | | | 891 | 254 | | |
| Green Sea Urchin | 285 | | | | | 605 | 179 | 1,805 | 533 | | | 34,151 | 10,075 | 1,079 | 318 | | |
| Purple Sea Urchin | 295 | | | | | | | | | | | | | | | | |
| Dungeness Crab | 240 | 45,955 | 7,353 | 108,782 | 17,405 | 17,037 | 2,726 | 29,927 | 4,788 | 1,064 | 170 | 1,772 | 283 | 3,336 | 534 | 12 | 2 |
| Red (Rock) Crab | 160 | | | 3,968 | 774 | 412 | 80 | 2,160 | 421 | 630 | 123 | 1,299 | 253 | 1,840 | 359 | | |
| Spot Shrimp | 195 | 55,438 | 10,810 | 100,698 | 19,636 | | | 79 | 15 | | | | | | | | |
| Coon Stripe Shrimp | 195 | 6 | 1 | 58 | 11 | | | | | | | | | | | | |
| Sidestripe Shrimp | 195 | | | | | | | | | | | | | | | | |
| Pink Shrimp | 195 | 30 | 8 | 101 | 28 | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 275 | | | | | | | | | | | | | | | | |
| Mud Shrimp | 290 | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 95 | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 311,693 | | 479,872 | | 176,890 | | 170,588 | | 118,510 | | 85,940 | | 2,026,879 | | 1,045,112 | |
| Regional/Subregional SFVS: | | | 69,568 | | 103,181 | | 44,968 | | 42,031 | | 32,216 | | 22,982 | | 468,877 | | 240,163 |
| FINAL SPRING SFVS RANK: | | | 3 | | 3 | | 2 | | 2 | | 2 | | 2 | | 5 | | 5 |

TABLE SF-6. Continued

| Shellfish Species | Spring SFVI | 1618 HARV | 1618 SFVS | 1619-1621, 1623-1627 HARV | 1619-1621, 1623-1627 SFVS | 1628-1633 HARV | 1628-1633 SFVS |
|---|---|---|---|---|---|---|---|
| Pacific Oyster | 275 | | | 21,100 | 5,803 | | |
| Olympia Oyster | 200 | | | | | | |
| Pacific Razor Clam | 305 | | | | | | |
| Geoduck | 225 | | | 523,288 | 117,740 | 303 | 68 |
| Butter Clam | 200 | 1,404 | 428 | 23,166 | 7,066 | 51,210 | 15,619 |
| Native Little Neck | 305 | 2,243 | 550 | 52,956 | 12,974 | 54,966 | 13,467 |
| Manila Clam | 245 | 213 | 34 | 242,631 | 38,821 | 72,819 | 11,651 |
| Gaper Clam | 160 | | | | | | |
| Horse Clam | 205 | | | | | 230 | 68 |
| Eastern Soft Shell | 295 | | | | | | |
| Cockles | 160 | | | | | | |
| Pink & Spiny Scallops | 115 | | | | | | |
| Rock Scallop | 145 | | | | | | |
| Weathervane Scallop | 45 | | | | | | |
| Bay Mussel | 245 | | | | | | |
| California Mussel | 290 | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | |
| Squid | 195 | | | | | | |
| Octopus | 215 | 206 | 33 | | | 116 | 19 |
| Northern Abalone | 160 | | | | | | |
| Limpets | 295 | | | | | | |
| Whelks | 295 | | | | | | |
| Moon Snail | 220 | | | | | | |
| Chitons | 255 | | | | | | |
| Sea Cucumber | 175 | 22,571 | 5,756 | 287 | 73 | 401,837 | 102,468 |
| Red Sea Urchin | 255 | | | | | 1,258 | 358 |
| Green Sea Urchin | 285 | | | 283 | 83 | 216 | 64 |
| Purple Sea Urchin | 295 | | | | | | |
| Dungeness Crab | 240 | | | 3 | 0 | 126 | 20 |
| Red (Rock) Crab | 160 | 114 | 22 | 458 | 89 | | |
| Spot Shrimp | 195 | | | | | | |
| Coon Stripe Shrimp | 195 | | | | | | |
| Sidestripe Shrimp | 195 | | | | | | |
| Pink Shrimp | 195 | | | | | | |
| Ghost (or Sand) Shrimp | 275 | | | | | | |
| Mud Shrimp | 290 | | | | | | |
| Humpback Shrimp | 95 | | | | | | |
| TOTAL HARVEST: | | 26,751 | | 864,170 | | 583,081 | |
| Regional/Subregional SFVS: | | | 6,823 | | 182,649 | | 143,802 |
| FINAL SPRING SFVS RANK: | | | 1 | | 4 | | 4 |

TABLE SF-6. THE SHELLFISH VULNERABILITY SCORE (SFVS) SUMMER

SFVI = shellfish vulnerability index (from Table SF-5) Regional/Subregional SFVS = Species SFVI * HARV * .001

HARV = Five Year Average Annual Commercial, Recreational and Subsistence Harvest for Region/Subregion in Round LBS.

| | | REGION/SUBREGION | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Summer | 101 | | 102 | | 103 | | 104 | | 105 | | 106 | | 107 | |
| Shellfish Species | SFVI | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS |
| Pacific Oyster | 335 | | | | | | | | | | | | | 192,000 | 64,320 |
| Olympia Oyster | 335 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | 12,500 | 3,813 | 19,167 | 5,846 | 192,500 | 58,713 | 192,500 | 58,713 | 12,500 | 3,813 | 127,778 | 38,972 | | |
| Geoduck | 210 | | | | | | | | | | | | | | |
| Butter Clam | 305 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | | | | |
| Native Little Neck | 305 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | | | | |
| Manila Clam | 305 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | 3,125 | 953 | | | | |
| Gaper Clam | 255 | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | | | | |
| Cockles | 265 | 3,125 | 828 | 3,125 | 828 | 3,125 | 828 | 3,125 | 828 | 3,125 | 828 | | | | |
| Pink & Spiny Scallops | 80 | 63 | 5 | 63 | 5 | 63 | 5 | 63 | 5 | 63 | 5 | | | | |
| Rock Scallop | 145 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | | | | |
| Weathervane Scallop | 60 | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | |
| California Mussel | 290 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | | | | |
| Goose(neck) Barnacle | 325 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | | | | |
| Squid | 150 | | | | | | | | | | | | | | |
| Octopus | 210 | | | | | | | | | | | | | | |
| Northern Abalone | 265 | | | | | | | | | | | | | | |
| Limpets | 290 | 1,250 | 363 | 1,250 | 363 | 1,250 | 363 | 1,250 | 363 | 1,250 | 363 | | | | |
| Whelks | 295 | 125 | 37 | 125 | 37 | 125 | 37 | 125 | 37 | 125 | 37 | | | | |
| Moon Snail | 295 | | | | | | | | | | | | | | |
| Chitons | 255 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | | | | |
| Sea Cucumber | 215 | 125 | 27 | 125 | 27 | 125 | 27 | 125 | 27 | 125 | 27 | | | | |
| Red Sea Urchin | 165 | 413 | 68 | 413 | 68 | 413 | 68 | 413 | 68 | 413 | 68 | | | | |
| Green Sea Urchin | 160 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | | | | |
| Purple Sea Urchin | 160 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | | | | |
| Dungeness Crab | 235 | 561,000 | 131,835 | 1,200,000 | 282,000 | 187,200 | 43,992 | 358,800 | 84,318 | 160,000 | 37,600 | 140,400 | 32,994 | 400,000 | 94,000 |
| Red (Rock) Crab | 285 | | | | | | | | | | | | | | |
| Spot Shrimp | 180 | 125 | 23 | 125 | 23 | 125 | 23 | 125 | 23 | 125 | 23 | | | | |
| Coon Stripe Shrimp | 195 | | | | | | | | | | | | | | |
| Sidestripe Shrimp | 195 | | | | | | | | | | | | | | |
| Pink Shrimp | 180 | | | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 355 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 616,490 | | 1,262,157 | | 422,690 | | 594,290 | | 215,490 | | 268,178 | | 592,000 | |
| Regional/Subregional SFVS: | | | 148,373 | | 300,572 | | 115,430 | | 155,756 | | 54,138 | | 71,966 | | 158,320 |
| FINAL SUMMER SFVS RANK: | | | 4 | | 5 | | 3 | | 4 | | 2 | | 3 | | 4 |

TABLE SF-6. Continued

COMPENSATION SCHEDULE REGIONS

| Shellfish Species | Summer SFVI | 108 HARV | 108 SFVS | 109 HARV | 109 SFVS | 110 HARV | 110 SFVS | 111 HARV | 111 SFVS | 112 HARV | 112 SFVS | 2 HARV | 2 SFVS | 3 HARV | 3 SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 335 | | | | | | | | | | | | | | |
| Olympia Oyster | 335 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | 157,333 | 47,987 | 12,500 | 3,813 | | | | | | | 25,000 | 7,625 | | |
| Geoduck | 210 | | | | | | | | | | | | | 415 | 87 |
| Butter Clam | 305 | | | 3,125 | 953 | | | | | | | 6,250 | 1,906 | 54,611 | 16,656 |
| Native Little Neck | 305 | | | 3,125 | 953 | | | | | | | 3,279 | 1,000 | 69,271 | 21,128 |
| Manila Clam | 305 | | | 3,125 | 953 | | | | | | | 3,192 | 974 | 4,556 | 1,390 |
| Gaper Clam | 255 | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | | | 119 | 19 |
| Eastern Soft Shell | 295 | | | 1,250 | 369 | | | | | | | 2,500 | 738 | | |
| Cockles | 265 | | | 3,125 | 828 | | | | | | | 6,250 | 1,656 | 5 | 1 |
| Pink & Spiny Scallops | 80 | | | 63 | 5 | | | | | | | 174 | 14 | 2,930 | 234 |
| Rock Scallop | 145 | | | 63 | 9 | | | | | | | 3,576 | 519 | 12,283 | 1,781 |
| Weathervane Scallop | 60 | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | 12,500 | 3,625 | | | | | | | 25,003 | 7,251 | | |
| Goose(neck) Barnacle | 325 | | | 12,500 | 4,063 | | | | | | | 25,000 | 8,125 | | |
| Squid | 150 | | | | | | | | | | | 12 | 2 | 18 | 3 |
| Octopus | 210 | | | | | | | | | | | 936 | 197 | 18,943 | 3,978 |
| Northern Abalone | 265 | | | | | | | | | | | 2,550 | 676 | 8,700 | 2,306 |
| Limpets | 290 | | | 1,250 | 363 | | | | | | | 2,500 | 725 | | |
| Whelks | 295 | | | 125 | 37 | | | | | | | 250 | 74 | | |
| Moon Snail | 295 | | | | | | | | | | | | | | |
| Chitons | 255 | | | 1,250 | 319 | | | | | | | 2,500 | 638 | | |
| Sea Cucumber | 215 | | | 125 | 27 | | | | | | | 117,526 | 25,268 | 293,277 | 63,055 |
| Red Sea Urchin | 165 | | | 413 | 68 | | | | | | | 2,678,505 | 441,953 | 1,706,849 | 281,630 |
| Green Sea Urchin | 160 | | | 413 | 66 | | | | | | | 23,312 | 3,730 | 12,847 | 2,055 |
| Purple Sea Urchin | 160 | | | 413 | 66 | | | | | | | 826 | 132 | | |
| Dungeness Crab | 235 | 312,000 | 73,320 | 4,680,000 | 1,099,800 | | | | | | | 9,784 | 2,299 | 143,600 | 33,746 |
| Red (Rock) Crab | 285 | | | | | | | | | | | | | 3,051 | 869 |
| Spot Shrimp | 180 | | | 125 | 23 | | | | | | | 532 | 96 | 23,163 | 4,169 |
| Coon Stripe Shrimp | 195 | | | | | | | | | | | 538 | 105 | 18,965 | 3,698 |
| Sidestripe Shrimp | 195 | | | | | | | | | | | | | 10 | 2 |
| Pink Shrimp | 180 | | | 8,000,000 | 1,440,000 | | | | | | | 27 | 5 | 10,243 | 1,844 |
| Ghost (or Sand) Shrimp | 355 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 469,333 | | 12,735,490 | | | | | | | | 2,940,021 | | 2,383,855 | |
| Regional/Subregional SFVS: | | | 121,307 | | 2,556,338 | | | | | | | | 505,705 | | 438,651 |
| FINAL SUMMER SFVS RANK: | | | 3 | | 5 | | 1 | | 1 | | 1 | | 5 | | 5 |

TABLE SF-6. Continued Admiralty Inlet

| Shellfish Species | Summer SFVI | 401 HARV | 401 SFVS | 403,405 HARV | 403,405 SFVS | 402,404 HARV | 402,404 SFVS | 5 HARV | 5 SFVS | 6 HARV | 6 SFVS | 7 HARV | 7 SFVS | 8 HARV | 8 SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 335 | | | | | | | 200 | 67 | | | | | | |
| Olympia Oyster | 335 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | |
| Geoduck | 210 | | | 533,508 | 112,037 | 134,881 | 28,325 | 1,851,268 | 388,766 | | | | | 63 | 13 |
| Butter Clam | 305 | | | 46 | 14 | | | 67,307 | 20,529 | 80,655 | 24,600 | 80,655 | 24,600 | 8,220 | 2,507 |
| Native Little Neck | 305 | 1,501 | 458 | 21,846 | 6,663 | 148,630 | 45,332 | 49,887 | 15,215 | 15,770 | 4,810 | 15,770 | 4,810 | 2,522 | 769 |
| Manila Clam | 305 | 132 | 34 | 4,585 | 1,169 | 13,097 | 3,340 | 45,952 | 14,015 | 10,597 | 3,232 | 10,597 | 3,232 | 41 | 12 |
| Gaper Clam | 255 | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | 6 | 1 | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | |
| Cockles | 265 | | | | | | | 6 | 2 | | | | | | |
| Pink & Spiny Scallops | 80 | 1,953 | 283 | 76 | 11 | 17,583 | 2,550 | 349 | 28 | | | | | 6,504 | 520 |
| Rock Scallop | 145 | | | | | | | 9,333 | 1,353 | | | 0 | | 1,867 | 271 |
| Weathervane Scallop | 60 | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | |
| Squid | 150 | | | | | 1 | 0 | 15 | 2 | 1,993 | 299 | 1,993 | 299 | 5 | 1 |
| Octopus | 210 | 628 | 166 | 16 | 4 | 628 | 166 | 385 | 81 | 13,548 | 2,845 | 13,548 | 2,845 | 148 | 31 |
| Northern Abalone | 265 | | | | | | | 8,700 | 2,306 | | | | | 1,740 | 461 |
| Limpets | 290 | | | | | | | | | | | | | | |
| Whelks | 295 | | | | | | | | | | | | | | |
| Moon Snail | 295 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 215 | 43,899 | 7,243 | 25,459 | 4,201 | 87,798 | 14,487 | 39,393 | 8,469 | 9,370 | 2,015 | 9,370 | 2,015 | 12,552 | 2,699 |
| Red Sea Urchin | 165 | | | | | 8,966 | 1,435 | 86,424 | 14,260 | 76,721 | 12,659 | 76,721 | 12,659 | 585,671 | 96,636 |
| Green Sea Urchin | 160 | 36,760 | 5,882 | | | 36,760 | 5,882 | 1,906 | 305 | 2,495 | 399 | 2,495 | 399 | 50,273 | 8,044 |
| Purple Sea Urchin | 160 | | | | | | | | | | | | | | |
| Dungeness Crab | 235 | 385 | 110 | 17,563 | 5,006 | 7,320 | 2,086 | 560,171 | 131,640 | 563,115 | 132,332 | 563,115 | 132,332 | 29,276 | 6,880 |
| Red (Rock) Crab | 285 | 49 | 9 | 647 | 116 | 926 | 167 | 4,749 | 1,353 | 844 | 241 | 844 | 241 | 409 | 117 |
| Spot Shrimp | 180 | | | 21 | 4 | 12 | 2 | 18 | 3 | | | | | 1,531 | 276 |
| Coon Stripe Shrimp | 195 | | | 78 | 15 | 18 | 4 | 2,820 | 550 | 35 | 7 | 35 | 7 | 11,806 | 2,302 |
| Sidestripe Shrimp | 195 | | | | | | | | | | | | | 19 | 4 |
| Pink Shrimp | 180 | | | | | 73 | 26 | 279 | 50 | | | | | 1,815 | 327 |
| Ghost (or Sand) Shrimp | 355 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 85,308 | | 603,843 | | 456,693 | | 2,729,167 | | 775,142 | | 775,142 | | 714,463 | |
| Regional/Subregional SFVS: | | | 14,185 | | 129,240 | | 103,800 | | 598,996 | | 183,438 | | 183,438 | | 121,869 |
| FINAL SUMMER SFVS RANK: | | | 1 | | 4 | | 3 | | 5 | | 5 | | 5 | | 3 |

TABLE SF-6. Continued

Waters East of Whidbey Island

| Shellfish Species | Summer SFVI | 9 HARV | 9 SFVS | 10 HARV | 10 SFVS | 11 HARV | 11 SFVS | 12 HARV | 12 SFVS | 1401 HARV | 1401 SFVS | 1402,1403 HARV | 1402,1403 SFVS | 1404 HARV | 1404 SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 335 | | | | | | | | | | | | | | |
| Olympia Oyster | 335 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | |
| Geoduck | 210 | 63 | 13 | 63 | 13 | 63 | 13 | 63 | 13 | | | | | | |
| Butter Clam | 305 | 8,220 | 2,507 | 8,220 | 2,507 | 8,220 | 2,507 | 8,220 | 2,507 | | | 24 | 7 | | |
| Native Little Neck | 305 | 2,522 | 769 | 2,522 | 769 | 2,522 | 769 | 2,522 | 769 | 77,281 | 23,571 | 1,013 | 309 | | |
| Manila Clam | 305 | 41 | 12 | 41 | 12 | 41 | 12 | 41 | 12 | 9,421 | 2,402 | 4,323 | 1,102 | | |
| Gaper Clam | 255 | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | |
| Cockles | 265 | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 80 | 6,504 | 520 | 6,504 | 520 | 6,504 | 520 | 6,504 | 520 | | | | | | |
| Rock Scallop | 145 | 1,867 | 271 | 1,867 | 271 | 1,867 | 271 | 1,867 | 271 | | | | | | |
| Weathervane Scallop | 60 | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | |
| Squid | 150 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | | | 35 | 7 | 1 | 0 |
| Octopus | 210 | 148 | 31 | 148 | 31 | 148 | 31 | 148 | 31 | | | 780 | 207 | 14 | 4 |
| Northern Abalone | 265 | 1,740 | 461 | 1,740 | 461 | 1,740 | 461 | 1,740 | 461 | | | | | | |
| Limpets | 290 | | | | | | | | | | | | | | |
| Whelks | 295 | | | | | | | | | | | | | | |
| Moon Snail | 295 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 215 | 12,552 | 2,699 | 12,552 | 2,699 | 12,552 | 2,699 | 12,552 | 2,699 | 2,842 | 469 | 513 | 85 | | |
| Red Sea Urchin | 165 | 585,671 | 96,636 | 585,671 | 96,636 | 585,671 | 96,636 | 585,671 | 96,636 | 872 | 139 | | | | |
| Green Sea Urchin | 160 | 50,273 | 8,044 | 50,273 | 8,044 | 50,273 | 8,044 | 50,273 | 8,044 | 13,909 | 2,226 | | | | |
| Purple Sea Urchin | 160 | | | | | | | | | | | | | | |
| Dungeness Crab | 235 | 29,276 | 6,880 | 29,276 | 6,880 | 29,276 | 6,880 | 29,276 | 6,880 | 197,049 | 56,159 | 28,336 | 8,076 | 10 | 3 |
| Red (Rock) Crab | 285 | 409 | 117 | 409 | 117 | 409 | 117 | 409 | 117 | 4,280 | 770 | 1,082 | 195 | | |
| Spot Shrimp | 180 | 1,531 | 276 | 1,531 | 276 | 1,531 | 276 | 1,531 | 276 | 26 | 5 | | | | |
| Coon Stripe Shrimp | 195 | 11,806 | 2,302 | 11,806 | 2,302 | 11,806 | 2,302 | 11,806 | 2,302 | 501 | 98 | 1,464 | 285 | | |
| Sidestripe Shrimp | 195 | 19 | 4 | 19 | 4 | 19 | 4 | 19 | 4 | | | | | | |
| Pink Shrimp | 180 | 1,815 | 327 | 1,815 | 327 | 1,815 | 327 | 1,815 | 327 | 12 | 4 | 2,889 | 1,026 | | |
| Ghost (or Sand) Shrimp | 355 | | | | | | | | | | | 3,381 | 930 | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 714,463 | | 714,463 | | 714,463 | | 714,463 | | 306,192 | | 43,839 | | 26 | |
| Regional/Subregional SFVS: | | | 121,869 | | 121,869 | | 121,869 | | 121,869 | | 85,843 | | 12,229 | | 7 |
| FINAL SUMMER SFVS RANK: | | | 3 | | 3 | | 3 | | 3 | | 3 | | 1 | | 1 |

TABLE SF-6. Continued

| Shellfish Species | Summer SFVI | 1405 HARV | 1405 SFVS | 1406 HARV | 1406 SFVS | 1501,1502 1503 HARV | 1501,1502 1503 SFVS | 1504,1505, 1506,1507 HARV | 1504,1505, 1506,1507 SFVS | 1508,1509 1510 HARV | 1508,1509 1510 SFVS | 1601 HARV | 1601 SFVS | 1602,1603 1604 HARV | 1602,1603 1604 SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 335 | | | | | 700 | 235 | 29,800 | 9,983 | 25,800 | 8,643 | | | | |
| Olympia Oyster | 335 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | |
| Geoduck | 210 | | | 139 | 29 | 1,897 | 398 | 555 | 117 | 23,899 | 5,019 | | | 869 | 183 |
| Butter Clam | 305 | 17,696 | 5,397 | 18,614 | 5,677 | | | 67,700 | 20,649 | 95,760 | 29,207 | 40,325 | 12,299 | 57,503 | 17,538 |
| Native Little Neck | 305 | 12,691 | 3,871 | 18,736 | 5,714 | 53,891 | 16,437 | 17,467 | 5,327 | 41,512 | 12,661 | 26,003 | 7,931 | 44,106 | 13,452 |
| Manila Clam | 305 | 480 | 122 | 1,567 | 400 | 44,498 | 11,347 | 63,345 | 16,153 | 71,125 | 18,137 | 2,350 | 599 | 10,398 | 2,651 |
| Gaper Clam | 255 | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | |
| Cockles | 265 | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 80 | 106 | 15 | 146 | 21 | 98 | 14 | | | | | 358 | 52 | 219 | 32 |
| Rock Scallop | 145 | | | | | | | | | | | | | | |
| Weathervane Scallop | 60 | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | |
| Squid | 150 | | | 1 | 0 | | | | | | | 1 | 0 | 53 | 11 |
| Octopus | 210 | | | 141 | 37 | 31 | 8 | | | | | 141 | 37 | 289 | 77 |
| Northern Abalone | 265 | | | | | | | | | | | | | | |
| Limpets | 290 | | | | | | | | | | | | | | |
| Whelks | 295 | | | | | | | | | | | | | | |
| Moon Snail | 295 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 215 | 728 | 120 | 2,558 | 422 | 24,276 | 4,006 | 31,203 | 5,148 | 7,696 | 1,270 | 89,658 | 14,794 | 20,856 | 3,441 |
| Red Sea Urchin | 165 | | | | | | | 196 | 31 | 474 | 76 | | | 2,322 | 372 |
| Green Sea Urchin | 160 | | | 605 | 97 | | | | | | | 605 | 97 | 1,805 | 289 |
| Purple Sea Urchin | 160 | | | | | | | | | | | | | | |
| Dungeness Crab | 235 | 45,090 | 12,851 | 36,828 | 10,496 | 16,228 | 4,625 | 45,955 | 13,097 | 108,782 | 31,003 | 17,037 | 4,856 | 29,927 | 8,529 |
| Red (Rock) Crab | 285 | | | 617 | 111 | 877 | 158 | | | 3,968 | 714 | 412 | 74 | 2,160 | 389 |
| Spot Shrimp | 180 | 638 | 124 | 142 | 28 | | | 55,438 | 10,810 | 100,698 | 19,636 | | | 79 | 15 |
| Coon Stripe Shrimp | 195 | 353 | 69 | 46 | 9 | | | 6 | 1 | 58 | 11 | | | | |
| Sidestripe Shrimp | 195 | 302 | 54 | 66 | 12 | | | | | | | | | | |
| Pink Shrimp | 180 | 2,250 | 799 | 500 | 177 | 27 | 10 | 30 | 11 | 101 | 36 | | | | |
| Ghost (or Sand) Shrimp | 355 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 80,334 | | 80,706 | | 142,523 | | 311,693 | | 479,872 | | 176,890 | | 170,588 | |
| Regional/Subregional SFVS: | | | 23,423 | | 23,231 | | 37,237 | | 81,327 | | 126,412 | | 40,739 | | 46,980 |
| FINAL SUMMER SFVS RANK: | | | 2 | | 2 | | 2 | | 3 | | 4 | | 2 | | 2 |

TABLE SF-6. Continued

| Shellfish Species | Summer SFVI | 1605 to 1607, 1634,1635 HARV | SFVS | 1608 HARV | SFVS | 1609 to 1615, 1617, 1636 HARV | SFVS | 1616,1622 HARV | SFVS | 1618 HARV | SFVS | 1619-1621, 1623-1627 HARV | SFVS | 1628,1629,1630 1631,1632,1633 HARV | SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 335 | | | | | | | 500 | 168 | | | 21,100 | 7,069 | | |
| Olympia Oyster | 335 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | |
| Geoduck | 210 | | | | | 1,645,681 | 345,593 | 862,493 | 181,123 | | | 523,288 | 109,890 | 303 | 64 |
| Butter Clam | 305 | 56,525 | 17,240 | 4,925 | 1,502 | 99,410 | 30,320 | 32,307 | 9,854 | 1,404 | 428 | 23,166 | 7,066 | 51,210 | 15,619 |
| Native Little Neck | 305 | 41,625 | 12,696 | 5,038 | 1,537 | 142,331 | 43,411 | 45,733 | 13,949 | 2,243 | 684 | 52,956 | 16,151 | 54,966 | 16,765 |
| Manila Clam | 305 | 2,788 | 711 | 356 | 91 | 18,214 | 4,645 | 16,851 | 4,297 | 213 | 54 | 242,631 | 61,871 | 72,819 | 18,569 |
| Gaper Clam | 255 | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | | | 230 | 68 |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | |
| Cockles | 265 | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 80 | | | | | | | | | | | | | | |
| Rock Scallop | 145 | | | | | | | | | | | | | | |
| Weathervane Scallop | 60 | | | | | | | | | | | | | | |
| Bay Mussel | 245 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | |
| Squid | 150 | 91 | 19 | | | 58 | 12 | 9 | 2 | | | | | | |
| Octopus | 210 | 527 | 140 | 2,259 | 599 | 678 | 180 | 333 | 88 | 206 | 55 | | | 116 | 31 |
| Northern Abalone | 265 | | | | | | | | | | | | | | |
| Limpets | 290 | | | | | | | | | | | | | | |
| Whelks | 295 | | | | | | | | | | | | | | |
| Moon Snail | 295 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 215 | 13,810 | 2,279 | 36,140 | 5,963 | 113,363 | 18,705 | 86,875 | 14,334 | 22,571 | 3,724 | 287 | 47 | 401,837 | 66,303 |
| Red Sea Urchin | 165 | 1,451 | 232 | | | 891 | 142 | | | | | | | 1,258 | 201 |
| Green Sea Urchin | 160 | | | 34,151 | 5,464 | 1,079 | 173 | | | | | 283 | 45 | 216 | 35 |
| Purple Sea Urchin | 160 | | | | | | | | | | | | | | |
| Dungeness Crab | 235 | 1,064 | 303 | 1,772 | 505 | 3,336 | 951 | 12 | 3 | | | 3 | 1 | 126 | 36 |
| Red (Rock) Crab | 285 | 630 | 113 | 1,299 | 234 | 1,840 | 331 | | | 114 | 21 | 458 | 82 | | |
| Spot Shrimp | 180 | | | | | | | | | | | | | | |
| Coon Stripe Shrimp | 195 | | | | | | | | | | | | | | |
| Sidestripe Shrimp | 195 | | | | | | | | | | | | | | |
| Pink Shrimp | 180 | | | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 355 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 118,510 | | 85,940 | | 2,026,879 | | 1,045,112 | | 26,751 | | 864,170 | | 583,081 | |
| Regional/Subregional SFVS: | | | 33,733 | | 15,894 | | 444,462 | | 223,818 | | 4,966 | | 202,223 | | 117,690 |
| FINAL SUMMER SFVS RANK: | | | 2 | | 1 | | 5 | | 5 | | 1 | | 5 | | 3 |

TABLE SF-6. THE SHELLFISH VULNERABILITY SCORE (SFVS) FOR FALL

SFVI = shellfish vulnerability index (from Table SF-5) Regional/Subregional SFVS = Species SFVI * HARV * .001
HARV = Five Year Average Annual Commercial, Recreational and Subsistence Harvest for Region/Subregion in Round LBS.

| Shellfish Species | Fall SFVI | REGION/SUBREGION 101 HARV | SFVS | 102 HARV | SFVS | 103 HARV | SFVS | 104 HARV | SFVS | 105 HARV | SFVS | 106 HARV | SFVS | 107 HARV | SFVS | 108 HARV | SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 245 | | | | | | | | | | | | | 192,000 | 47,040 | | |
| Olympia Oyster | 245 | | | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | 12,500 | 3,813 | 19,167 | 5,846 | 192,500 | 58,713 | 192,500 | 58,713 | 12,500 | 3,813 | 127,778 | 38,972 | | | 157,333 | 47,987 |
| Geoduck | 120 | | | | | | | | | | | | | | | | |
| Butter Clam | 245 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | | | | | | |
| Native Little Neck | 200 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | | | | | | |
| Manila Clam | 245 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | 3,125 | 766 | | | | | | |
| Gaper Clam | 205 | | | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | 1,250 | 369 | | | | | | |
| Cockles | 205 | 3,125 | 641 | 3,125 | 641 | 3,125 | 641 | 3,125 | 641 | 3,125 | 641 | | | | | | |
| Pink & Spiny Scallops | 115 | 63 | 7 | 63 | 7 | 63 | 7 | 63 | 7 | 63 | 7 | | | | | | |
| Rock Scallop | 145 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | | | | | | |
| Weathervane Scallop | 40 | | | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | | | |
| California Mussel | 290 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | | | | | | |
| Goose(neck) Barnacle | 325 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | 12,500 | 4,063 | | | | | | |
| Squid | 120 | | | | | | | | | | | | | | | | |
| Octopus | 210 | | | | | | | | | | | | | | | | |
| Northern Abalone | 205 | | | | | | | | | | | | | | | | |
| Limpets | 250 | 1,250 | 313 | 1,250 | 313 | 1,250 | 313 | 1,250 | 313 | 1,250 | 313 | | | | | | |
| Whelks | 280 | 125 | 35 | 125 | 35 | 125 | 35 | 125 | 35 | 125 | 35 | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | |
| Chitons | 255 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | | | | | | |
| Sea Cucumber | 95 | 125 | 12 | 125 | 12 | 125 | 12 | 125 | 12 | 125 | 12 | | | | | | |
| Red Sea Urchin | 120 | 413 | 50 | 413 | 50 | 413 | 50 | 413 | 50 | 413 | 50 | | | | | | |
| Green Sea Urchin | 160 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | | | | | | |
| Purple Sea Urchin | 160 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | 413 | 66 | | | | | | |
| Dungeness Crab | 205 | 561,000 | 115,005 | 1,200,000 | 246,000 | 187,200 | 38,376 | 358,800 | 73,554 | 160,000 | 32,800 | 140,400 | 28,782 | 400,000 | 82,000 | 312,000 | 63,960 |
| Red (Rock) Crab | 285 | | | | | | | | | | | | | | | | |
| Spot Shrimp | 180 | 125 | 23 | 125 | 23 | 125 | 23 | 125 | 23 | 125 | 23 | | | | | | |
| Coon Stripe Shrimp | 180 | | | | | | | | | | | | | | | | |
| Sidestripe Shrimp | 100 | | | | | | | | | | | | | | | | |
| Pink Shrimp | 180 | | | | | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | | | |
| Mud Shrimp | 200 | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 616,490 | | 1,262,157 | | 422,690 | | 594,290 | | 215,490 | | 268,178 | | 592,000 | | 469,333 | |
| Regional/Subregional SFVS: | | | 130,569 | | 263,598 | | 108,840 | | 144,018 | | 48,364 | | 67,754 | | 129,040 | | 111,947 |
| FINAL FALL SFVS RANK: | | | 4 | | 5 | | 3 | | 4 | | 2 | | 2 | | 4 | | 3 |

TABLE SF-6. Continued

| Shellfish Species | Fall SFVI | 109 HARV | 109 SFVS | 110 HARV | 110 SFVS | 111 HARV | 111 SFVS | 112 HARV | 112 SFVS | 2 HARV | 2 SFVS | 3 HARV | 3 SFVS | Admiralty Inlet 401 HARV | Admiralty Inlet 401 SFVS | Admiralty Inlet 402,404 HARV | Admiralty Inlet 402,404 SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 245 | | | | | | | | | | | | | | | | |
| Olympia Oyster | 245 | | | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | 12,500 | 3,813 | | | | | | | 25,000 | 7,625 | | | | | | |
| Geoduck | 120 | | | | | | | | | | | 415 | 50 | | | 134,881 | 16,186 |
| Butter Clam | 245 | 3,125 | 766 | | | | | | | 6,250 | 1,531 | 54,611 | 13,380 | | | | |
| Native Little Neck | 200 | 3,125 | 625 | | | | | | | 3,279 | 656 | 69,271 | 13,854 | 1,501 | 300 | 158,630 | 31,726 |
| Manila Clam | 245 | 3,125 | 766 | | | | | | | 3,192 | 782 | 4,556 | 1,116 | 132 | 32 | 13,097 | 3,209 |
| Gaper Clam | 205 | | | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | 119 | 19 | | | | |
| Eastern Soft Shell | 295 | 1,250 | 369 | | | | | | | 2,500 | 738 | | | | | | |
| Cockles | 205 | 3,125 | 641 | | | | | | | 6,250 | 1,281 | 5 | 1 | | | | |
| Pink & Spiny Scallops | 115 | 63 | 7 | | | | | | | 174 | 20 | 2,930 | 337 | 1,953 | 225 | 17,583 | 2,022 |
| Rock Scallop | 145 | 63 | 9 | | | | | | | 3,576 | 519 | 12,283 | 1,781 | | | | |
| Weathervane Scallop | 40 | | | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | | | |
| California Mussel | 290 | 12,500 | 3,625 | | | | | | | 25,003 | 7,251 | | | | | | |
| Goose(neck) Barnacle | 325 | 12,500 | 4,063 | | | | | | | 25,000 | 8,125 | | | | | | |
| Squid | 120 | | | | | | | | | 12 | 1 | 18 | 2 | | | 1 | 0 |
| Octopus | 210 | | | | | | | | | 936 | 197 | 18,943 | 3,978 | 628 | 132 | 628 | 132 |
| Northern Abalone | 205 | | | | | | | | | 2,550 | 523 | 8,700 | 1,784 | | | | |
| Limpets | 250 | 1,250 | 313 | | | | | | | 2,500 | 625 | | | | | | |
| Whelks | 280 | 125 | 35 | | | | | | | 250 | 70 | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | |
| Chitons | 255 | 1,250 | 319 | | | | | | | 2,500 | 638 | | | | | | |
| Sea Cucumber | 95 | 125 | 12 | | | | | | | 117,526 | 11,165 | 293,277 | 27,861 | 43,899 | 4,170 | 87,798 | 8,341 |
| Red Sea Urchin | 120 | 413 | 50 | | | | | | | 2,678,505 | 321,421 | 1,706,849 | 204,822 | | | 8,966 | 1,076 |
| Green Sea Urchin | 160 | 413 | 66 | | | | | | | 23,312 | 3,730 | 12,847 | 2,055 | 36,760 | 5,882 | 36,760 | 5,882 |
| Purple Sea Urchin | 160 | 413 | 66 | | | | | | | 826 | 132 | | | | | | |
| Dungeness Crab | 205 | 4,680,000 | 959,400 | | | | | | | 9,784 | 2,006 | 143,600 | 29,438 | 385 | 79 | 7,320 | 1,501 |
| Red (Rock) Crab | 285 | | | | | | | | | | | 3,051 | 869 | 49 | 14 | 926 | 264 |
| Spot Shrimp | 180 | 125 | 23 | | | | | | | 532 | 96 | 23,163 | 4,169 | | | 12 | 2 |
| Coon Stripe Shrimp | 180 | | | | | | | | | 538 | 97 | 18,965 | 3,414 | | | 18 | 3 |
| Sidestripe Shrimp | 100 | | | | | | | | | | | 10 | 1 | | | | |
| Pink Shrimp | 180 | 8,000,000 | 1,440,000 | | | | | | | 27 | 5 | 10,243 | 1,844 | | | 73 | 13 |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | | | |
| Mud Shrimp | 200 | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 12,735,490 | | | | | | | | 2,940,021 | | 2,383,855 | | 85,308 | | 466,693 | |
| Regional/Subregional SFVS: | | | 2,414,964 | | | | | | | | 369,231 | | 310,775 | | 10,834 | | 70,356 |
| FINAL FALL SFVS RANK: | | | 5 | | 1 | | 1 | | 1 | | 5 | | 5 | | 1 | | 3 |

TABLE SF-6. Continued

| Shellfish Species | Fall SFVI | 403,405 HARV | SFVS | 5 HARV | SFVS | 6 HARV | SFVS | 7 HARV | SFVS | 8 HARV | SFVS | 9 HARV | SFVS | 10 HARV | SFVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 245 | | | 200 | 49 | | | | | | | | | | |
| Olympia Oyster | 245 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | |
| Geoduck | 120 | 533,508 | 64,021 | 1,851,268 | 222,152 | | | | | 63 | 8 | 63 | 8 | 63 | 8 |
| Butter Clam | 245 | 46 | 11 | 67,307 | 16,490 | 80,655 | 19,760 | 80,655 | 19,760 | 8,220 | 2,014 | 8,220 | 2,014 | 8,220 | 2,014 |
| Native Little Neck | 200 | 21,846 | 4,369 | 49,887 | 9,977 | 15,770 | 3,154 | 15,770 | 3,154 | 2,522 | 504 | 2,522 | 504 | 2,522 | 504 |
| Manila Clam | 245 | 4,585 | 1,123 | 45,952 | 11,258 | 10,597 | 2,596 | 10,597 | 2,596 | 41 | 10 | 41 | 10 | 41 | 10 |
| Gaper Clam | 205 | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | 6 | 1 | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | |
| Cockles | 205 | | | 6 | 1 | | | | | | | | | | |
| Pink & Spiny Scallops | 115 | 76 | 9 | 349 | 40 | | | | | 6,504 | 748 | 6,504 | 748 | 6,504 | 748 |
| Rock Scallop | 145 | | | 9,333 | 1,353 | | | | 0 | 1,867 | 271 | 1,867 | 271 | 1,867 | 271 |
| Weathervane Scallop | 40 | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | |
| Squid | 120 | | | 15 | 2 | 1,993 | 239 | 1,993 | 239 | 5 | 1 | 5 | 1 | 5 | 1 |
| Octopus | 210 | 16 | 3 | 385 | 81 | 13,548 | 2,845 | 13,548 | 2,845 | 148 | 31 | 148 | 31 | 148 | 31 |
| Northern Abalone | 205 | | | 8,700 | 1,784 | | | | | 1,740 | 357 | 1,740 | 357 | 1,740 | 357 |
| Limpets | 250 | | | | | | | | | | | | | | |
| Whelks | 280 | | | | | | | | | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 95 | 25,459 | 2,419 | 39,393 | 3,742 | 9,370 | 890 | 9,370 | 890 | 12,552 | 1,192 | 12,552 | 1,192 | 12,552 | 1,192 |
| Red Sea Urchin | 120 | | | 86,424 | 10,371 | 76,721 | 9,207 | 76,721 | 9,207 | 585,671 | 70,281 | 585,671 | 70,281 | 585,671 | 70,281 |
| Green Sea Urchin | 160 | | | 1,906 | 305 | 2,495 | 399 | 2,495 | 399 | 50,273 | 8,044 | 50,273 | 8,044 | 50,273 | 8,044 |
| Purple Sea Urchin | 160 | | | | | | | | | | | | | | |
| Dungeness Crab | 205 | 17,563 | 3,600 | 560,171 | 114,835 | 563,115 | 115,439 | 563,115 | 115,439 | 29,276 | 6,002 | 29,276 | 6,002 | 29,276 | 6,002 |
| Red (Rock) Crab | 285 | 647 | 184 | 4,749 | 1,353 | 844 | 241 | 844 | 241 | 409 | 117 | 409 | 117 | 409 | 117 |
| Spot Shrimp | 180 | 21 | 4 | 18 | 3 | | | | | 1,531 | 276 | 1,531 | 276 | 1,531 | 276 |
| Coon Stripe Shrimp | 180 | 78 | 14 | 2,820 | 508 | 35 | 6 | 35 | 6 | 11,806 | 2,125 | 11,806 | 2,125 | 11,806 | 2,125 |
| Sidestripe Shrimp | 100 | | | | | | | | | 19 | 2 | 19 | 2 | 19 | 2 |
| Pink Shrimp | 180 | | | 279 | 50 | | | | | 1,815 | 327 | 1,815 | 327 | 1,815 | 327 |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | |
| Mud Shrimp | 200 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 603,843 | | 2,729,167 | | 775,142 | | 775,142 | | 714,463 | | 714,463 | | 714,463 | |
| Regional/Subregional SFVS: | | | 75,758 | | 394,356 | | 154,776 | | 154,776 | | 92,307 | | 92,307 | | 92,307 |
| FINAL FALL SFVS RANK: | | | 3 | | 5 | | 4 | | 4 | | 3 | | 3 | | 3 |

TABLE SF-6. Continued

| Shellfish Species | Fall SFVI | Waters East of Whidbey Island | | | | | | | | | | | | | | Hood Canal | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11 | | 12 | | 1401 | | 1402,1403 | | 1404 | | 1405 | | 1406 | | 1501-1503 | |
| | | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS |
| Pacific Oyster | 245 | | | | | | | | | | | | | | | 700 | 172 |
| Olympia Oyster | 245 | | | | | | | | | | | | | | | | |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | | | |
| Geoduck | 120 | 63 | 8 | 63 | 8 | | | | | | | | | 139 | 17 | 1,897 | 228 |
| Butter Clam | 245 | 8,220 | 2,014 | 8,220 | 2,014 | | | 24 | 6 | | | 17,696 | 4,336 | 18,614 | 4,560 | | |
| Native Little Neck | 200 | 2,522 | 504 | 2,522 | 504 | 77,281 | 15,456 | 1,013 | 203 | | | 12,691 | 2,538 | 18,736 | 3,747 | 53,891 | 10,778 |
| Manila Clam | 245 | 41 | 10 | 41 | 10 | 9,421 | 2,308 | 4,323 | 1,059 | | | 480 | 118 | 1,567 | 384 | 44,498 | 10,902 |
| Gaper Clam | 205 | | | | | | | | | | | | | | | | |
| Horse Clam | 160 | | | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | | | |
| Cockles | 205 | | | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 115 | 6,504 | 748 | 6,504 | 748 | | | | | | | 106 | 12 | 146 | 17 | 98 | 11 |
| Rock Scallop | 145 | 1,867 | 271 | 1,867 | 271 | | | | | | | | | | | | |
| Weathervane Scallop | 40 | | | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | | | |
| Squid | 120 | 5 | 1 | 5 | 1 | | | 35 | 4 | 1 | 0 | | | 1 | 0 | | |
| Octopus | 210 | 148 | 31 | 148 | 31 | | | 780 | 164 | 14 | 3 | | | 141 | 30 | 31 | 7 |
| Northern Abalone | 205 | 1,740 | 357 | 1,740 | 357 | | | | | | | | | | | | |
| Limpets | 250 | | | | | | | | | | | | | | | | |
| Whelks | 280 | | | | | | | | | | | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | | | |
| Sea Cucumber | 95 | 12,552 | 1,192 | 12,552 | 1,192 | 2,842 | 270 | 513 | 49 | | | 728 | 69 | 2,558 | 243 | 24,276 | 2,306 |
| Red Sea Urchin | 120 | 585,671 | 70,281 | 585,671 | 70,281 | 872 | 105 | | | | | | | | | | |
| Green Sea Urchin | 160 | 50,273 | 8,044 | 50,273 | 8,044 | 13,909 | 2,226 | | | | | | | 605 | 97 | | |
| Purple Sea Urchin | 160 | | | | | | | | | | | | | | | | |
| Dungeness Crab | 205 | 29,276 | 6,002 | 29,276 | 6,002 | 237,049 | 48,595 | 28,336 | 5,809 | 10 | 2 | 65,090 | 13,344 | 44,428 | 9,108 | 16,228 | 3,327 |
| Red (Rock) Crab | 285 | 409 | 117 | 409 | 117 | 4,280 | 1,220 | 1,082 | 308 | | | | | 617 | 176 | 877 | 250 |
| Spot Shrimp | 180 | 1,531 | 276 | 1,531 | 276 | 26 | 5 | | | | | 638 | 115 | 142 | 26 | | |
| Coon Stripe Shrimp | 180 | 11,806 | 2,125 | 11,806 | 2,125 | 501 | 90 | 1,464 | 264 | | | 353 | 63 | 46 | 8 | | |
| Sidestripe Shrimp | 100 | 19 | 2 | 19 | 2 | | | | | | | 302 | 30 | 66 | 7 | | |
| Pink Shrimp | 180 | 1,815 | 327 | 1,815 | 327 | 12 | 2 | 2,889 | 520 | | | 2,250 | 405 | 500 | 90 | 27 | 5 |
| Ghost (or Sand) Shrimp | 200 | | | | | | | 3,381 | 676 | | | | | | | | |
| Mud Shrimp | 200 | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 714,463 | | 714,463 | | 346,192 | | 43,839 | | 26 | | 100,334 | | 88,306 | | 142,523 | |
| Regional/Subregional SFVS: | | | 92,307 | | 92,307 | | 70,276 | | 9,061 | | 5 | | 21,030 | | 18,509 | | 27,985 |
| FINAL FALL SFVS RANK: | | | 3 | | 3 | | 3 | | 1 | | 1 | | 2 | | 2 | | 2 |

TABLE SF-6. Continued

| Shellfish Species | Fall SFVI | 1504-1507 | | 1508-1510 | | 1601 | | 1602-1604 | | 1605 to 1607, 1634,1635 | | 1608 | | 1609 to 1615, 1617,1636 | | 1616,1622 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS | HARV | SFVS |
| Pacific Oyster | 245 | 29,800 | 7,301 | 25,800 | 6,321 | | | | | | | | | | | | |
| Olympia Oyster | 245 | | | | | | | | | | | | | | | 500 | 123 |
| Pacific Razor Clam | 305 | | | | | | | | | | | | | | | | |
| Geoduck | 120 | 555 | 67 | 23,899 | 2,868 | | | 869 | 104 | | | | | | | | |
| Butter Clam | 245 | 67,700 | 16,587 | 95,760 | 23,461 | 40,325 | 9,880 | 57,503 | 14,088 | 56,525 | 13,849 | 4,925 | 1,207 | 1,645,681 | 197,482 | 862,493 | 103,499 |
| Native Little Neck | 200 | 17,467 | 3,493 | 41,512 | 8,302 | 26,003 | 5,201 | 44,106 | 8,821 | 41,625 | 8,325 | 5,038 | 1,008 | 99,410 | 24,355 | 32,307 | 7,915 |
| Manila Clam | 245 | 63,345 | 15,519 | 71,125 | 17,426 | 2,350 | 576 | 10,398 | 2,547 | 2,788 | 683 | 356 | 87 | 142,331 | 28,466 | 45,733 | 9,147 |
| Gaper Clam | 205 | | | | | | | | | | | | | 18,214 | 4,462 | 16,851 | 4,128 |
| Horse Clam | 160 | | | | | | | | | | | | | | | | |
| Eastern Soft Shell | 295 | | | | | | | | | | | | | | | | |
| Cockles | 205 | | | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 115 | | | | | 358 | 41 | 219 | 25 | | | | | | | | |
| Rock Scallop | 145 | | | | | | | | | | | | | | | | |
| Weathervane Scallop | 40 | | | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | | | | | | | | | | | |
| Squid | 120 | | | | | 1 | 0 | 53 | 6 | 91 | 11 | | | 58 | 7 | 9 | 1 |
| Octopus | 210 | | | | | 141 | 30 | 289 | 61 | 527 | 111 | 2,259 | 474 | 678 | 142 | 333 | 70 |
| Northern Abalone | 205 | | | | | | | | | | | | | | | | |
| Limpets | 250 | | | | | | | | | | | | | | | | |
| Whelks | 280 | | | | | | | | | | | | | | | | |
| Moon Snail | 220 | | | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | | | |
| Sea Cucumber | 95 | 31,203 | 2,964 | 7,696 | 731 | 89,658 | 8,518 | 20,856 | 1,981 | 13,810 | 1,312 | 36,140 | 3,433 | 113,363 | 10,769 | 86,875 | 8,253 |
| Red Sea Urchin | 120 | 196 | 24 | 474 | 57 | | | 2,322 | 279 | 1,451 | 174 | | | 891 | 107 | | |
| Green Sea Urchin | 160 | | | | | 605 | 97 | 1,805 | 289 | | | 34,151 | 5,464 | 1,079 | 173 | | |
| Purple Sea Urchin | 160 | | | | | | | | | | | | | | | | |
| Dungeness Crab | 205 | 45,955 | 9,421 | 108,782 | 22,300 | 17,037 | 3,493 | 29,927 | 6,135 | 1,064 | 218 | 1,772 | 363 | 3,336 | 684 | 12 | 2 |
| Red (Rock) Crab | 285 | | | 3,968 | 1,131 | 412 | 117 | 2,160 | 616 | 630 | 180 | 1,299 | 370 | 1,840 | 524 | | |
| Spot Shrimp | 180 | 55,438 | 9,979 | 100,698 | 18,126 | | | 79 | 14 | | | | | | | | |
| Coon Stripe Shrimp | 180 | 6 | 1 | 58 | 10 | | | | | | | | | | | | |
| Sidestripe Shrimp | 100 | | | | | | | | | | | | | | | | |
| Pink Shrimp | 180 | 30 | 5 | 101 | 18 | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | | | |
| Mud Shrimp | 200 | | | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 311,693 | | 479,872 | | 176,890 | | 170,588 | | 118,510 | | 85,940 | | 2,026,879 | | 1,045,112 | |
| Regional/Subregional SFVS: | | | 65,361 | | 100,751 | | 27,951 | | 34,967 | | 24,862 | | 12,407 | | 267,172 | | 133,138 |
| FINAL FALL SFVS RANK: | | | 2 | | 3 | | 2 | | 2 | | 2 | | 1 | | 5 | | 4 |

TABLE SF-6. Continued

| Shellfish Species | Fall SFVI | 1618 HARV | 1618 SFVS | 1619-1621, 1623-1627 HARV | 1619-1621, 1623-1627 SFVS | 1628-1633 HARV | 1628-1633 SFVS |
|---|---|---|---|---|---|---|---|
| Pacific Oyster | 245 | | | 21,100 | 5,170 | | |
| Olympia Oyster | 245 | | | | | | |
| Pacific Razor Clam | 305 | | | | | | |
| Geoduck | 120 | | | 523,288 | 62,795 | 303 | 36 |
| Butter Clam | 245 | 1,404 | 344 | 23,166 | 5,676 | 51,210 | 12,546 |
| Native Little Neck | 200 | 2,243 | 449 | 52,956 | 10,591 | 54,966 | 10,993 |
| Manila Clam | 245 | 213 | 52 | 242,631 | 59,445 | 72,819 | 17,841 |
| Gaper Clam | 205 | | | | | | |
| Horse Clam | 160 | | | | | 230 | 37 |
| Eastern Soft Shell | 295 | | | | | | |
| Cockles | 205 | | | | | | |
| Pink & Spiny Scallops | 115 | | | | | | |
| Rock Scallop | 145 | | | | | | |
| Weathervane Scallop | 40 | | | | | | |
| Bay Mussel | 305 | | | | | | |
| California Mussel | 290 | | | | | | |
| Goose(neck) Barnacle | 325 | | | | | | |
| Squid | 120 | | | | | | |
| Octopus | 210 | 206 | 43 | | | 116 | 24 |
| Northern Abalone | 205 | | | | | | |
| Limpets | 250 | | | | | | |
| Whelks | 280 | | | | | | |
| Moon Snail | 220 | | | | | | |
| Chitons | 255 | | | | | | |
| Sea Cucumber | 95 | 22,571 | 2,144 | 287 | 27 | 401,837 | 38,175 |
| Red Sea Urchin | 120 | | | | | 1,258 | 151 |
| Green Sea Urchin | 160 | | | 283 | 45 | 216 | 35 |
| Purple Sea Urchin | 160 | | | | | | |
| Dungeness Crab | 205 | | | 3 | 1 | 126 | 26 |
| Red (Rock) Crab | 285 | 114 | 33 | 458 | 130 | | |
| Spot Shrimp | 180 | | | | | | |
| Coon Stripe Shrimp | 180 | | | | | | |
| Sidestripe Shrimp | 100 | | | | | | |
| Pink Shrimp | 180 | | | | | | |
| Ghost (or Sand) Shrimp | 200 | | | | | | |
| Mud Shrimp | 200 | | | | | | |
| Humpback Shrimp | 80 | | | | | | |
| TOTAL HARVEST: | | 26,751 | | 864,170 | | 583,081 | |
| Regional/Subregional SFVS: | | | 3,065 | | 143,879 | | 79,864 |
| FINAL FALL SFVS RANK: | | | 1 | | 4 | | 3 |

TABLE SF-6. THE SHELLFISH VULNERABILITY SCORE (SFVS) FOR WINTER

SFVI = shellfish vulnerability index (from Table SF-5) Regional/Subregional SFVS = Species SFVI * HARV * .001

HARV = Five Year Average Annual Commercial, Recreational and Subsistence Harvest for Region/Subregion in Round LBS.

| | | REGION/SUBREGION | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Winter | 101 | | 102 | | 103 | | 104 | | 105 | | 106 | | 107 | |
| Species | SFVI | HARV | SFVI | HARV | SFVI | HARV | SFVI | HARV | SFVI | HARV | SFVI | HARV | SFVI | HARV | SFVI |
| Pacific Oyster | 200 | | | | | | | | | | | | | 192,000 | 38,400 |
| Olympia Oyster | 200 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 160 | 12,500 | 2,000 | 19,167 | 3,067 | 192,500 | 30,800 | 192,500 | 30,800 | 12,500 | 2,000 | 127,778 | 20,444 | | |
| Geoduck | 225 | | | | | | | | | | | | | | |
| Butter Clam | 200 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | | | | |
| Native Little Neck | 200 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | | | | |
| Manila Clam | 200 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | 3,125 | 625 | | | | |
| Gaper Clam | 160 | | | | | | | | | | | | | | |
| Horse Clam | 255 | | | | | | | | | | | | | | |
| Eastern Soft Shell | 245 | 1,250 | 306 | 1,250 | 306 | 1,250 | 306 | 1,250 | 306 | 1,250 | 306 | | | | |
| Cockles | 160 | 3,125 | 500 | 3,125 | 500 | 3,125 | 500 | 3,125 | 500 | 3,125 | 500 | | | | |
| Pink & Spiny Scallops | 80 | 63 | 5 | 63 | 5 | 63 | 5 | 63 | 5 | 63 | 5 | | | | |
| Rock Scallop | 145 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | 63 | 9 | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | |
| California Mussel | 290 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | 12,500 | 3,625 | | | | |
| Goose(neck) Barnacle | 245 | 12,500 | 3,063 | 12,500 | 3,063 | 12,500 | 3,063 | 12,500 | 3,063 | 12,500 | 3,063 | | | | |
| Squid | 165 | | | | | | | | | | | | | | |
| Octopus | 215 | | | | | | | | | | | | | | |
| Northern Abalone | 160 | | | | | | | | | | | | | | |
| Limpets | 250 | 1,250 | 313 | 1,250 | 313 | 1,250 | 313 | 1,250 | 313 | 1,250 | 313 | | | | |
| Whelks | 160 | 125 | 20 | 125 | 20 | 125 | 20 | 125 | 20 | 125 | 20 | | | | |
| Moon Snail | 160 | | | | | | | | | | | | | | |
| Chitons | 255 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | 1,250 | 319 | | | | |
| Sea Cucumber | 95 | 125 | 12 | 125 | 12 | 125 | 12 | 125 | 12 | 125 | 12 | | | | |
| Red Sea Urchin | 195 | 413 | 81 | 413 | 81 | 413 | 81 | 413 | 81 | 413 | 81 | | | | |
| Green Sea Urchin | 285 | 413 | 118 | 413 | 118 | 413 | 118 | 413 | 118 | 413 | 118 | | | | |
| Purple Sea Urchin | 310 | 413 | 128 | 413 | 128 | 413 | 128 | 413 | 128 | 413 | 128 | | | | |
| Dungeness Crab | 285 | 561,000 | 159,885 | 1,200,000 | 342,000 | 187,200 | 53,352 | 358,800 | 102,258 | 160,000 | 45,600 | 140,400 | 40,014 | 400,000 | 114,000 |
| Red (Rock) Crab | 235 | | | | | | | | | | | | | | |
| Spot Shrimp | 180 | 125 | 23 | 125 | 23 | 125 | 23 | 125 | 23 | 125 | 23 | | | | |
| Coon Stripe Shrimp | 180 | | | | | | | | | | | | | | |
| Sidestripe Shrimp | 100 | | | | | | | | | | | | | | |
| Pink Shrimp | 195 | | | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 616,490 | | 1,262,157 | | 422,690 | | 594,290 | | 215,490 | | 268,178 | | 592,000 | |
| Regional/Subregional SOI: | | | 172,280 | | 355,462 | | 94,547 | | 143,453 | | 57,995 | | 60,458 | | 152,400 |
| FINAL WINTER SOI RANK: | | | 4 | | 5 | | 3 | | 4 | | 2 | | 2 | | 4 |

TABLE SF-6. Continued

| Species | Winter SFVI | 108 HARV | 108 SFVI | 109 HARV | 109 SFVI | 110 HARV | 110 SFVI | 111 HARV | 111 SFVI | 112 HARV | 112 SFVI | 2 HARV | 2 SFVI | 3 HARV | 3 SFVI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 200 | | | | | | | | | | | | | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 160 | 157,333 | 25,173 | 12,500 | 2,000 | | | | | | | 25,000 | 4,000 | | |
| Geoduck | 225 | | | | | | | | | | | | | 415 | 93 |
| Butter Clam | 200 | | | 3,125 | 625 | | | | | | | 6,250 | 1,250 | 54,611 | 10,922 |
| Native Little Neck | 200 | | | 3,125 | 625 | | | | | | | 3,279 | 656 | 69,271 | 13,854 |
| Manila Clam | 200 | | | 3,125 | 625 | | | | | | | 3,192 | 638 | 4,556 | 911 |
| Gaper Clam | 160 | | | | | | | | | | | | | | |
| Horse Clam | 255 | | | | | | | | | | | | | 119 | 30 |
| Eastern Soft Shell | 245 | | | 1,250 | 306 | | | | | | | 2,500 | 613 | | |
| Cockles | 160 | | | 3,125 | 500 | | | | | | | 6,250 | 1,000 | 5 | 1 |
| Pink & Spiny Scallops | 80 | | | 63 | 5 | | | | | | | 174 | 14 | 2,930 | 234 |
| Rock Scallop | 145 | | | 63 | 9 | | | | | | | 3,576 | 519 | 12,283 | 1,781 |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | 12,500 | 3,625 | | | | | | | 25,003 | 7,251 | | |
| Goose(neck) Barnacle | 245 | | | 12,500 | 3,063 | | | | | | | 25,000 | 6,125 | | |
| Squid | 165 | | | | | | | | | | | 12 | 2 | 18 | 3 |
| Octopus | 215 | | | | | | | | | | | 936 | 201 | 18,943 | 4,073 |
| Northern Abalone | 160 | | | | | | | | | | | 2,550 | 408 | 8,700 | 1,392 |
| Limpets | 250 | | | 1,250 | 313 | | | | | | | 2,500 | 625 | | |
| Whelks | 160 | | | 125 | 20 | | | | | | | 250 | 40 | | |
| Moon Snail | 160 | | | | | | | | | | | | | | |
| Chitons | 255 | | | 1,250 | 319 | | | | | | | 2,500 | 638 | | |
| Sea Cucumber | 95 | | | 125 | 12 | | | | | | | 117,526 | 11,165 | 293,277 | 27,861 |
| Red Sea Urchin | 195 | | | 413 | 81 | | | | | | | 2,678,505 | 522,308 | 1,706,849 | 332,836 |
| Green Sea Urchin | 285 | | | 413 | 118 | | | | | | | 23,312 | 6,644 | 12,847 | 3,661 |
| Purple Sea Urchin | 310 | | | 413 | 128 | | | | | | | 826 | 256 | | |
| Dungeness Crab | 285 | 312,000 | 88,920 | 4,680,000 | 1,333,800 | | | | | | | 9,784 | 2,788 | 143,600 | 40,926 |
| Red (Rock) Crab | 235 | | | | | | | | | | | | | 3,051 | 717 |
| Spot Shrimp | 180 | | | 125 | 23 | | | | | | | 532 | 96 | 23,163 | 4,169 |
| Coon Stripe Shrimp | 180 | | | | | | | | | | | 538 | 97 | 18,965 | 3,414 |
| Sidestripe Shrimp | 100 | | | | | | | | | | | | | 10 | 1 |
| Pink Shrimp | 195 | | | 8,000,000 | 1,560,000 | | | | | | | 27 | 5 | 10,243 | 1,997 |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 469,333 | | 12,735,490 | | | | | | | | 2,940,021 | | 2,383,855 | |
| Regional/Subregional SOI: | | | 114,093 | | 2,906,195 | | | | | | | | 567,338 | | 448,878 |
| FINAL WINTER SOI RANK: | | | 3 | | 5 | | 1 | | 1 | | 1 | | 5 | | 5 |

TABLE SF-6. Continued

| Species | Winter SFVI | Admiralty Inlet 401 HARV | 401 SFVI | 403,405 HARV | 403,405 SFVI | 402,404 HARV | 402,404 SFVI | 5 HARV | 5 SFVI | 6 HARV | 6 SFVI | 7 HARV | 7 SFVI | 8 HARV | 8 SFVI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 200 | | | | | | | 200 | 40 | | | | | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 160 | | | | | | | | | | | | | | |
| Geoduck | 225 | | | 533,508 | 120,039 | 134,881 | 30,348 | 1,851,268 | 416,535 | | | | | 63 | 14 |
| Butter Clam | 200 | | | 46 | 9 | | | 67,307 | 13,461 | 80,655 | 16,131 | 80,655 | 16,131 | 8,220 | 1,644 |
| Native Little Neck | 200 | 1,501 | 300 | 21,846 | 4,369 | 148,630 | 29,726 | 49,887 | 9,977 | 15,770 | 3,154 | 15,770 | 3,154 | 2,522 | 504 |
| Manila Clam | 200 | 132 | 21 | 4,585 | 734 | 13,097 | 2,096 | 45,952 | 9,190 | 10,597 | 2,119 | 10,597 | 2,119 | 41 | 8 |
| Gaper Clam | 160 | | | | | | | | | | | | | | |
| Horse Clam | 255 | | | | | | | 6 | 2 | | | | | | |
| Eastern Soft Shell | 245 | | | | | | | | | | | | | | |
| Cockles | 160 | | | | | | | 6 | 1 | | | | | | |
| Pink & Spiny Scallops | 80 | 1,953 | 283 | 76 | 11 | 17,583 | 2,550 | 349 | 28 | | | | | 6,504 | 520 |
| Rock Scallop | 145 | | | | | | | 9,333 | 1,353 | | | 0 | | 1,867 | 271 |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 245 | | | | | | | | | | | | | | |
| Squid | 165 | | | | | 1 | 0 | 15 | 2 | 1,993 | 329 | 1,993 | 329 | 5 | 1 |
| Octopus | 215 | 628 | 101 | 16 | 2 | 628 | 101 | 385 | 83 | 13,548 | 2,913 | 13,548 | 2,913 | 148 | 32 |
| Northern Abalone | 160 | | | | | | | 8,700 | 1,392 | | | | | 1,740 | 278 |
| Limpets | 250 | | | | | | | | | | | | | | |
| Whelks | 160 | | | | | | | | | | | | | | |
| Moon Snail | 160 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 95 | 43,899 | 8,560 | 25,459 | 4,964 | 87,798 | 17,121 | 39,393 | 3,742 | 9,370 | 890 | 9,370 | 890 | 12,552 | 1,192 |
| Red Sea Urchin | 195 | | | | | 8,966 | 2,555 | 86,424 | 16,853 | 76,721 | 14,961 | 76,721 | 14,961 | 585,671 | 114,206 |
| Green Sea Urchin | 285 | 36,760 | 11,396 | | | 36,760 | 11,396 | 1,906 | 543 | 2,495 | 711 | 2,495 | 711 | 50,273 | 14,328 |
| Purple Sea Urchin | 310 | | | | | | | | | | | | | | |
| Dungeness Crab | 285 | 385 | 91 | 17,563 | 4,127 | 7,320 | 1,720 | 560,171 | 159,649 | 563,115 | 160,488 | 563,115 | 160,488 | 29,276 | 8,344 |
| Red (Rock) Crab | 235 | 49 | 9 | 647 | 116 | 926 | 167 | 4,749 | 1,116 | 844 | 198 | 844 | 198 | 409 | 96 |
| Spot Shrimp | 180 | | | 21 | 4 | 12 | 2 | 18 | 3 | | | | | 1,531 | 276 |
| Coon Stripe Shrimp | 180 | | | 78 | 8 | 18 | 2 | 2,820 | 508 | 35 | 6 | 35 | 6 | 11,806 | 2,125 |
| Sidestripe Shrimp | 100 | | | | | | | | | | | | | 19 | 2 |
| Pink Shrimp | 195 | | | | | 73 | 15 | 279 | 54 | | | | | 1,815 | 354 |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 85,308 | | 603,843 | | 456,693 | | 2,729,167 | | 775,142 | | 775,142 | | 714,463 | |
| Regional/Subregional SOI: | | | 20,760 | | 134,384 | | 97,797 | | 634,534 | | 201,900 | | 201,900 | | 144,195 |
| FINAL WINTER SOI RANK: | | | 2 | | 4 | | 3 | | 5 | | 5 | | 5 | | 4 |

TABLE SF-6. Continued

| Species | Winter SFVI | 1405 HARV | 1405 SFVI | 1406 HARV | 1406 SFVI | Hood Canal 1501-1503 HARV | Hood Canal 1501-1503 SFVI | 1504,1505, 1506,1507 HARV | 1504,1505, 1506,1507 SFVI | 1508,1509 1510 HARV | 1508,1509 1510 SFVI | 1601 HARV | 1601 SFVI | 1602 - 1604 HARV | 1602 - 1604 SFVI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 200 | | | | | 700 | 140 | 29,800 | 5,960 | 25,800 | 5,160 | | | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 160 | | | | | | | | | | | | | | |
| Geoduck | 225 | | | 139 | 31 | 1,897 | 427 | 555 | 125 | 23,899 | 5,377 | | | 869 | 196 |
| Butter Clam | 200 | 17,696 | 3,539 | 18,614 | 3,723 | | | 67,700 | 13,540 | 95,760 | 19,152 | 40,325 | 8,065 | 57,503 | 11,501 |
| Native Little Neck | 200 | 12,691 | 2,538 | 18,736 | 3,747 | 53,891 | 10,778 | 17,467 | 3,493 | 41,512 | 8,302 | 26,003 | 5,201 | 44,106 | 8,821 |
| Manila Clam | 200 | 480 | 77 | 1,567 | 251 | 44,498 | 7,120 | 63,345 | 10,135 | 71,125 | 11,380 | 2,350 | 376 | 10,398 | 1,664 |
| Gaper Clam | 160 | | | | | | | | | | | | | | |
| Horse Clam | 255 | | | | | | | | | | | | | | |
| Eastern Soft Shell | 245 | | | | | | | | | | | | | | |
| Cockles | 160 | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 80 | 106 | 15 | 146 | 21 | 98 | 14 | | | | | 358 | 52 | 219 | 32 |
| Rock Scallop | 145 | | | | | | | | | | | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 245 | | | | | | | | | | | | | | |
| Squid | 165 | | | 1 | 0 | | | | | | | 1 | 0 | 53 | 11 |
| Octopus | 215 | | | 141 | 23 | 31 | 5 | | | | | 141 | 23 | 289 | 46 |
| Northern Abalone | 160 | | | | | | | | | | | | | | |
| Limpets | 250 | | | | | | | | | | | | | | |
| Whelks | 160 | | | | | | | | | | | | | | |
| Moon Snail | 160 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 95 | 728 | 142 | 2,558 | 499 | 24,276 | 4,734 | 31,203 | 6,085 | 7,696 | 1,501 | 89,658 | 17,483 | 20,856 | 4,067 |
| Red Sea Urchin | 195 | | | | | | | 196 | 56 | 474 | 135 | | | 2,322 | 662 |
| Green Sea Urchin | 285 | | | 605 | 188 | | | | | | | 605 | 188 | 1,805 | 560 |
| Purple Sea Urchin | 310 | | | | | | | | | | | | | | |
| Dungeness Crab | 285 | 45,090 | 10,596 | 36,828 | 8,655 | 16,228 | 3,813 | 45,955 | 10,799 | 108,782 | 25,564 | 17,037 | 4,004 | 29,927 | 7,033 |
| Red (Rock) Crab | 235 | | | 617 | 111 | 877 | 158 | | | 3,968 | 714 | 412 | 74 | 2,160 | 389 |
| Spot Shrimp | 180 | 638 | 115 | 142 | 26 | | | 55,438 | 9,979 | 100,698 | 18,126 | | | 79 | 14 |
| Coon Stripe Shrimp | 180 | 353 | 35 | 46 | 5 | | | 6 | 1 | 58 | 6 | | | | |
| Sidestripe Shrimp | 100 | 302 | 59 | 66 | 13 | | | | | | | | | | |
| Pink Shrimp | 195 | 2,250 | 450 | 500 | 100 | 27 | 5 | 30 | 6 | 101 | 20 | | | | |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 80,334 | | 80,706 | | 142,523 | | 311,693 | | 479,872 | | 176,890 | | 170,588 | |
| Regional/Subregional SOI: | | | 17,567 | | 17,391 | | 27,195 | | 60,178 | | 95,437 | | 35,465 | | 34,995 |
| FINAL WINTER SOI RANK: | | | 1 | | 1 | | 2 | | 2 | | 3 | | 2 | | 2 |

TABLE SF-6. Continued

| Species | Winter SFVI | 9 HARV | 9 SFVI | 10 HARV | 10 SFVI | 11 HARV | 11 SFVI | 12 HARV | 12 SFVI | Waters East of Whidbey Island 1401 HARV | 1401 SFVI | 1402,1403 HARV | 1402,1403 SFVI | 1404 HARV | 1404 SFVI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 200 | | | | | | | | | | | | | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 160 | | | | | | | | | | | | | | |
| Geoduck | 225 | 63 | 14 | 63 | 14 | 63 | 14 | 63 | 14 | | | | | | |
| Butter Clam | 200 | 8,220 | 1,644 | 8,220 | 1,644 | 8,220 | 1,644 | 8,220 | 1,644 | | | 24 | 5 | | |
| Native Little Neck | 200 | 2,522 | 504 | 2,522 | 504 | 2,522 | 504 | 2,522 | 504 | 77,281 | 15,456 | 1,013 | 203 | | |
| Manila Clam | 200 | 41 | 8 | 41 | 8 | 41 | 8 | 41 | 8 | 9,421 | 1,507 | 4,323 | 692 | | |
| Gaper Clam | 160 | | | | | | | | | | | | | | |
| Horse Clam | 255 | | | | | | | | | | | | | | |
| Eastern Soft Shell | 245 | | | | | | | | | | | | | | |
| Cockles | 160 | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 80 | 6,504 | 520 | 6,504 | 520 | 6,504 | 520 | 6,504 | 520 | | | | | | |
| Rock Scallop | 145 | 1,867 | 271 | 1,867 | 271 | 1,867 | 271 | 1,867 | 271 | | | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 245 | | | | | | | | | | | | | | |
| Squid | 165 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | | | 35 | 8 | 1 | 0 |
| Octopus | 215 | 148 | 32 | 148 | 32 | 148 | 32 | 148 | 32 | | | 780 | 125 | 14 | 2 |
| Northern Abalone | 160 | 1,740 | 278 | 1,740 | 278 | 1,740 | 278 | 1,740 | 278 | | | | | | |
| Limpets | 250 | | | | | | | | | | | | | | |
| Whelks | 160 | | | | | | | | | | | | | | |
| Moon Snail | 160 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 95 | 12,552 | 1,192 | 12,552 | 1,192 | 12,552 | 1,192 | 12,552 | 1,192 | 2,842 | 554 | 513 | 100 | | |
| Red Sea Urchin | 195 | 585,671 | 114,206 | 585,671 | 114,206 | 585,671 | 114,206 | 585,671 | 114,206 | 872 | 248 | | | | |
| Green Sea Urchin | 285 | 50,273 | 14,328 | 50,273 | 14,328 | 50,273 | 14,328 | 50,273 | 14,328 | 13,909 | 4,312 | | | | |
| Purple Sea Urchin | 310 | | | | | | | | | | | | | | |
| Dungeness Crab | 285 | 29,276 | 8,344 | 29,276 | 8,344 | 29,276 | 8,344 | 29,276 | 8,344 | 197,049 | 46,307 | 28,336 | 6,659 | 10 | 2 |
| Red (Rock) Crab | 235 | 409 | 96 | 409 | 96 | 409 | 96 | 409 | 96 | 4,280 | 770 | 1,082 | 195 | | |
| Spot Shrimp | 180 | 1,531 | 276 | 1,531 | 276 | 1,531 | 276 | 1,531 | 276 | 26 | 5 | | | | |
| Coon Stripe Shrimp | 180 | 11,806 | 2,125 | 11,806 | 2,125 | 11,806 | 2,125 | 11,806 | 2,125 | 501 | 50 | 1,464 | 146 | | |
| Sidestripe Shrimp | 100 | 19 | 2 | 19 | 2 | 19 | 2 | 19 | 2 | | | | | | |
| Pink Shrimp | 195 | 1,815 | 354 | 1,815 | 354 | 1,815 | 354 | 1,815 | 354 | 12 | 2 | 2,889 | 578 | | |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | 3,381 | 930 | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 714,463 | | 714,463 | | 714,463 | | 714,463 | | 306,192 | | 43,839 | | 26 | |
| Regional/Subregional SOI: | | | 144,195 | | 144,195 | | 144,195 | | 144,195 | | 69,212 | | 9,639 | | 5 |
| FINAL WINTER SOI RANK: | | | 4 | | 4 | | 4 | | 4 | | 2 | | 1 | | 1 |

TABLE SF-6. Continued

| Species | Winter SFVI | 1605 to 1607, 1634,1635 HARV | SFVI | 1608 HARV | SFVI | 1609 to 1615, 1617,1636 HARV | SFVI | 1616,1622 HARV | SFVI | 1618 HARV | SFVI | 1619-1621, 1623-1627 HARV | SFVI | 1628-1633 HARV | SFVI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pacific Oyster | 200 | | | | | | | 500 | 100 | | | 21,100 | 4,220 | | |
| Olympia Oyster | 200 | | | | | | | | | | | | | | |
| Pacific Razor Clam | 160 | | | | | | | | | | | | | | |
| Geoduck | 225 | | | | | 1,645,681 | 370,278 | 862,493 | 194,061 | | | 523,288 | 117,740 | 303 | 68 |
| Butter Clam | 200 | 56,525 | 11,305 | 4,925 | 985 | 99,410 | 19,882 | 32,307 | 6,461 | 1,404 | 281 | 23,166 | 4,633 | 51,210 | 10,242 |
| Native Little Neck | 200 | 41,625 | 8,325 | 5,038 | 1,008 | 142,331 | 28,466 | 45,733 | 9,147 | 2,243 | 449 | 52,956 | 10,591 | 54,966 | 10,993 |
| Manila Clam | 200 | 2,788 | 446 | 356 | 57 | 18,214 | 2,914 | 16,851 | 2,696 | 213 | 34 | 242,631 | 38,821 | 72,819 | 11,651 |
| Gaper Clam | 160 | | | | | | | | | | | | | | |
| Horse Clam | 255 | | | | | | | | | | | | | 230 | 56 |
| Eastern Soft Shell | 245 | | | | | | | | | | | | | | |
| Cockles | 160 | | | | | | | | | | | | | | |
| Pink & Spiny Scallops | 80 | | | | | | | | | | | | | | |
| Rock Scallop | 145 | | | | | | | | | | | | | | |
| Weathervane Scallop | 45 | | | | | | | | | | | | | | |
| Bay Mussel | 305 | | | | | | | | | | | | | | |
| California Mussel | 290 | | | | | | | | | | | | | | |
| Goose(neck) Barnacle | 245 | | | | | | | | | | | | | | |
| Squid | 165 | 91 | 20 | | | 58 | 12 | 9 | 2 | | | | | | |
| Octopus | 215 | 527 | 84 | 2,259 | 361 | 678 | 108 | 333 | 53 | 206 | 33 | | | 116 | 19 |
| Northern Abalone | 160 | | | | | | | | | | | | | | |
| Limpets | 250 | | | | | | | | | | | | | | |
| Whelks | 160 | | | | | | | | | | | | | | |
| Moon Snail | 160 | | | | | | | | | | | | | | |
| Chitons | 255 | | | | | | | | | | | | | | |
| Sea Cucumber | 95 | 13,810 | 2,693 | 36,140 | 7,047 | 113,363 | 22,106 | 86,875 | 16,941 | 22,571 | 4,401 | 287 | 56 | 401,837 | 78,358 |
| Red Sea Urchin | 195 | 1,451 | 413 | | | 891 | 254 | | | | | | | 1,258 | 358 |
| Green Sea Urchin | 285 | | | 34,151 | 10,587 | 1,079 | 334 | | | | | 283 | 88 | 216 | 67 |
| Purple Sea Urchin | 310 | | | | | | | | | | | | | | |
| Dungeness Crab | 285 | 1,064 | 250 | 1,772 | 416 | 3,336 | 784 | 12 | 3 | | | 3 | 1 | 126 | 30 |
| Red (Rock) Crab | 235 | 630 | 113 | 1,299 | 234 | 1,840 | 331 | | | 114 | 21 | 458 | 82 | | |
| Spot Shrimp | 180 | | | | | | | | | | | | | | |
| Coon Stripe Shrimp | 180 | | | | | | | | | | | | | | |
| Sidestripe Shrimp | 100 | | | | | | | | | | | | | | |
| Pink Shrimp | 195 | | | | | | | | | | | | | | |
| Ghost (or Sand) Shrimp | 200 | | | | | | | | | | | | | | |
| Mud Shrimp | 275 | | | | | | | | | | | | | | |
| Humpback Shrimp | 80 | | | | | | | | | | | | | | |
| TOTAL HARVEST: | | 118,510 | | 85,940 | | 2,026,879 | | 1,045,112 | | 26,751 | | 864,170 | | 583,081 | |
| Regional/Subregional SOI: | | | 23,650 | | 20,695 | | 445,471 | | 229,464 | | 5,218 | | 176,232 | | 111,843 |
| FINAL WINTER SOI RANK: | | | 2 | | 2 | | 5 | | 5 | | 1 | | 4 | | 3 |

## 2.5 Salmon Vulnerability Ranking

The salmon vulnerability ranking rates the vulnerability of five species of salmon to spilled oil. It differs from the other species group vulnerability rankings because vulnerability is determined at the time of the spill rather than being pre-classified. In this respect it is more similar to the habitat vulnerability ranking described in section 2.5 of this report. Salmon vulnerability is based on seasonal habitat preference of juveniles during outmigration and adults as they return to spawn, as well as whether spilled oil enters river mouths during the peak migration of one or more species. Vulnerability of the following species/age-classes are rated: Chinook, subyearling (*Oncorhynchus tshawytscha*); Chinook, yearling (*O. tshawytscha*); Coho (*O. kisutch*); Pink (*O. gorbushca*); Chum (*O. keta*); and Sockeye (*O. nerka*). Pink salmon vulnerability is only incorporated into the vulnerability ranking in years they are present in state waters. Vulnerability of each species/age-class in each habitat type was rated by the Salmon Advisory Committee on a one to five scale as presented in Table SA-1.

**Table SA-1. Vulnerability of Salmon Species and/or Species Yearclass by Habitat and Season**

| SPECIES/YEARCLASS and SALMON VULNERABILITY HABITAT | HABITAT VULNERABILITY SCORE (savs) SEASON | | | |
|---|---|---|---|---|
| | SP | SU | FA | WI |
| Chinook (subyearling) | | | | |
| 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 |
| Chinook (yearling) | | | | |
| 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 |
| 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) | 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 habitats evaluated to determine salmon vulnerability to oil spills differ from the habitat types described and evaluated in the habitat vulnerability ranking. To avoid the confusion of two habitat classification systems, a translation chart was developed and is provided here as Table SA-2. Percent-coverage of habitat types impacted by a particular spill need only be calculated for once using the classification system described in section 2.1 of this report. Then, to calculate a spill's salmon vulnerability score (SAVS) these habitat types are translated into the equivalent salmon vulnerability habitats.

TABLE SA-2. 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 semi-exposed 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, semi-exposed cobble and mixed-coarse beaches | Intertidal, cobble |
| Estuarine Intertidal, open mixed-coarse beaches | Intertidal, cobble |
| Marine Intertidal, semi-exposed 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, semi-protected 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 |

Only very small oil spills are likely to come into contact with only one habitat type as classified in the habitat vulnerability ranking (section 2.1). When spills come into contact with more than one habitat type, the species/age-class vulnerability is determined by summing the weighted species/age-class vulnerabilities for each

habitat type considered. Where weighting is defined as percent-coverage of the habitat type within the area of spill impact. What is considered "area of spill impact" varies depending on size of the spill (see section 2.1 of this report). The following formula is used to calculate the weighted species/age-class vulnerability score:

$$SAVS_i = (savs_1 * PCT\text{-}COV_1) + (savs_2 * PCT\text{-}COV_2) + ... + (savs_n * PCT\text{-}COV_n)$$

where $SAVS_i$ = salmon vulnerability score for a species/yearclass;
$savs_j$ = species/yearclass habitat vulnerability score for the season of greatest spill impact;
$PCT\text{-}COV_j$ = percent-coverage of habitat j;
i = Chinook, subyearling (Cs); Chinook, yearling (Cy); Coho (C); Pink (P); Chum (Ch); and Sockeye (So); and
n = number of salmon vulnerability habitats used to calculate SAVS.

If the spill enters a river mouth, the salmon vulnerability score calculated above ($SAVS_i$) is increased to a score of five for each species/yearclass in peak occurrence in a river mouth during the period of time the spilled oil enters and remains in the river mouth. State resource trustees make the determination of whether or not peak occurrence is proceeding in any river mouths exposed to spilled oil. The species vulnerability scores calculated above are then averaged to derive the salmon vulnerability score for a spill (the vulnerability scores for yearling and subyearling Chinook are first averaged to determine a spill's Chinook vulnerability score) as illustrated by the following formulas:

<u>For spills in years when pink salmon are present in state waters</u>

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

where $SAVS_s$ = salmon vulnerability score for a spill;
$SAVS_{Cs}$ = chinook, subyearling vulnerability score;
$SAVS_{Cy}$ = chinook (yearling) vulnerability score;
$SAVS_C$ = coho salmon vulnerability score;
$SAVS_P$ = pink salmon vulnerability score;
$SAVS_C$ = chum salmon vulnerability score;
$SAVS_{So}$ = sockeye salmon vulnerability score.

<u>For spills in years when pink salmon are not present in state waters</u>

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

where: $SAVS_s$ = salmon vulnerability score for a spill;
$SAVS_{Cs}$ = chinook, subyearling vulnerability score;
$SAVS_{Cy}$ = chinook (yearling) vulnerability score;

$SAVS_C$ = coho salmon vulnerability score;
$SAVS_{Ch}$ = chum salmon vulnerability score;
$SAVS_{So}$ = sockeye salmon vulnerability score.

The final $SAVS_s$ score is found by rounding the $SAVS_s$ score calculated from the appropriate formula above to the nearest 0.01 as follows: decimals less than 0.005 are rounded down and decimals equal to or greater than 0.005 are rounded up. For spills that expose threatened or endangered races and/or runs of salmon to spilled oil, the salmon vulnerability score (SAVS) is increased by a factor of 1.5.

## 2.6 Marine Mammal Vulnerability Ranking

The marine mammal vulnerability ranking rates the vulnerability of fifteen marine mammal species commonly found in or migrating through Washington waters to oil spills. This vulnerability ranking is also based on the Wahl et al. (1981) and Manuwal et al. (1979) vulnerability ranking for marine birds. Unlike some of the other vulnerability rankings, however, the marine mammal ranking only rates the vulnerability of the most common marine mammal species found in or migrating through Washington waters (Table MM-1). The seventeen species included in the marine mammal vulnerability ranking were selected because of their regular presence in Washington waters. Other species were excluded from the ranking due to their rare occurrence in Washington waters.

**Table MM-1. Species Included in the Marine Mammal Vulnerability Ranking**

| | |
|---|---|
| River Otter | *Lutra canadensis* |
| Sea Otter | *Enhydra lutris* |
| California Sea Lion | *Zalophus californianus* |
| Northern Sea Lion | *Eumetopias jubatus* |
| Northern Fur Seal | *Callorhinus ursinus* |
| Harbor Seal | *Phoca vitulina* |
| Northern Elephant Seal | *Mirounga angustirotris* |
| Gray Whale | *Eschrichtius robustus* |
| Minke Whale | *Balenoptera acutorostrata* |
| Fin Whale | *Balaenoptera physalus* |
| Humpback Whale | *Megaptera novaeangliae* |
| Pacific White-sided Dolphin | *Lagenorhynchus obliquidens* |
| Risso's Dolphin | *Grampus griseus* |
| Killer Whale | *Orcinus orca* |
| N. Right Whale Dolphin | *Lissodelphis borealis* |
| Harbor Porpoise | *Phocoena phocoena* |
| Dall's Porpoise | *Phocoenoides dalli* |

The marine mammal vulnerability ranking takes into consideration several factors of marine mammal biology, physiology, and habits. The most important factors affecting marine mammal vulnerability to oil spills, and scoring criteria for these

factors, were selected by the Marine Mammals Advisory Committee (Table MM-2).

**Table MM-2. Selected Marine Mammal Oil Spill Vulnerability Factors and Scoring Criteria.**

**Presence/Abundance of a Species in or Migrating Through a Region/Subregion (P)**
Score
5: > 25% of total Washington population
3: ≤ 25% of total Washington population
1: Accidental
0: Not known to occur

**Physiological Vulnerability to Presence of Oil (PV)**
Score
10: Contact with oil is severely compromising to lethal
3: Contact with oil causes major sublethal effects
1: Contact with oil primarily causes minor sublethal effects

note: For purposes of the oil spill compensation schedule, minor sublethal effects are impacts that may affect the individual's health, but not the individual's reproductive success. Major sublethal effects are impacts that may eventually kill the individual or severely compromise the individual's reproductive success.

**Primary Habitat (PH)**
Score
5: Occurring primarily intertidally to water depths of 20m
4: Some portion of the population occurs in waters 0 to 20m deep, but not all
3: Occurring primarily in waters 20-100m deep
2: Occurring in waters 20-100m deep, but not necessarily concentrated at this depth range
1: Occurring primarily in waters deeper than 100 meters

**Vulnerability of Breeding Population (VB)**
Score
5: Breeding and young present in a zone
4: Young present/not breeding
3: Young present/breeding unknown
1: Breeding unknown/no young present
0: Definitely no breeding in state or adjacent offshore waters

**Vulnerability of Non-Breeding Population (NB)**
Score
5: Young less than 1 year of age present
3: Young less than 1 year of age may be present
1: Young less than 1 year of age not known to be present

**Likelihood of Impact Based on Feeding Behavior (FH)**
Score
5: High
4: Medium High
3: Medium
2: Medium Low
1: Low

**Washington Population Status (WA)**
Score
5: Decreasing and depleted
4: Decreasing, but near historical numbers
3: Increasing, but below historical numbers; or Stable, but below historical numbers
1: Increasing and at or above historical numbers; or Stable and at or above historical numbers

**Population Status in the North Pacific (PS)**
Score
5: Decreasing
4: Presumed stable
3: Stable
1: Increasing

Each vulnerability factor was evaluated and scored for each of the selected marine mammal species. Table MM-3 presents the results of the vulnerability factor evaluation and the overall vulnerability of a species to spilled oil in each season. Seasonal species vulnerability was determined by utilizing the vulnerability factors scores in the following formula developed by the Committee:

$$V_s = PV^2+PH^2+VB_s^2+NB_s+WA^2+NP+FH$$

where: $V_s$ = vulnerability of a particular marine mammal species to spilled oil in a particular season; and
s = season.

The vulnerability of a particular species in any given subregion or region was determined by multiplying $V_s$ by the presence/abundance score determined for the species. The species vulnerability scores for a particular region/subregion were then summed to derive a composite marine mammal vulnerability score (MVS) for the region/subregion (MM-4). Composite subregional scores were assigned to a one to five ranking as follows:

| Final MVS | Composite Regional/Subregional Score |
|---|---|
| 5 | score greater than 1760 |
| 4 | score from 1375 to 1759 |
| 3 | score from 1165 to 1374 |
| 2 | score from 985 to 1164 |
| 1 | score less than 985. |

The pre-calculated MVS for a particular season and compensation schedule subregion as presented in Table MM-5 is utilized to calculate damages using the compensation schedule. If a spill comes into contact with one or more individuals of

a threatened or endangered marine mammal species, MVS is multiplied by a factor of 1.5.

## Table MM-5. Final 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 PENINSULA | 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 IS. (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 BIRCH BAY | 4 | 4 | 4 | 3 |

| | | | | | |
|---|---|---|---|---|---|
| 604 | SEMIAHOO SPIT | 4 | 4 | 4 | 3 |
| 605 | DRAYTON HARBOR | 4 | 4 | 4 | 3 |
| 607 | SAN JUAN IS.-NORTHERN TIER | 4 | 4 | 4 | 3 |
| 608 | GEORGIA STRAIT-EASTERN | 4 | 4 | 4 | 3 |
| 701 | POINT 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 | 4 | 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 CHANNEL | 3 | 3 | 3 | 2 |
| 1103 | SOUTHERN SAN JUAN CHANNEL | 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/SHOAL 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 HARBOR | 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 |
| 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 |

TABLE MM-3. Vulnerability Fator Scores for the Selected Marine Mammal Species.

| COMMON NAME | PV | PH | FH | Non-Breeding Pop. Vulnerability (NB) WI | SP | SU | FA | Breeding Population Vulnerability (VB) WI | SP | SU | FA | PS | WA | REFERENCES | Raw Species Vulnerability Scores for Each Season WIN | SPR | SU | FA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| River Otter | 1 | 5 | 5 | | | | | 4 | 5 | 5 | 3 | 3 | 1 | 1 | 51 | 60 | 60 | 44 |
| Sea Otter | 10 | 5 | 5 | | | | | 4 | 5 | 5 | 5 | 1 | 3 | 3,9, 40 | 156 | 165 | 165 | 165 |
| California Sea Lion | 3 | 4 | 3 | 1 | 1 | 1 | 1 | | | | | 1 | 1 | 1,4,6,7,11,25,32 | 31 | 31 | 31 | 31 |
| Northern Sea Lion | 3 | 4 | 3 | 5 | 5 | 5 | 5 | | | | | 5 | 5 | 1,4,8,25,26 | 63 | 63 | 63 | 63 |
| Northern Fur Seal | 10 | 2 | 2 | 5 | 5 | 1 | 5 | | | | | 3 | 3 | 1,10,12 | 123 | 123 | 119 | 123 |
| Harbor Seal | 3 | 5 | 3 | | | | | 3 | 5 | 5 | 3 | 1 | 1 | 1,2,4,11,29 | 48 | 64 | 64 | 48 |
| Northern Elephant Seal | 1 | 2 | 1 | 1 | 1 | 1 | 1 | | | | | 1 | 1 | 1,4,12,30 | 9 | 9 | 9 | 9 |
| Gray Whale | 3 | 4 | 5 | 5 | 5 | 5 | 5 | | | | | 1 | 1 | 2,13,22,33 | 37 | 37 | 37 | 37 |
| Minke Whale | 3 | 2 | 4 | | | | | 4 | 5 | 5 | 4 | 3 | 3 | 2,5,15 | 45 | 54 | 54 | 45 |
| Fin Whale | 3 | 1 | 4 | | | | | 1 | 1 | 1 | 1 | 3 | 3 | 1,16,41 | 27 | 27 | 27 | 27 |
| Humpback Whale | 3 | 3 | 4 | 3 | 3 | 3 | 3 | | | | | 4 | 5 | 2 | 54 | 54 | 54 | 54 |
| Pac. White-sided Dolphin | 1 | 2 | 2 | | | | | 0 | 0 | 3 | 3 | 3 | 1 | 2,17,19,41 | 11 | 11 | 20 | 20 |
| Risso's Dolphin | 1 | 2 | 2 | | | | | 0 | 0 | 3 | 3 | 3 | 1 | 2,17,19, 42 | 11 | 11 | 20 | 20 |
| Killer Whale | 1 | 4 | 4 | | | | | 5 | 5 | 5 | 5 | 3 | 1 | 2,20 | 50 | 50 | 50 | 50 |
| N. Right Whale Dolphin | 1 | 1 | 2 | | | | | 0 | 0 | 3 | 3 | 4 | 3 | 2,17,19,39,41 | 17 | 17 | 26 | 26 |
| Harbor Porpoise | 1 | 4 | 3 | | | | | 5 | 5 | 5 | 5 | 4 | 5 | 2,21a,21b,21c,36,37 | 74 | 74 | 74 | 74 |
| Dall's Porpoise | 1 | 2 | 2 | | | | | 4 | 5 | 5 | 4 | 4 | 3 | 2,17,19,23,35 | 36 | 45 | 45 | 36 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | SPECIES VULNERABILITY | | | | SPECIES VULNERABILITY BY REGION/SUBREGION | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Region 1 - Outer Coast | | | | | | | | | | | |
| | | | | | Subregion 101 | | | | Subregion 102 | | | | Subregion 103 | | | |
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 51 | 60 | 60 | 44 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 156 | 165 | 165 | 165 | 780 | 825 | 825 | 825 | 780 | 825 | 825 | 825 | 780 | 825 | 825 | 825 |
| California Sea Lion | 31 | 31 | 31 | 31 | 155 | 155 | 31 | 93 | 155 | 155 | 31 | 93 | 155 | 155 | 31 | 93 |
| Northern Sea Lion | 63 | 63 | 63 | 63 | 315 | 315 | 63 | 315 | 315 | 315 | 63 | 315 | 315 | 315 | 63 | 315 |
| Northern Fur Seal | 123 | 123 | 119 | 123 | 123 | 123 | 119 | 123 | 123 | 123 | 119 | 123 | 123 | 123 | 119 | 123 |
| Harbor Seal | 48 | 64 | 64 | 48 | 240 | 320 | 320 | 240 | 240 | 320 | 320 | 240 | 240 | 320 | 320 | 240 |
| Northern Elephant Seal | 9 | 9 | 9 | 9 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 37 | 37 | 37 | 37 | 185 | 185 | 185 | 37 | 185 | 185 | 185 | 37 | 185 | 185 | 185 |
| Minke Whale | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 |
| Fin Whale | 27 | 27 | 27 | 27 | 27 | 81 | 135 | 81 | 27 | 81 | 135 | 81 | 27 | 81 | 135 | 81 |
| Humpback Whale | 54 | 54 | 54 | 54 | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 |
| Pacific White-Sided Dolphin | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 |
| Risso's Dolphin | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 |
| Killer Whale | 50 | 50 | 50 | 50 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Northern Right Whale Dolphin | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 |
| Harbor Porpoise | 74 | 74 | 74 | 74 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 |
| Dall's Porpoise | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | | | | | 2551 | 3031 | 2732 | 2850 | 2551 | 3031 | 2732 | 2850 | 2551 | 3031 | 2732 | 2850 |
| FINAL MVS RANKING: | | | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Subregion 104 | | | | Subregion 105 | | | | Subregion 106 | | | | Subregion 107 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 315 | 189 | 189 | 63 | 315 | 189 | 189 | 63 | 315 | 189 | 189 | 63 | 315 |
| Northern Fur Seal | 123 | 123 | 119 | 123 | 123 | 123 | 119 | 123 | 123 | 123 | 119 | 123 | 123 | 123 | 119 | 123 |
| Harbor Seal | 240 | 320 | 320 | 240 | 240 | 320 | 320 | 240 | 240 | 320 | 320 | 240 | 240 | 320 | 320 | 240 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 185 | 185 | 185 | 37 | 37 | 37 | 37 | 37 | 185 | 185 | 185 | 37 | 37 | 37 | 37 |
| Minke Whale | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 |
| Fin Whale | 27 | 81 | 135 | 81 | 27 | 81 | 135 | 81 | 27 | 81 | 135 | 81 | 27 | 81 | 135 | 81 |
| Humpback Whale | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 |
| Pacific White-Sided Dolphin | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 |
| Risso's Dolphin | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 |
| Killer Whale | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Northern Right Whale Dolphin | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 |
| Harbor Porpoise | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 |
| Dall's Porpoise | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 1583 | 2018 | 1907 | 2025 | 1583 | 1870 | 1759 | 1877 | 1583 | 2018 | 1907 | 2025 | 1583 | 1870 | 1759 | 1877 |
| FINAL MVS RANKING: | 4 | 5 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 5 | 5 | 4 | 5 | 5 | 5 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Subregion 108 | | | | Subregion 109 | | | | Subregion 110 | | | | Subregion 111 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sea Otter | 0 | 0 | 0 | 0 | 468 | 495 | 495 | 495 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 155 | 155 | 31 | 93 | 93 | 93 | 31 | 93 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 |
| Northern Sea Lion | 315 | 315 | 63 | 315 | 189 | 189 | 63 | 189 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| Northern Fur Seal | 123 | 123 | 119 | 123 | 369 | 369 | 119 | 369 | 615 | 615 | 119 | 369 | 615 | 615 | 119 | 369 |
| Harbor Seal | 240 | 320 | 320 | 240 | 144 | 192 | 192 | 144 | 48 | 64 | 64 | 48 | 0 | 0 | 0 | 0 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 185 | 185 | 185 | 37 | 185 | 185 | 185 | 37 | 37 | 37 | 37 | 0 | 0 | 0 | 0 |
| Minke Whale | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 | 45 | 54 | 54 | 45 |
| Fin Whale | 27 | 81 | 135 | 81 | 27 | 81 | 135 | 81 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Humpback Whale | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 | 54 | 162 | 162 | 162 |
| Pacific White-Sided Dolphin | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 33 | 33 | 60 | 60 | 33 | 55 | 60 | 60 |
| Risso's Dolphin | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 33 | 33 | 60 | 60 | 33 | 33 | 100 | 60 |
| Killer Whale | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Northern Right Whale Dolphin | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 | 17 | 17 | 26 | 26 | 51 | 51 | 78 | 130 |
| Harbor Porpoise | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 370 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| Dall's Porpoise | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 | 108 | 135 | 135 | 108 | 108 | 135 | 135 | 180 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 1771 | 2206 | 1907 | 2025 | 2048 | 2451 | 2094 | 2412 | 1262 | 1422 | 989 | 1187 | 1211 | 1377 | 980 | 1278 |
| FINAL MVS RANKING: | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 4 | 2 | 3 | 3 | 4 | 1 | 3 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Region 2 - Outer Strait of Juan de Fuca | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Subregion 112 | | | | Subregion 201 | | | | Subregion 203 | | | | Subregion 204 | | | |
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 156 | 165 | 165 | 165 | 156 | 165 | 165 | 165 | 156 | 165 | 165 | 165 |
| California Sea Lion | 0 | 0 | 0 | 0 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 |
| Northern Sea Lion | 63 | 63 | 63 | 63 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 123 | 123 | 119 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 0 | 0 | 0 | 0 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 9 | 9 | 27 | 9 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 0 | 0 | 0 | 0 | 37 | 185 | 185 | 111 | 37 | 185 | 185 | 111 | 37 | 185 | 185 | 111 |
| Minke Whale | 45 | 54 | 54 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 27 | 27 | 27 | 27 | 27 | 27 | 81 | 27 | 27 | 27 | 81 | 27 | 27 | 27 | 81 | 27 |
| Humpback Whale | 54 | 162 | 162 | 162 | 0 | 54 | 54 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pacific White-Sided Dolphin | 33 | 55 | 60 | 60 | 11 | 33 | 60 | 20 | 11 | 33 | 60 | 20 | 11 | 33 | 60 | 20 |
| Risso's Dolphin | 33 | 33 | 100 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 50 | 50 | 50 | 50 | 50 | 150 | 150 | 50 | 50 | 150 | 150 | 50 | 50 | 150 | 150 | 50 |
| Northern Right Whale Dolphin | 51 | 51 | 78 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 74 | 74 | 74 | 74 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 |
| Dall's Porpoise | 108 | 135 | 135 | 180 | 180 | 225 | 225 | 180 | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 670 | 836 | 949 | 983 | 1136 | 1562 | 1455 | 1282 | 1145 | 1508 | 1401 | 1216 | 1145 | 1508 | 1401 | 1216 |
| FINAL MVS RANKING: | 1 | 1 | 1 | 1 | 2 | 4 | 4 | 3 | 2 | 4 | 4 | 3 | 2 | 4 | 4 | 3 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Subregion 205 | | | | Subregion 206 | | | | Subregion 207 | | | | Subregion 208 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 185 | 185 | 111 | 37 | 185 | 185 | 111 | 37 | 185 | 185 | 111 | 37 | 185 | 185 | 111 |
| Minke Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 27 | 27 | 81 | 27 | 27 | 27 | 81 | 27 | 27 | 27 | 81 | 27 | 27 | 27 | 81 | 27 |
| Humpback Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pacific White-Sided Dolphin | 11 | 33 | 60 | 20 | 11 | 33 | 60 | 20 | 11 | 33 | 60 | 20 | 11 | 33 | 60 | 20 |
| Risso's Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 50 | 150 | 150 | 50 | 50 | 150 | 150 | 50 | 50 | 150 | 150 | 50 | 50 | 150 | 150 | 50 |
| Northern Right Whale Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 |
| Dall's Porpoise | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 989 | 1343 | 1236 | 1051 | 989 | 1343 | 1236 | 1051 | 989 | 1343 | 1236 | 1051 | 989 | 1343 | 1236 | 1051 |
| FINAL MVS RANKING: | 2 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 3 | 2 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Subregion 209 | | | | Region 3 JdF Strait-inner | | | | Region 4 Admiralty Inlet | | | | Region 5 Whatcom/Skagit Co. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 93 | 93 | 31 | 93 | 155 | 155 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 185 | 185 | 111 | 37 | 185 | 185 | 111 | 37 | 185 | 185 | 111 | 37 | 111 | 111 | 37 |
| Minke Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 27 | 27 | 81 | 27 | 27 | 27 | 135 | 27 | 27 | 27 | 135 | 27 | 27 | 27 | 81 | 27 |
| Humpback Whale | 0 | 0 | 0 | 0 | 0 | 54 | 54 | 54 | 0 | 54 | 54 | 54 | 0 | 54 | 54 | 54 |
| Pacific White-Sided Dolphin | 11 | 33 | 60 | 20 | 0 | 11 | 20 | 0 | 0 | 11 | 20 | 0 | 11 | 11 | 20 | 20 |
| Risso's Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 50 | 150 | 150 | 50 | 150 | 250 | 250 | 250 | 150 | 250 | 250 | 250 | 150 | 150 | 150 | 150 |
| Northern Right Whale Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 |
| Dall's Porpoise | 36 | 45 | 45 | 36 | 180 | 225 | 225 | 180 | 180 | 225 | 225 | 180 | 36 | 45 | 45 | 36 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 989 | 1343 | 1236 | 1051 | 1284 | 1717 | 1584 | 1429 | 1222 | 1655 | 1584 | 1429 | 1089 | 1301 | 1176 | 1131 |
| FINAL MVS RANKING: | 2 | 3 | 3 | 2 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 2 | 2 | 3 | 2 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Region 6 E. Georgia St. | | | | Region 7 W. Georgia St. | | | | Region 8 Haro Strait | | | | Region 9 Rosario Strait | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 155 | 155 | 31 | 93 | 93 | 93 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 111 | 111 | 37 | 37 | 111 | 111 | 37 | 37 | 111 | 111 | 37 | 37 | 111 | 111 | 37 |
| Minke Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 27 | 27 | 135 | 27 | 27 | 27 | 135 | 27 | 27 | 81 | 135 | 27 | 27 | 81 | 135 | 27 |
| Humpback Whale | 0 | 54 | 54 | 54 | 0 | 54 | 54 | 54 | 0 | 54 | 54 | 54 | 0 | 54 | 54 | 54 |
| Pacific White-Sided Dolphin | 0 | 11 | 20 | 20 | 0 | 11 | 20 | 20 | 0 | 11 | 20 | 20 | 11 | 11 | 20 | 20 |
| Risso's Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 150 | 250 | 250 | 250 | 150 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 150 | 250 | 250 | 250 |
| Northern Right Whale Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 370 | 370 | 370 | 370 | 222 | 222 | 222 | 222 |
| Dall's Porpoise | 180 | 225 | 225 | 180 | 180 | 225 | 225 | 180 | 180 | 225 | 225 | 180 | 108 | 135 | 135 | 108 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 1222 | 1581 | 1510 | 1375 | 1222 | 1581 | 1510 | 1375 | 1532 | 1845 | 1658 | 1523 | 1161 | 1545 | 1420 | 1303 |
| FINAL MVS RANKING: | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 2 | 4 | 4 | 3 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Region 10 San Juan Is. N. | | | | Region 11 San Juan Is. S. | | | | Region 12 SJI-inner bays | | | | Region 14 - Inland Waters East of Whidbey Island Subregion 1401 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 93 | 31 | 93 | 155 | 155 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 111 | 111 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| Minke Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 27 | 81 | 135 | 27 | 27 | 81 | 135 | 27 | 27 | 81 | 135 | 27 | 0 | 0 | 0 | 0 |
| Humpback Whale | 0 | 54 | 54 | 54 | 0 | 54 | 54 | 54 | 0 | 54 | 54 | 54 | 0 | 0 | 0 | 0 |
| Pacific White-Sided Dolphin | 0 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 11 | 11 | 20 | 20 | 0 | 0 | 0 | 0 |
| Risso's Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 150 | 250 | 250 | 250 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Northern Right Whale Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 370 | 370 | 370 | 370 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 222 | 74 | 74 | 74 | 74 |
| Dall's Porpoise | 180 | 225 | 225 | 180 | 108 | 135 | 135 | 108 | 108 | 135 | 135 | 108 | 0 | 0 | 0 | 0 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 1370 | 1783 | 1658 | 1523 | 1161 | 1371 | 1246 | 1203 | 1161 | 1371 | 1246 | 1203 | 929 | 1004 | 754 | 846 |
| FINAL MVS RANKING: | 3 | 5 | 4 | 4 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 1 | 2 | 1 | 1 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Subregion 1402 | | | | Subregion 1403 | | | | Subregion 1404 | | | | Subregion 1405 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | ALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 155 | 155 | 31 | 93 | 155 | 155 | 31 | 93 | 155 | 155 | 31 | 93 | 155 | 155 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| Minke Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Humpback Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pacific White-Sided Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Risso's Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Northern Right Whale Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| Dall's Porpoise | 0 | 0 | 0 | 0 | 108 | 135 | 135 | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 929 | 1004 | 754 | 846 | 1037 | 1139 | 889 | 954 | 929 | 1004 | 754 | 846 | 929 | 1004 | 754 | 846 |
| FINAL MVS RANKING: | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Subregion 1406 | | | | Region 15 Hood Canal | | | | Region 16 - Middle and Southern Puget Sound Subregion 1601 | | | | Subregion 1602 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 155 | 155 | 31 | 93 | 93 | 93 | 31 | 93 | 93 | 155 | 31 | 93 | 93 | 155 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| Minke Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 27 | 81 | 81 | 27 | 27 | 81 | 81 |
| Humpback Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 54 | 54 | 0 | 0 | 54 | 0 |
| Pacific White-Sided Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 11 | 20 | 20 | 0 | 0 | 0 | 0 |
| Risso's Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Northern Right Whale Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| Dall's Porpoise | 108 | 135 | 135 | 108 | 0 | 0 | 0 | 0 | 108 | 135 | 135 | 108 | 108 | 135 | 135 | 108 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 1037 | 1139 | 889 | 954 | 867 | 942 | 754 | 846 | 1013 | 1231 | 1044 | 1109 | 1002 | 1166 | 1024 | 1035 |
| FINAL MVS RANKING: | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 2 |

**Table MM-4. Marine Mammal Vulnerability Ranking by Region/Subregion.**

| COMMON NAME | Subregion 1603 | | | | Subregions 1604 - 1633 | | | |
|---|---|---|---|---|---|---|---|---|
| | WIN | SPR | SUM | FALL | WIN | SPR | SUM | FALL |
| River Otter | 153 | 180 | 180 | 132 | 153 | 180 | 180 | 132 |
| Sea Otter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California Sea Lion | 93 | 155 | 31 | 93 | 93 | 93 | 31 | 93 |
| Northern Sea Lion | 189 | 189 | 63 | 189 | 189 | 189 | 63 | 189 |
| Northern Fur Seal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Seal | 144 | 192 | 192 | 144 | 144 | 192 | 192 | 144 |
| Northern Elephant Seal | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Gray Whale | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| Minke Whale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fin Whale | 27 | 27 | 81 | 81 | 27 | 27 | 81 | 81 |
| Humpback Whale | 0 | 0 | 54 | 0 | 0 | 0 | 54 | 0 |
| Pacific White-Sided Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Risso's Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Killer Whale | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Northern Right Whale Dolphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harbor Porpoise | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| Dall's Porpoise | 36 | 45 | 45 | 36 | 36 | 45 | 45 | 36 |
| TOTAL REGIONAL/ SUBREGIONAL MVS: | 930 | 1076 | 934 | 963 | 930 | 1014 | 934 | 963 |
| FINAL MVS RANKING: | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 |

## 2.7 Recreation Vulnerability Ranking

The recreation vulnerability ranking rates the vulnerability of marine- and estuarine-related recreational activities to oil spills. Vulnerability for this ranking is based on number, size and attributes of public shore sites as well as seasonal use levels. All of the public shore sites bordering marine and estuarine waters of the state (excluding the Columbia River Estuary) as described in Scott and Reuling (1986) were evaluated by the Recreation Advisory Committee. It was recognized by the Committee that marine- and estuarine-related recreational activities are not limited to public shoreline sites and their immediate vicinity, but that public shoreline sites serve as an initiation point for many activities that utilize the marine and estuarine environment. The Committee decided, however, that vulnerability of recreation to oil spills could best be evaluated by focusing on public shoreline sites because of the limited availability of information on recreational use in areas away from shore.

The Committee selected five categories of recreational attributes that would be impacted by an oil spill in the vicinity of the sites evaluated. The five attribute categories include: fish and wildlife enjoyment, water contact sports, boating use, beach use and aesthetic character. The attribute Fish and Wildlife Enjoyment rates a shoreline site for its recreational value for fishing, waterfowl enjoyment (both hunting and non-consumptive use), clamming, crabbing, and whale-watching. Water Contact Sports rates the value of the beach area for water contact sports such as swimming, wading, scuba diving, and windsurfing. The Boating Use attribute measures the suitability and popularity of the site and its facilities for both motorized and non-motorized boating use. Beach Use rates the site as a place for walking, beach combing, and nature study. Lastly, the Aesthetic Character attribute measures the aesthetic value of the site taking into consideration scenic views, natural shoreline scenes, and photo opportunities. To evaluate each of the public shoreline sites for the attribute categories, the Recreation Committee developed the scoring criteria presented in Table R-1. The results of Committee evaluation for each site are provided in Table R-2.

**TABLE R-1. Attribute Scoring Criteria**

**Fish and Wildlife Enjoyment**

| Score | Criteria |
|---|---|
| 1 | Little opportunity at the site to enjoy fish and/or wildlife |
| 2 | Low level fish and wildlife use and opportunities at the site |
| 3 | Moderate fish and wildlife use and opportunities at the site |
| 4 | Site provides access to areas of heavy fish and wildlife use |
| 5 | Heavy use of fish and wildlife at the site |

**TABLE R-1. Continued.**

**Water Contact Sports**

| Score | Criteria |
|---|---|
| 0 | Not available at the site |
| 1 | Low value of opportunities at the site |
| 2 | Medium-low value of opportunities at the site |
| 3 | Medium value of opportunities available at the site |
| 4 | Medium-high value of opportunities at the site |
| 5 | High value of opportunities available at the site |

**Boating Use**

| Score | Criteria |
|---|---|
| 1 | No easy access to the site by boat |
| 2 | Boat not easily brought on shore, but possible |
| 3 | Possible to easily beach boat to gain access to the site |
| 4 | Crude boat moorage and/or launching facilities;facilities not well maintained |
| 5 | Well maintained boat launch or moorage facilities (including transient moorage facilities) |

**Beach Use**

| Score | Criteria |
|---|---|
| 1 | No upland access |
| 2 | Limited access due to configuration of facilities/breakwaters |
| 3 | Access to the beach possible |
| 4 | Heavily used beach |
| 5 | Maintained/developed city, county, state or federal site; facilities available |

**Aesthetic Character**

| Score | Criteria |
|---|---|
| 0 | No access to the site |
| 1 | Heavy Development, no long range view |
| 2 | More developed than natural surroundings |
| 3 | Equal developed and natural surroundings |
| 4 | Some development, but more natural surroundings |
| 5 | Wholly natural surrounding, long range views. |

Attribute scores assigned to a particular site were then summed and multiplied by the site's shoreline length to derive a site vulnerability score. Sites were aggregated by compensation schedule subregion and the vulnerability scores for all sites in a particular subregion were summed to derive a subregional recreation vulnerability score. The subregional recreation vulnerability scores determined using these procedures are also provided in Table R-2.

To take into account seasonal variations in recreational activity, and thus vulnerability to oil spills, recreational use of shoreline public areas by season was determined from five years of Washington State Parks use data. From this data it was determined that 46% of recreational use occurred in Summer, 25% in Spring, 19% in Fall and 10% in Winter. The seasonal use proportions were multiplied by each of the subregional vulnerability scores to derive a composite recreation vulnerability score for each subregion by season (Table R-3). These raw scores were then scaled to

a one to five ranking to derive the final recreational vulnerability scores (RVS) using the following conversion guidance:

| Raw Score | Final Score |
|---|---|
| >111,000 | 5 |
| 37,000 to 11,000 | 4 |
| 10,750 to 36,999 | 3 |
| 50 - 10,749 | 2 |
| < 50 | 1 |

The appropriate pre-calculated RVS from the Rule, illustrated here in Table R-4, is used to calculate damages when applying the compensation schedule to a particular spill.

**TABLE R-4. Final Recreational Vulnerability Scores**

| 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 | WILLAPA 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 PENINSULA | 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 | BIRCH BAY | 3 | 4 | 3 | 3 |
| 604 | SEMIAHOO SPIT | 3 | 4 | 3 | 3 |
| 605 | DRAYTON HARBOR | 2 | 2 | 2 | 2 |
| 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 | SWIFTS/SHOAL 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 |
| 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 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| LA PUSH BEACH #1 | 101 | 5 | 1 | 3 | 5 | 5 | | |
| LA PUSH BEACH #2 | 101 | 5 | 1 | 3 | 5 | 5 | | |
| LA PUSH BEACH #3 | 101 | 5 | 3 | 1 | 5 | 5 | | |
| LA PUSH MARINA | 101 | 1 | 0 | 3 | 1 | 1 | | |
| OZETTE BEACH ACCESS | 101 | 5 | 1 | 0 | 5 | 5 | | |
| RIALTO BEACH | 101 | 5 | 1 | 0 | 5 | 5 | | |
| SHI SHI BEACH | 101 | 5 | 1 | 0 | 5 | 5 | | |
| | | Length of Olympic Nat'l Park in SR 101 is approx. 50 miles | | | | | | |
| Subregional Score: | 101 | 5 | 1 | 2 | 5 | 5 | 264000 | 4752000 |
| BEACH 1 (Olympic National Park) | 102 | 5 | 3 | 1 | 5 | 5 | | |
| BEACH 2 (Olympic National Park) | 102 | 5 | 3 | 1 | 5 | 5 | | |
| BEACH 3 (Olympic National Park) | 102 | 5 | 3 | 1 | 5 | 5 | | |
| BEACH 4 (Olympic National Park) | 102 | 5 | 3 | 1 | 5 | 5 | | |
| BEACH 6 (Olympic National Park) | 102 | 5 | 3 | 1 | 5 | 5 | | |
| KALALOCH CAMPGROUND (Olympic National Park) | 102 | 5 | 3 | 1 | 5 | 5 | 100 | |
| RUBY BEACH (Olympic National Park) | 102 | 5 | 3 | 1 | 5 | 5 | | |
| SOUTH BEACH CAMP AREA (O.N.P.) | 102 | 5 | 3 | 1 | 5 | 3 | | |
| | | Length of Olympic Nat'l Park in SR 101 is approx. 18 miles | | | | | | |
| Subregional Score: | 102 | 5 | 3 | 1 | 5 | 5 | 95040 | 1805760 |
| CHANCE A LA MER BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| COPALIS BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| GRIFFITH PRIDAY STATE PARK (undev) | 104 | 1 | 3 | 1 | 5 | 4 | 7776 | |
| MOCLIPS BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| OCEAN CITY BEACH ACCESS | 104 | 3 | 3 | 1 | 5 | 4 | 400 | |
| OCEAN CITY STATE PARK | 104 | 1 | 3 | 1 | 5 | 4 | 2100 | |
| OCEAN LAKE WAY BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| OYHUT BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| PACIFIC BEACH STATE PARK | 104 | 3 | 3 | 1 | 5 | 4 | 1320 | |
| PACIFIC WAY BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| ROOSEVELT BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| TAURUS STREET BEACH ACCESS | 104 | 1 | 3 | 1 | 5 | 4 | | |
| | | Public beach in SR 104 is approx. 23 miles | | | | | | |
| Subregional Score: | 104 | 3 | 3 | 1 | 5 | 4 | 121440 | 1943040 |
| BOWERMAN BASIN | 105 | 5 | 0 | 0 | 1 | 5 | 8000 | 88000 |
| NORTH JETTY BEACH ACCESS | 105 | 5 | 0 | 1 | 5 | 5 | 300 | 4800 |
| OYHUT WILDLIFE AREA | 105 | 5 | 1 | 1 | 3 | 2 | 10560 | 126720 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| WESTPORT MARINA | 105 | 1 | 3 | 5 | 0 | 3 | 60 | 720 |
| Subregional Score: | 105 | | | | | | | 220240 |
| BONGE AVE. BEACH ACCESS | 106 | 1 | 3 | 1 | 5 | 4 | | |
| GRAYLAND BEACH ACCESS | 106 | 1 | 2 | 1 | 5 | 4 | | |
| GRAYLAND BEACH STATE PARK | 106 | 5 | 3 | 1 | 5 | 4 | 7509 | |
| MIDWAY BEACH ACCESS | 106 | 1 | 3 | 1 | 3 | 4 | | |
| TWIN HARBORS STATE PARK | 106 | 3 | 3 | 1 | 5 | 4 | 3414 | |
| WESTHAVEN STATE PARK | 106 | 3 | 5 | 1 | 5 | 4 | 1215 | |
| WESTPORT LIGHT STATE PARK | 106 | 3 | 5 | 1 | 5 | 5 | 3397 | |
| | | Public beach in SR 106 is approximately 13 miles | | | | | | |
| Subregional Score: | 106 | 3 | 3 | 1 | 5 | 4 | 71135 | 1138164 |
| BRUCEPORT COUNTY PARK | 107 | 1 | 0 | 1 | 1 | 4 | 3740 | 26180 |
| BRUCEPORT HISTORICAL MARKER | 107 | 1 | 0 | 1 | 1 | 3 | 30000 | 180000 |
| BUSH PIONEER COUNTY PARK | 107 | 1 | 2 | 1 | 5 | 4 | 4553 | 59189 |
| LEADBETTER POINT STATE PARK | 107 | 5 | 3 | 1 | 5 | 4 | 15840 | 285120 |
| LEADBETTER POINT UNIT, WILLAPA NATL WILDLIFE REFUGE | 107 | 5 | 1 | 1 | 5 | 5 | 15840 | 269280 |
| LONG ISLAND UNIT, WILLAPA NATL WILDLIFE REFUGE | 107 | 5 | 0 | 5 | 5 | 4 | 132000 | 2508000 |
| NAHCOTTA SMALL BOAT BASIN | 107 | 1 | 0 | 5 | 1 | 2 | 1000 | 9000 |
| NORTHCOVE BEACH ACCESS | 107 | 3 | 3 | 1 | 5 | 4 | 500 | 8000 |
| NORTHRIVER PUBLIC FISHING SITE | 107 | 5 | 1 | 5 | 1 | 3 | 100 | 1500 |
| TOKELAND MARINA | 107 | 3 | 1 | 5 | 2 | 1 | 600 | 7200 |
| Subregional Score: | 107 | | | | | | | 3353469 |
| 10th STREET BEACH ACCESS | 108 | 1 | 3 | 1 | 5 | 4 | | |
| BEARD'S HOLLOW | 108 | 3 | 3 | 1 | 5 | 4 | | |
| BOLSTEAD BEACH ACCESS | 108 | 1 | 3 | 1 | 5 | 4 | | |
| CRANBERRY BEACH ACCESS | 108 | 1 | 3 | 1 | 5 | 4 | 225 | |
| FORT CANBY STATE PARK | 108 | 3 | 4 | 5 | 5 | 4 | 39000 | |
| LEWIS UNIT, WILLAPA NATL WILDLIFE REFUGE | 108 | 5 | 0 | 1 | 5 | 4 | 30000 | |
| KLIPSAN BEACH ACCESS | 108 | 1 | 3 | 1 | 5 | 4 | | |
| LOOMIS LAKE STATE PARK | 108 | 1 | 3 | 1 | 5 | 4 | 425 | |
| OCEAN PARK BEACH ACCESS | 108 | 1 | 3 | 1 | 5 | 4 | | |
| OYSTERVILLE BEACH ACCESS | 108 | 1 | 3 | 1 | 5 | 4 | | |
| PACIFIC PINES STATE PARK | 108 | 1 | 3 | 1 | 5 | 4 | 590 | |
| RIEKKOLA UNIT, WILLAPA NATL. WILDLIFE REFUGE | 108 | 5 | 0 | 1 | 5 | 4 | 30000 | 450000 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| SEAVIEW OCEAN BEACH ACCESS | 108 | 1 | 3 | 1 | 5 | 4 | | |
| | | Public beach in SR 108 is approximately 21 miles | | | | | | |
| Subregional Score: | 108 | 1 | 3 | 1 | 5 | 4 | 113266 | 1585724 |
| HIGHWAY 112 WEST OF SEKIU RIVER | 205 | 3 | 1 | 1 | 1 | 3 | 31680 | 285120 |
| HOKO RIVER, BEACH 428 | 205 | 1 | 1 | 3 | 1 | 3 | 2750 | 24750 |
| SEKIU POINT, BEACH 427 | 205 | 3 | 1 | 3 | 1 | 3 | 17890 | 196790 |
| SEKIU PUBLIC AREA | 205 | 3 | 1 | 5 | 2 | 3 | 2500 | 35000 |
| SEKIU RIVER ACCESS | 205 | 1 | 1 | 3 | 1 | 3 | 500 | 4500 |
| SEKIU RIVER, BEACH 429A | 205 | 1 | 1 | 3 | 1 | 3 | 12210 | 109890 |
| SHIPWRECK POINT, BEACH 429 | 205 | 1 | 1 | 3 | 1 | 3 | 37440 | 336960 |
| SNOW CREEK BOAT LAUNCH | 205 | 1 | 1 | 2 | 1 | 3 | 250 | 2000 |
| Subregional Score: | 205 | | | | | | | 995010 |
| CLALLAM BAY STATE PARK (undev) | 206 | 1 | 1 | 1 | 3 | 3 | 9840 | 88560 |
| AGATE BAY, BEACH 420 | 207 | 1 | 1 | 3 | 1 | 3 | 8570 | 77130 |
| AGATE BAY, BEACH 421 | 207 | 1 | 1 | 3 | 1 | 5 | 8010 | 88110 |
| DEEP CREEK | 207 | 1 | 1 | 1 | 3 | 3 | 1000 | 9000 |
| PILLAR POINT COUNTY PARK | 207 | 3 | 1 | 5 | 5 | 5 | 250 | 4750 |
| PILLAR POINT, BEACH 424 | 207 | 1 | 1 | 3 | 1 | 3 | 5925 | 53325 |
| PILLAR POINT, BEACH 425 | 207 | 1 | 1 | 3 | 1 | 3 | 4520 | 40680 |
| SLIP POINT, BEACH 426 | 207 | 1 | 1 | 3 | 1 | 3 | 42750 | 384750 |
| TWIN RIVERS, BEACH 422 | 207 | 1 | 1 | 3 | 1 | 3 | 30210 | 271890 |
| TWIN RIVERS, BEACH 423 | 207 | 1 | 1 | 3 | 1 | 3 | 15365 | 138285 |
| TWIN RIVERS, BEACH 423A | 207 | 1 | 1 | 3 | 1 | 3 | 3415 | 30735 |
| Subregional Score: | 207 | | | | | | | 1098655 |
| SALT CREEK RECREATION AREA | 208 | 5 | 5 | 2 | 5 | 5 | 5000 | 110000 |
| DRY CREEK, BEACH 414 | 209 | 1 | 1 | 3 | 1 | 3 | 5580 | 50220 |
| FRESHWATER BAY BOAT LAUNCH | 209 | 5 | 1 | 5 | 5 | 3 | 1000 | 19000 |
| FRESHWATER BAY, BEACH 416 | 209 | 1 | 1 | 3 | 1 | 3 | 1345 | 12105 |
| FRESHWATER BAY, BEACH 417 | 209 | 1 | 1 | 3 | 1 | 3 | 2800 | 25200 |
| STRIPED PEAK, BEACH 419 | 209 | 1 | 1 | 3 | 1 | 3 | 19570 | 176130 |
| Subregional Score: | 209 | | | | | | | 282655 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| EDIZ HOOK, OUTER | 302 | 2 | 1 | 1 | 2 | 3 | 15840 | 142560 |
| CITY PIER | 303 | 3 | 0 | 5 | 0 | 3 | 300 | 3300 |
| EAST BOAT HAVEN BOAT LAUNCH | 303 | 1 | 0 | 5 | 0 | 2 | 60 | 480 |
| EDIZ HOOK BOAT LAUNCH | 303 | 1 | 1 | 5 | 1 | 2 | 400 | 4000 |
| WEST BOAT HAVEN BOAT LAUNCH | 303 | 1 | 1 | 5 | 2 | 3 | 160 | 1920 |
| WATERFRONT TRAIL | 303 | 3 | 5 | 1 | 5 | 2 | 31680 | 506880 |
| HOLLYWOOD BEACH | 303 | 3 | 5 | 3 | 5 | 2 | 500 | 9000 |
| SAIL/PADDLE PARK | 303 | 2 | 5 | 4 | 5 | 2 | 500 | 9000 |
| HARBORVIEW PARK | 303 | 2 | 5 | 4 | 5 | 2 | 300 | 5400 |
| EDIZ HOOK (INNER) | 303 | 3 | 5 | 3 | 4 | 2 | 10000 | 170000 |
| BOAT HAVEN | 303 | 3 | 0 | 5 | 1 | 2 | 1000 | 11000 |
| Subregional Score: | 303 | | | | | | | 720980 |
| DUNGENESS RECREATION AREA | 304 | 5 | 1 | 3 | 5 | 3 | 2500 | 42500 |
| CLINE SPIT COUNTY PARK | 306 | 1 | 1 | 5 | 5 | 3 | 300 | 4500 |
| DUNGENESS BOAT LAUNCH | 306 | 3 | 1 | 5 | 3 | 2 | 1000 | 14000 |
| DUNGENESS NATIONAL WILDLIFE REFUGE | 306 | 5 | 1 | 3 | 5 | 5 | 44900 | 853100 |
| Subregional Score: | 306 | | | | | | | 871600 |
| PORT WILLIAMS BOAT LAUNCH | 307 | 3 | 1 | 5 | 2 | 2 | 500 | 6500 |
| TRAVIS SPIT, BEACH 411A | 307 | 3 | 1 | 3 | 1 | 3 | 2800 | 30800 |
| Subregional Score: | 307 | | | | | | | 37300 |
| GIBSON SPIT, BEACH 411 | 308 | 3 | 1 | 3 | 1 | 3 | 25710 | 282810 |
| JOHN WAYNE MARINA | 308 | 1 | 0 | 5 | 2 | 2 | 100 | 1000 |
| SEQUIM BAY STATE PARK | 308 | 5 | 5 | 5 | 5 | 3 | 4909 | 112907 |
| Subregional Score: | 308 | | | | | | | 396717 |
| DIAMOND POINT, BEACH 410 | 309 | 1 | 1 | 3 | 1 | 3 | 2710 | 24390 |
| CAPE GEORGE, BEACH 409 | 311 | 3 | 1 | 3 | 1 | 3 | 1475 | 16225 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| GARDINER PUBLIC BOAT LAUNCH | 311 | 1 | 0 | 5 | 1 | 1 | 20 | 160 |
| Subregional Score: | 311 | | | | | | | 16385 |
| CAPE GEORGE, BEACH 407 | 312 | 1 | 1 | 3 | 1 | 3 | 5035 | 45315 |
| NORTH BEACH COUNTY PARK | 312 | 5 | 1 | 3 | 3 | 3 | 310 | 4650 |
| Subregional Score: | 312 | | | | | | | 49965 |
| HASTIE LAKE ROAD BOAT LAUNCH | 313 | 1 | 1 | 4 | 3 | 3 | 100 | 1200 |
| JOSEPH WHIDBEY STATE PARK | 313 | 1 | 1 | 3 | 3 | 3 | 3100 | 34100 |
| LIBBEY BEACH COUNTY PARK | 313 | 3 | 1 | 3 | 3 | 2 | 300 | 3600 |
| MORAN'S BEACH COUNTY PARK | 313 | 1 | 1 | 3 | 3 | 2 | 60 | 600 |
| Subregional Score: | 313 | | | | | | | 39500 |
| DECEPTION PASS STATE PARK | 315 | 3 | 5 | 5 | 5 | 5 | 77000 | 1771000 |
| NORTHWEST ISLAND MARINE PARK | 315 | 1 | 1 | 3 | 2 | 4 | 700 | 7700 |
| Subregional Score: | 315 | | | | | | | 1778700 |
| AGATE BEACH COUNTY PARK | 316 | 3 | 1 | 3 | 5 | 3 | 300 | 4500 |
| ALECK BAY, BEACH 308 | 316 | 1 | 1 | 3 | 1 | 3 | 7132 | 64188 |
| CASTLE ISLAND STATE PARK (undev) | 316 | 3 | 0 | 1 | 1 | 5 | 1100 | 11000 |
| ICEBERG ISLAND STATE PARK (undev) | 316 | 1 | 1 | 3 | 3 | 3 | 1599 | 17589 |
| JOHNS POINT, BEACH 307 | 316 | 1 | 1 | 3 | 1 | 3 | 3751 | 33759 |
| LOPEZ ISLAND, BEACH 305 | 316 | 1 | 1 | 3 | 1 | 3 | 4055 | 36495 |
| MACKAYE HARBOR, BEACH 306 | 316 | 1 | 1 | 3 | 1 | 3 | 2580 | 23220 |
| McARDLE BAY, BEACH 309 | 316 | 1 | 1 | 3 | 1 | 3 | 10932 | 98388 |
| SAN JUAN ISLAND NATL WILDLIFE REFUGE | 316 | 5 | 0 | 1 | 1 | 5 | 1765 | 21180 |
| Subregional Score: | 316 | | | | | | | 310319 |
| CATTLE POINT, BEACH 326A | 317 | 1 | 1 | 3 | 1 | 3 | 28242 | 254178 |
| EAGLE COVE COUNTY PARK | 317 | 1 | 1 | 5 | 5 | 3 | 100 | 1500 |
| Subregional Score: | 317 | | | | | | | 255678 |
| EBEY'S LANDING STAT PARK (UNDEV) | 401 | 1 | 1 | 3 | 3 | 4 | 2720 | 32640 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| CHETZEMOKA PARK | 401 | 3 | 1 | 1 | 4 | 5 | 750 | 10500 |
| FORT CASEY STATE PARK | 401 | 3 | 5 | 5 | 5 | 5 | 8200 | 188600 |
| FORT EBEY STATE PARK | 401 | 3 | 3 | 3 | 5 | 5 | 9000 | 171000 |
| FORT WORDEN STATE PARK | 401 | 5 | 5 | 5 | 5 | 5 | 9590 | 239750 |
| KEYSTONE BEACH TIDELANDS | 401 | 3 | 5 | 3 | 5 | 3 | 100 | 1900 |
| POINT PARTRIDGE RECREATION SITE | 401 | 1 | 1 | 3 | 5 | 4 | 9000 | 126000 |
| Subregional Score: | 401 | | | | | | | 770390 |
| ADMIRALTY BAY, BEACH 124 | 402 | 1 | 1 | 3 | 1 | 3 | 2400 | 21600 |
| ADMIRALTY BAY, BEACH 124A | 402 | 3 | 1 | 3 | 1 | 3 | 4200 | 46200 |
| BUSH POINT, BEACH 101 | 402 | 3 | 1 | 3 | 1 | 3 | 1650 | 18150 |
| EAST BEACH COUNTY PARK | 402 | 1 | 3 | 1 | 1 | 4 | 100 | 1000 |
| END OF ADMIRALTY AVE. | 402 | 1 | 1 | 3 | 3 | 2 | 40 | 400 |
| END OF MAIN STREET | 402 | 1 | 0 | 2 | 2 | 1 | 40 | 240 |
| FORT FLAGLER STATE PARK | 402 | 5 | 3 | 5 | 5 | 5 | 30920 | 711160 |
| KINNEY POINT, BEACH 404A | 402 | 1 | 1 | 3 | 3 | 3 | 3900 | 42900 |
| MOUNTAIN VIEW ROAD END | 402 | 1 | 1 | 3 | 3 | 2 | 40 | 400 |
| MUTINY BAY BOAT LAUNCH | 402 | 1 | 1 | 5 | 5 | 1 | 60 | 780 |
| NORTH END OF DRIFTWOOD WAY | 402 | 3 | 1 | 1 | 3 | 2 | 40 | 400 |
| SALMON ROAD END (LAGOON POINT) | 402 | 1 | 1 | 3 | 3 | 1 | 20 | 180 |
| SOUTH WHIDBEY STATE PARK | 402 | 3 | 3 | 3 | 3 | 4 | 4500 | 72000 |
| Subregional Score: | 402 | | | | | | | 915410 |
| HADLOCK BOAT LAUNCH | 403 | 3 | 0 | 5 | 5 | 1 | 20 | 280 |
| J.B. POPE MARINE PARK | 403 | 5 | 4 | 1 | 4 | 3 | 3600 | 61200 |
| L.B. GOOD MEMORIAL PARK | 403 | 3 | 1 | 1 | 1 | 4 | 400 | 4000 |
| OLD FORT TOWNSEND STATE PARK | 403 | 1 | 1 | 3 | 5 | 4 | 3200 | 44800 |
| PORT TOWNSEND BOAT BASIN | 403 | 1 | 0 | 5 | 1 | 1 | 100 | 800 |
| PORT TOWNSEND NORTH PIER | 403 | 3 | 0 | 5 | 1 | 1 | 100 | 1000 |
| Subregional Score: | 403 | | | | | | | 112080 |
| OAK BAY COUNTY PARK | 404 | 3 | 1 | 5 | 5 | 4 | 2040 | 36720 |
| OAK BAY SAND SPIT (B.L.M.) | 404 | 3 | 1 | 3 | 3 | 4 | 2500 | 35000 |
| SOUTH INDIAN ISLAND COUNTY PARK | 404 | 3 | 1 | 1 | 4 | 4 | 11350 | 147550 |
| Subregional Score: | 404 | | | | | | | 219270 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| MYSTERY BAY STATE PARK | 405 | 3 | 1 | 5 | 4 | 4 | 100 | 1700 |
| CONE ISLANDS STATE PARK (undev) | 501 | 1 | 1 | 3 | 1 | 4 | 2500 | 25000 |
| CYPRESS HEAD RECREATION SITE | 501 | 1 | 1 | 3 | 3 | 4 | 4780 | 57360 |
| CYPRESS HEAD, BEACH 211 | 501 | 5 | 1 | 3 | 1 | 3 | 16120 | 209560 |
| CYPRESS ISLAND, BEACH 209 | 501 | 1 | 1 | 3 | 1 | 3 | 1635 | 14715 |
| CYPRESS ISLAND, BEACH 210 | 501 | 1 | 1 | 3 | 1 | 3 | 5320 | 47880 |
| EAGLE CLIFF, BEACH 286 | 501 | 1 | 1 | 3 | 1 | 3 | 9220 | 82980 |
| EAGLE HARBOR, BEACH 212A | 501 | 1 | 1 | 3 | 1 | 3 | 2118 | 19062 |
| PELICAN BEACH RECREATION SITE | 501 | 3 | 1 | 3 | 3 | 3 | 7207 | 93691 |
| SINCLAIR ISLAND DOCK | 501 | 1 | 1 | 3 | 4 | 4 | 100 | 1300 |
| SINCLAIR ISLAND LIGHT, BEACH 213A | 501 | 1 | 1 | 3 | 1 | 3 | 2831 | 25479 |
| SINCLAIR ISLAND, BEACH 213 | 501 | 1 | 1 | 3 | 1 | 3 | 5200 | 46800 |
| STRAWBERRY (LOON) ISLAND RECREATION SITE | 501 | 1 | 1 | 3 | 1 | 4 | 4290 | 42900 |
| STRAWBERRY BAY (undev), BEACH 287 | 501 | 3 | 1 | 3 | 1 | 3 | 8872 | 97592 |
| TOWHEAD ISLAND, BEACH 285 | 501 | 1 | 1 | 3 | 1 | 3 | 1400 | 12600 |
| Subregional Score: | 501 | | | | | | | 776919 |
| CAP SANTE BOAT HAVEN | 503 | 1 | 0 | 5 | 1 | 3 | 3500 | 35000 |
| CAP SANTE PARK | 503 | 1 | 0 | 1 | 5 | 3 | 15000 | 150000 |
| Subregional Score: | 503 | | | | | | | 185000 |
| BAYVIEW BOAT LAUNCH | 504 | 1 | 1 | 4 | 2 | 1 | 20 | 180 |
| BAYVIEW STATE PARK | 504 | 3 | 5 | 1 | 5 | 4 | 3640 | 65520 |
| GUEMES ISLAND, BEACH 199C | 504 | 1 | 1 | 3 | 1 | 3 | 1736 | 15624 |
| MARCH POINT RECREATIONAL BEACH | 504 | 5 | 1 | 5 | 3 | 3 | 5280 | 89760 |
| MARCH POINT TIDELANDS | 504 | 1 | 1 | 3 | 1 | 3 | 10560 | 95040 |
| PADILLA BAY NATIONAL ESTUARINE SANCTUARY | 504 | 5 | 3 | 1 | 4 | 4 | 21120 | 359040 |
| SADDLEBAG ISLAND STATE PARK | 504 | 5 | 1 | 3 | 5 | 4 | 6250 | 112500 |
| SWINOMISH CHANNEL BOAT LAUNCH | 504 | 1 | 0 | 5 | 1 | 2 | 20 | 180 |
| YOUNG COUNTY PARK | 504 | 3 | 1 | 3 | 3 | 4 | 500 | 7000 |
| Subregional Score: | 504 | | | | | | | 744844 |
| LARRABEE STATE PARK | 505 | 5 | 5 | 5 | 5 | 5 | 2000 | 50000 |
| LARRABEE STATE PARK | 505 | 3 | 5 | 5 | 5 | 5 | 3600 | 82800 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| SAMISH ISLAND RECREATION SITE | 505 | 3 | 2 | 1 | 4 | 3 | 1436 | 18668 |
| Subregional Score: | 505 | | | | | | | 151468 |
| BOULEVARD PARK | 506 | 3 | 1 | 5 | 5 | 3 | 2800 | 47600 |
| CENTRAL FLOATS | 506 | 1 | 0 | 5 | 2 | 1 | 240 | 2160 |
| CHUCKANUT BAY PARK (undev) | 506 | 3 | 1 | 1 | 3 | 4 | 9347 | 112164 |
| FISH POINT PARK (undev) | 506 | 1 | 0 | 1 | 3 | 3 | 1750 | 14000 |
| LUMMI ISLAND RECREATION SITE | 506 | 1 | 1 | 3 | 1 | 5 | 2125 | 23375 |
| LUMMI ISLAND, BEACH 220 | 506 | 1 | 1 | 3 | 1 | 3 | 23533 | 211797 |
| SMUGGLERS COVE NORTH, BEACH 221A | 506 | 1 | 1 | 3 | 1 | 3 | 4812 | 43308 |
| SMUGGLERS COVE POINT, BEACH 221 | 506 | 1 | 1 | 3 | 1 | 3 | 4481 | 40329 |
| SOUTH SIDE BOAT RAMP | 506 | 1 | 0 | 5 | 2 | 1 | 150 | 1350 |
| SOUTH TERMINAL PARK | 506 | 3 | 1 | 1 | 5 | 3 | 730 | 9490 |
| SQUALICUM HARBOR | 506 | 3 | 1 | 5 | 2 | 2 | 7750 | 100750 |
| VENDOVI ISLAND, BEACH 214 | 506 | 3 | 1 | 3 | 1 | 3 | 12550 | 138050 |
| Subregional Score: | 506 | | | | | | | 744373 |
| BUMSTEAD SPIT SOUTH, BEACH 223A | 507 | 3 | 1 | 3 | 1 | 3 | 1188 | 13068 |
| BUMSTEAD SPIT, BEACH 223 | 507 | 3 | 1 | 3 | 1 | 3 | 2574 | 28314 |
| LUMMI ISLAND, BEACH 223B | 507 | 3 | 1 | 3 | 1 | 3 | 1014 | 11154 |
| LUMMI ISLAND, BEACH 224 | 507 | 3 | 1 | 3 | 1 | 3 | 2805 | 30855 |
| Subregional Score: | 507 | | | | | | | 83391 |
| BIRCH BAY COUNTY PARK | 603 | 3 | 3 | 1 | 3 | 2 | 1320 | 15840 |
| BIRCH BAY STATE PARK | 603 | 5 | 5 | 1 | 5 | 3 | 6000 | 114000 |
| COTTONWOOD BEACH COUNTY PARK (undev) | 603 | 3 | 1 | 1 | 3 | 1 | 1200 | 10800 |
| Subregional Score: | 603 | | | | | | | 140640 |
| BIRCH POINT, BEACH 372 | 604 | 3 | 1 | 3 | 1 | 3 | 2930 | 32230 |
| SEMIAHMOO COUNTY PARK | 604 | 3 | 3 | 1 | 4 | 3 | 6700 | 93800 |
| Subregional Score: | 604 | | | | | | | 126030 |
| BLAINE HARBOR AND BOAT LAUNCH | 605 | 3 | 0 | 5 | 1 | 1 | 2300 | 23000 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| EWING ISLAND, BEACH 367A | 607 | 1 | 1 | 3 | 1 | 3 | 5412 | 48708 |
| LITTLE PATOS ISLAND, BEACH 366A | 607 | 1 | 1 | 3 | 1 | 3 | 4610 | 41490 |
| LITTLE SUCIA ISLAND, BEACH 367D | 607 | 1 | 1 | 3 | 1 | 3 | 4930 | 44370 |
| MATIA ISLAND STATE PARK | 607 | 5 | 5 | 5 | 5 | 5 | 20000 | 500000 |
| NORTH FINGER ISLAND, BEACH 367B | 607 | 1 | 1 | 3 | 1 | 3 | 8712 | 78408 |
| PATOS ISLAND STATE PARK | 607 | 1 | 5 | 5 | 5 | 5 | 20000 | 420000 |
| SAN JUAN ISLAND NAT'L WILDLIFE REFUGE | 607 | 5 | 0 | 1 | 1 | 5 | 48350 | 580200 |
| SOUTH FINGER ISLAND, BEACH 367C | 607 | 1 | 1 | 3 | 1 | 3 | 8375 | 75375 |
| SUCIA ISLAND STATE PARK | 607 | 1 | 5 | 5 | 5 | 5 | 45000 | 945000 |
| **Subregional Score:** | 607 | | | | | | | 2733551 |
| LIGHTHOUSE MARINE COUNTY PARK | 701 | 3 | 0 | 5 | 5 | 3 | 3960 | 63360 |
| MONUMENT COUNTY PARK (undev) | 701 | 1 | 0 | 1 | 3 | 2 | 500 | 3500 |
| **Subregional Score:** | 701 | | | | | | | 66860 |
| CACTUS ISLANDS, BEACH 353A | 801 | 1 | 1 | 3 | 1 | 3 | 2523 | 22707 |
| CACTUS ISLANDS, BEACH 353B | 801 | 1 | 1 | 3 | 1 | 3 | 4150 | 37350 |
| FISHERY POINT, BEACH 363 | 801 | 1 | 1 | 3 | 1 | 3 | 4422 | 39798 |
| JOHNS ISLAND | 801 | 1 | 5 | 5 | 5 | 5 | 1000 | 21000 |
| JOHNS ISLAND, BEACH 356 | 801 | 1 | 1 | 3 | 1 | 3 | 20368 | 183312 |
| NORTHEAST STUART ISLAND, BEACH 356A | 801 | 1 | 1 | 3 | 1 | 3 | 8780 | 79020 |
| SANDY POINT, BEACH 364 | 801 | 1 | 1 | 3 | 1 | 3 | 2640 | 23760 |
| SAN JUAN ISLAND NAT'L WILDLIFE REFUGE | 801 | 5 | 0 | 1 | 1 | 5 | 1765 | 21180 |
| SATELLITE ISLAND, BEACH 358 | 801 | 1 | 1 | 3 | 1 | 3 | 14295 | 128655 |
| SOUTHEAST STUART ISLAND, BEACH 356B | 801 | 1 | 1 | 3 | 1 | 3 | 3792 | 34128 |
| STUART ISLAND STATE PARK | 801 | 1 | 5 | 5 | 3 | 5 | 5130 | 97470 |
| WALDRON ISLAND, BEACH 361A | 801 | 1 | 1 | 3 | 1 | 3 | 1467 | 13203 |
| **Subregional Score:** | 801 | | | | | | | 701583 |
| KELLETT BLUFF, BEACH 341 | 802 | 3 | 5 | 3 | 1 | 3 | 11933 | 178995 |
| LIME KILN POINT COUNTY PARK | 802 | 5 | 5 | 1 | 5 | 4 | 2550 | 51000 |
| McCRACKEN POINT, BEACH 340 | 802 | 1 | 1 | 3 | 1 | 3 | 2891 | 26019 |
| SAN JUAN COUNTY PARK | 802 | 3 | 5 | 5 | 5 | 4 | 1000 | 22000 |
| SPIEDEN ISLAND, BEACH 352 | 802 | 1 | 1 | 3 | 1 | 3 | 1458 | 13122 |
| STUART ISLAND, BEACH 359 | 802 | 1 | 1 | 3 | 1 | 3 | 36050 | 324450 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| Subregional Score: | 802 | | | | | | | 615586 |
| BURROWS ISLAND STATE PARK (undev) | 901 | 1 | 0 | 1 | 2 | 3 | 1000 | 7000 |
| CAPE ST. MARY, BEACH 311 | 901 | 1 | 1 | 3 | 1 | 3 | 11557 | 104013 |
| DECATUR HEAD/WHITE CLIFF, BEACH 323 | 901 | 1 | 1 | 3 | 1 | 3 | 12516 | 112644 |
| DECATURE BEACH, BEACH 324 | 901 | 1 | 1 | 3 | 1 | 3 | 1650 | 14850 |
| JAMES ISLAND STATE PARK | 901 | 3 | 5 | 5 | 5 | 5 | 12340 | 283820 |
| LOPEZ PASS, BEACH 312A | 901 | 1 | 1 | 3 | 1 | 3 | 5913 | 53217 |
| POINT COLVILLE | 901 | 3 | 3 | 3 | 5 | 4 | 2000 | 36000 |
| SAN JUAN ISLAND NATL WILDLIFE REFUGE | 901 | 5 | 0 | 1 | 1 | 5 | 1765 | 21180 |
| SHARPE COUNTY PARK (undev) | 901 | 3 | 1 | 1 | 2 | 4 | 2640 | 29040 |
| WASHINGTON PARK | 901 | 3 | 5 | 5 | 5 | 4 | 40560 | 892320 |
| Subregional Score: | 901 | | | | | | | 1554084 |
| BLAKELY ISLAND, BEACH 290 | 902 | 1 | 1 | 3 | 1 | 3 | 27935 | 251415 |
| DEER POINT, BEACH 277 | 902 | 1 | 0 | 3 | 1 | 3 | 2700 | 21600 |
| DOE BAY, BEACH 281A | 902 | 3 | 1 | 3 | 1 | 3 | 1509 | 16599 |
| DOE ISLAND STATE PARK | 902 | 1 | 3 | 5 | 5 | 5 | 2050 | 38950 |
| ORCAS ISLAND, BEACH 279 | 902 | 1 | 1 | 3 | 1 | 4 | 1446 | 14460 |
| ORCAS ISLAND, BEACH 282 | 902 | 1 | 1 | 3 | 1 | 3 | 1694 | 15246 |
| ORCAS ISLAND, BEACH 283 | 902 | 1 | 1 | 3 | 1 | 3 | 3907 | 35163 |
| POINT LAWRENCE RECREATION SITE (undev) | 902 | 1 | 1 | 3 | 2 | 4 | 536 | 5896 |
| Subregional Score: | 902 | | | | | | | 399329 |
| BARNES ISLAND, BEACH 229 | 903 | 1 | 1 | 3 | 1 | 3 | 6457 | 58113 |
| CARTER POINT | 903 | 1 | 0 | 1 | 2 | 3 | 2500 | 17500 |
| CLARK ISLAND STATE PARK | 903 | 1 | 1 | 4 | 3 | 5 | 6000 | 84000 |
| DEVILS SLIDE, BEACH 220A | 903 | 1 | 1 | 3 | 1 | 3 | 3188 | 28692 |
| SAN JUAN ISLAND NATL WILDLIFE REFUGE | 903 | 5 | 0 | 1 | 1 | 5 | 3530 | 42360 |
| Subregional Score: | 903 | | | | | | | 230665 |
| BEACH HAVEN, BEACH 238 | 1001 | 1 | 1 | 3 | 1 | 3 | 1201 | 10809 |
| FREEMAN ISLAND STATE PARK (undev) | 1001 | 1 | 0 | 1 | 1 | 5 | 100 | 800 |
| LOVER'S COVE, BEACH 239 | 1001 | 1 | 1 | 3 | 1 | 3 | 2772 | 24948 |
| POINT DOUGHTY RECREATION SITE | 1001 | 1 | 3 | 1 | 1 | 4 | 800 | 8000 |
| POINT DOUGHTY, BEACH 236 | 1001 | 1 | 1 | 3 | 1 | 3 | 8256 | 74304 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| POINT HAMMOND, BEACH 362 | 1001 | 1 | 1 | 3 | 1 | 3 | 3218 | 28962 |
| PRESIDENT'S CHANNEL, BEACH 240 | 1001 | 1 | 1 | 3 | 1 | 3 | 6448 | 58032 |
| SPRING PASSAGE/NORTH PASS, BEACH 240A | 1001 | 1 | 1 | 3 | 1 | 3 | 15813 | 142317 |
| WALDRON ISLAND, BEACH 361 | 1001 | 1 | 1 | 3 | 1 | 3 | 4950 | 44550 |
| Subregional Score: | 1001 | | | | | | | 392722 |
| NORTH BEACH ROAD END | 1002 | 1 | 1 | 3 | 4 | 5 | 40 | 560 |
| POINT LAWRENCE, BEACH 231 | 1002 | 1 | 1 | 3 | 1 | 3 | 26386 | 237474 |
| POINT THOMPSON, BEACH 234 | 1002 | 1 | 1 | 3 | 1 | 3 | 1213 | 10917 |
| RACCOON POINT, BEACH 233 | 1002 | 1 | 1 | 3 | 1 | 3 | 7077 | 63693 |
| Subregional Score: | 1002 | | | | | | | 312644 |
| HENRY ISLAND, BEACH 339A | 1101 | 1 | 1 | 3 | 1 | 3 | 2408 | 21672 |
| POSEY ISLAND STATE PARK | 1101 | 1 | 1 | 3 | 5 | 3 | 1000 | 13000 |
| SPIEDEN BLUFF, BEACH 353 | 1101 | 1 | 1 | 3 | 1 | 3 | 1054 | 9486 |
| SPIEDEN ISLAND, BEACH 352A | 1101 | 1 | 1 | 3 | 1 | 3 | 6460 | 58140 |
| Subregional Score: | 1101 | | | | | | | 102298 |
| REUBEN TARTE COUNTY PARK (undev) | 1102 | 3 | 3 | 1 | 3 | 5 | 600 | 9000 |
| ROCKY BAY/LIMESTONE POINT, BEACH 336 | 1102 | 1 | 1 | 3 | 1 | 3 | 11827 | 106443 |
| SAN JUAN CHANNEL, BEACH 334 | 1102 | 1 | 1 | 3 | 1 | 3 | 14516 | 130644 |
| SAN JUAN ISLAND, BEACH 330 | 1102 | 1 | 1 | 3 | 1 | 3 | 8432 | 75888 |
| SHAW ISLAND, BEACH 258 | 1102 | 1 | 1 | 3 | 1 | 3 | 1607 | 14463 |
| Subregional Score: | 1102 | | | | | | | 336438 |
| CATTLE POINT LIGHTHOUSE RECREATION SITE | 1103 | 3 | 5 | 1 | 5 | 5 | 6600 | 125400 |
| SHARK REEF, BEACH 304 | 1103 | 1 | 1 | 3 | 1 | 3 | 13965 | 125685 |
| SHARK REEF RECREATION SITE | 1103 | 3 | 1 | 3 | 3 | 3 | 1700 | 22100 |
| SAN JUAN CHANNEL, BEACH 298 | 1103 | 1 | 1 | 3 | 1 | 3 | 5347 | 48123 |
| ROCK POINT, BEACH 303 | 1103 | 1 | 1 | 3 | 1 | 3 | 1312 | 11808 |
| TURN ISLAND STATE PARK | 1103 | 1 | 1 | 5 | 5 | 5 | 16000 | 272000 |
| FISHERMAN BAY, BEACH 299 | 1103 | 1 | 1 | 3 | 1 | 3 | 1660 | 14940 |
| SAN JUAN ISLAND NAT'L WILDLIFE REFUGE | 1103 | 5 | 0 | 1 | 1 | 5 | 1765 | 21180 |
| Subregional Score: | 1103 | | | | | | | 641236 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| NORTHWEST McCONNELL ROCK STATE PARK (undev) | 1104 | 1 | 1 | 3 | 3 | 4 | 2000 | 24000 |
| WASP PASSAGE, BEACH 259 | 1104 | 1 | 1 | 3 | 1 | 3 | 7403 | 66627 |
| SHAW ISLAND, BEACH 260 | 1104 | 1 | 1 | 3 | 1 | 3 | 4620 | 41580 |
| COON ISLAND, BEACH 245A | 1104 | 1 | 1 | 3 | 1 | 3 | 1891 | 17019 |
| NECK POINT, BEACH 259A | 1104 | 1 | 1 | 3 | 1 | 3 | 12021 | 108189 |
| McCONNELL ISLAND, BEACH 245 | 1104 | 1 | 1 | 3 | 1 | 3 | 2066 | 18594 |
| CRANE ISLAND, BEACH 250B | 1104 | 3 | 1 | 3 | 1 | 3 | 1452 | 15972 |
| BROKEN POINT, BEACH 260A | 1104 | 1 | 1 | 3 | 1 | 3 | 4039 | 36351 |
| CRANE ISLAND, BEACH 250A | 1104 | 1 | 1 | 3 | 1 | 3 | 3933 | 35397 |
| JONES ISLAND STATE PARK | 1104 | 1 | 5 | 5 | 5 | 5 | 25000 | 525000 |
| Subregional Score: | 1104 | | | | | | | 888729 |
| UPRIGHT CHANNEL RECREATION SITE (undev) | 1105 | 1 | 1 | 3 | 3 | 3 | 700 | 7700 |
| UPRIGHT HEAD, BEACH 294 | 1105 | 1 | 1 | 3 | 1 | 3 | 6794 | 61146 |
| SHAW COUNTY PARK | 1105 | 1 | 5 | 5 | 5 | 4 | 5800 | 116000 |
| ODLIN COUNTY PARK | 1105 | 3 | 3 | 5 | 5 | 4 | 7200 | 144000 |
| HANKIN POINT, BEACH 264 | 1105 | 1 | 1 | 3 | 1 | 3 | 11344 | 102096 |
| CANOE ISLAND, BEACH 296A | 1105 | 1 | 1 | 3 | 1 | 3 | 5196 | 46764 |
| INDIAN COVE, BEACH 296 | 1105 | 1 | 1 | 3 | 1 | 3 | 3249 | 29241 |
| FLAT POINT, BEACH 295 | 1105 | 1 | 1 | 3 | 1 | 3 | 6081 | 54729 |
| Subregional Score: | 1105 | | | | | | | 561676 |
| SHAW ISLAND, BEACH 260C | 1106 | 1 | 1 | 3 | 1 | 3 | 1927 | 17343 |
| WILLOW ISLAND | 1106 | 3 | 0 | 1 | 1 | 5 | 2200 | 22000 |
| FRANCISCAN DOCK | 1106 | 1 | 1 | 5 | 1 | 3 | 200 | 2200 |
| HARNEY CHANNEL, BEACH 262 | 1106 | 1 | 1 | 3 | 1 | 3 | 2203 | 19827 |
| BLAKELY ISLAND, BEACH 292 | 1106 | 1 | 1 | 3 | 1 | 3 | 7649 | 68841 |
| DIAMOND POINT, BEACH 265 | 1106 | 1 | 1 | 3 | 1 | 3 | 6685 | 60165 |
| BLAKELY ISLAND, BEACH 292A | 1106 | 1 | 1 | 3 | 1 | 3 | 2121 | 19089 |
| FROST ISLAND, BEACH 318 | 1106 | 1 | 1 | 3 | 1 | 3 | 6138 | 55242 |
| BLIND ISLAND STATE PARK | 1106 | 1 | 2 | 4 | 5 | 5 | 100 | 1700 |
| BLIND BAY, BEACH 260D | 1106 | 1 | 2 | 5 | 3 | 5 | 2171 | 34736 |
| Subregional Score: | 1106 | | | | | | | 301143 |
| OBSTRUCTION PASS BOAT LAUNCH | 1107 | 1 | 0 | 4 | 1 | 3 | 20 | 180 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| OBSTRUCTION PASS COUNTY PARK (undev) | 1107 | 3 | 1 | 3 | 1 | 4 | 60 | 720 |
| OBSTRUCTION PASS RECREATION SITE | 1107 | 1 | 5 | 3 | 5 | 4 | 400 | 7200 |
| Subregional Score: | 1107 | | | | | | | 8100 |
| ARMITAGE ISLAND, BEACH 290A | 1108 | 1 | 1 | 3 | 1 | 3 | 2284 | 20556 |
| THATCHER PASS, BEACH 291 | 1108 | 1 | 1 | 3 | 1 | 3 | 11283 | 101547 |
| THATCHER PASS/FAUNTLEROY POINT, BEACH 322 | 1108 | 1 | 1 | 3 | 1 | 3 | 16219 | 145971 |
| Subregional Score: | 1108 | | | | | | | 268074 |
| MOSQUITO PASS, BEACH 344 | 1201 | 1 | 1 | 3 | 1 | 3 | 488 | 4392 |
| MITCHELL BAY ISLET | 1201 | 1 | 1 | 3 | 1 | 5 | 200 | 2200 |
| ENGLISH CAMP HISTORICAL PARK | 1201 | 1 | 3 | 3 | 5 | 4 | 7920 | 126720 |
| Subregional Score: | 1201 | | | | | | | 133312 |
| PORT OF FRIDAY HARBOR | 1202 | 1 | 0 | 5 | 2 | 3 | 800 | 8800 |
| PEAR POINT, BEACH 332 | 1202 | 1 | 1 | 3 | 1 | 3 | 6097 | 54873 |
| Subregional Score: | 1202 | | | | | | | 63673 |
| AMERICAN CAMP | 1203 | 3 | 1 | 3 | 5 | 5 | 22440 | 381480 |
| GRIFFIN BAY RECREATION SITE | 1203 | 1 | 1 | 5 | 5 | 3 | 327 | 4905 |
| GRIFFIN BAY, BEACH 326 | 1203 | 1 | 1 | 3 | 1 | 3 | 3498 | 31482 |
| Subregional Score: | 1203 | | | | | | | 417867 |
| DEER HARBOR, BEACH 240B | 1207 | 1 | 1 | 3 | 1 | 3 | 2490 | 22410 |
| DOUBLE ISLAND, BEACH 251 | 1208 | 1 | 1 | 3 | 1 | 3 | 3960 | 35640 |
| SHEEP ISLAND, BEACH 255A | 1208 | 1 | 1 | 3 | 1 | 3 | 1081 | 9729 |
| OAK ISLAND, BEACH 257A | 1208 | 1 | 1 | 3 | 1 | 3 | 300 | 2700 |
| DOUBLE ISLAND, BEACH 251A | 1208 | 1 | 1 | 3 | 1 | 3 | 1900 | 17100 |
| SKULL ISLAND STATE PARK (undev) | 1208 | 1 | 1 | 3 | 1 | 5 | 2000 | 22000 |
| Subregional Score: | 1208 | | | | | | | 87169 |
| OLGA MARINE STATE PARK | 1209 | 1 | 0 | 5 | 2 | 2 | 60 | 600 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| OBSTRUCTION PASS, BEACH 276 | 1209 | 1 | 5 | 3 | 5 | 4 | 6941 | 124938 |
| EAST SOUND, BEACH 267 | 1209 | 1 | 1 | 3 | 1 | 3 | 5024 | 45216 |
| EAST SOUND, BEACH 275 | 1209 | 1 | 1 | 3 | 1 | 3 | 3786 | 34074 |
| FISHING BAY, BEACH 270A | 1209 | 1 | 1 | 3 | 1 | 3 | 1240 | 11160 |
| TWIN ROCKS STATE PARK (undev) | 1209 | 3 | 0 | 1 | 1 | 5 | 300 | 3000 |
| EAST SOUND, BEACH 274 | 1209 | 1 | 1 | 3 | 1 | 3 | 6142 | 55278 |
| EAST SOUND, BEACH 266 | 1209 | 1 | 1 | 3 | 1 | 3 | 6155 | 55395 |
| FLOWER ISLE, BEACH 266B | 1209 | 1 | 1 | 3 | 1 | 3 | 100 | 900 |
| OLGA COUNTY PARK | 1209 | 1 | 0 | 5 | 2 | 2 | 30 | 300 |
| EAST SOUND, BEACH 270 | 1209 | 1 | 1 | 3 | 1 | 3 | 4790 | 43110 |
| ROSARIO, BEACH 272 | 1209 | 1 | 1 | 3 | 1 | 3 | 4999 | 44991 |
| Subregional Score: | 1209 | | | | | | | 418962 |
| HUNTER BAY, BEACH 313A | 1210 | 1 | 1 | 3 | 1 | 3 | 1300 | 11700 |
| READS BAY, BEACH 319 | 1210 | 1 | 1 | 3 | 1 | 3 | 2211 | 19899 |
| CENTER ISLAND RECREATION SITE (undev) | 1210 | 1 | 1 | 3 | 1 | 4 | 525 | 5250 |
| TRUMP ISLAND, BEACH 320 | 1210 | 1 | 1 | 3 | 1 | 3 | 3599 | 32391 |
| RAM ISLAND, BEACH 312B | 1210 | 1 | 1 | 3 | 1 | 3 | 3890 | 35010 |
| SPENCER SPIT STATE PARK | 1210 | 3 | 5 | 5 | 5 | 5 | 7840 | 180320 |
| LOPEZ SOUND, BEACH 317 | 1210 | 1 | 1 | 3 | 1 | 3 | 11773 | 105957 |
| CENTER ISLAND, BEACH 324A | 1210 | 1 | 1 | 3 | 1 | 3 | 11322 | 101898 |
| MUD BAY, BEACH P2 | 1210 | 1 | 1 | 3 | 1 | 3 | 5372 | 48348 |
| LOPEZ SOUND, BEACH 315 | 1210 | 1 | 1 | 3 | 1 | 3 | 9066 | 81594 |
| HUNTER BAY DOCK COUNTY PARK | 1210 | 1 | 1 | 5 | 5 | 3 | 100 | 1500 |
| HUNTER BAY, BEACH 314 | 1210 | 1 | 1 | 3 | 1 | 3 | 3366 | 30294 |
| UNNAMED STATE PARK, BEACH 325A | 1210 | 1 | 1 | 3 | 1 | 3 | 1600 | 14400 |
| HUNTER BAY, BEACH 313 | 1210 | 1 | 1 | 3 | 1 | 3 | 2098 | 18882 |
| DECATUR ISLAND, BEACH 319A | 1210 | 1 | 1 | 3 | 1 | 3 | 2508 | 22572 |
| READS BAY, BEACH 325 | 1210 | 1 | 1 | 3 | 1 | 3 | 1986 | 17874 |
| MUD BAY, BEACH P1 | 1210 | 3 | 1 | 3 | 1 | 3 | 5986 | 65846 |
| Subregional Score: | 1210 | | | | | | | 793735 |
| LACONNER WATERFRONT | 1401 | 5 | 0 | 5 | 1 | 1 | 300 | 3600 |
| SKAGIT ISLAND STATE PARK (undev) | 1401 | 1 | 1 | 3 | 2 | 4 | 100 | 1100 |
| EVERETT JETTY STATE PARK | 1401 | 5 | 5 | 5 | 5 | 4 | 13200 | 316800 |
| THOMPSON ROAD ACCESS SITE (undev) | 1401 | 1 | 1 | 1 | 3 | 3 | 200 | 1800 |
| DUGUALLA BAY COUNTY PARK | 1401 | 1 | 1 | 3 | 3 | 2 | 100 | 1000 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| PIONEER PARK | 1401 | 1 | 1 | 5 | 5 | 4 | 40 | 640 |
| SKAGIT WILDLIFE AREA | 1401 | 5 | 1 | 5 | 3 | 5 | 21120 | 401280 |
| LACONNER MARINA | 1401 | 1 | 0 | 5 | 1 | 1 | 5320 | 42560 |
| CATALINA SHORES MARINE PARK | 1401 | 1 | 1 | 5 | 1 | 1 | 1000 | 9000 |
| HOPE ISLAND STATE PARK | 1401 | 1 | 1 | 3 | 3 | 4 | 100 | 1200 |
| ROAD END OF SPUR ROAD OFF BORGMAN ROAD | 1401 | 1 | 1 | 3 | 1 | 3 | 40 | 360 |
| MINI HARBOR PARK | 1401 | 1 | 1 | 1 | 1 | 1 | 500 | 2500 |
| MAPLE GROVE BOAT LAUNCH | 1401 | 3 | 0 | 5 | 5 | 1 | 30 | 420 |
| CITY BEACH PARK | 1401 | 1 | 5 | 1 | 5 | 3 | 2100 | 31500 |
| DECEPTION PASS STATE PARK | 1401 | 3 | 5 | 1 | 5 | 5 | 21120 | 401280 |
| DUGUALLA BAY, BEACH 144 | 1401 | 1 | 1 | 3 | 1 | 3 | 4800 | 43200 |
| MARINER'S COVE BOAT LAUNCH | 1401 | 1 | 1 | 5 | 1 | 2 | 40 | 400 |
| UTSALADY NO. 1 COUNTY PARK (undev) | 1401 | 3 | 1 | 3 | 3 | 2 | 40 | 480 |
| DUGUALLA BAY, BEACH 142 | 1401 | 1 | 1 | 3 | 1 | 3 | 4800 | 43200 |
| FLINTSTONE PARK | 1401 | 1 | 1 | 5 | 5 | 2 | 500 | 7000 |
| Subregional Score: | 1401 | | | | | | | 1309320 |
| LONG POINT BEACH | 1402 | 5 | 3 | 3 | 3 | 3 | 60 | 1020 |
| MONROE'S LANDING COUNTY PARK | 1402 | 3 | 1 | 5 | 3 | 3 | 60 | 900 |
| TOWN BOAT LAUNCH | 1402 | 3 | 0 | 4 | 2 | 1 | 750 | 7500 |
| TOWN PARK | 1402 | 3 | 1 | 3 | 5 | 3 | 450 | 6750 |
| PENN COVE ON DECEPTION PASS | 1402 | 3 | 1 | 3 | 1 | 3 | 200 | 2200 |
| PENN COVE TIDELANDS | 1402 | 3 | 1 | 3 | 1 | 3 | 15000 | 165000 |
| COUPEVILLE WHARF | 1402 | 3 | 0 | 5 | 1 | 3 | 200 | 2400 |
| Subregional Score: | 1402 | | | | | | | 185770 |
| SEAWALL PARK | 1403 | 1 | 1 | 3 | 3 | 4 | 1000 | 12000 |
| CAVALERO BEACH COUNTY PARK | 1403 | 3 | 1 | 4 | 4 | 3 | 300 | 4500 |
| SARATOGA PASS TIDELANDS | 1403 | 5 | 1 | 3 | 1 | 3 | 8500 | 110500 |
| PHIL SIMON MEMORIAL PARK | 1403 | 3 | 1 | 4 | 4 | 2 | 400 | 5600 |
| Subregional Score: | 1403 | | | | | | | 132600 |
| FREELAND COUNTY PARK | 1404 | 1 | 5 | 5 | 5 | 3 | 1550 | 29450 |
| LEQUE ISLAND ACCESS | 1405 | 3 | 0 | 1 | 3 | 4 | 500 | 5500 |
| END OF SOUNDVIEW DRIVE N.W. | 1405 | 1 | 0 | 1 | 3 | 2 | 60 | 420 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| DAVIS SLOUGH | 1405 | 3 | 0 | 1 | 3 | 4 | 5000 | 55000 |
| KAYAK POINT COUNTY PARK | 1405 | 5 | 5 | 5 | 5 | 4 | 3300 | 79200 |
| Subregional Score: | 1405 | | | | | | | 140120 |
| MUKILTEO STATE PARK | 1406 | 3 | 5 | 5 | 4 | 3 | 1495 | 29900 |
| CLINTON RECREATIONAL PIER | 1406 | 3 | 0 | 5 | 5 | 1 | 100 | 1400 |
| MUKILTEO FISHING PIER | 1406 | 3 | 0 | 1 | 1 | 1 | 6 | 36 |
| GLENDALE ROAD END | 1406 | 3 | 1 | 3 | 3 | 2 | 40 | 480 |
| HARBORVIEW PARK | 1406 | 1 | 0 | 1 | 1 | 3 | 1200 | 7200 |
| NAKEETA BEACH/TIDELANDS (undev) | 1406 | 3 | 0 | 1 | 1 | 2 | 570 | 3990 |
| MISSION BEACH PARK | 1406 | 1 | 1 | 1 | 3 | 2 | 400 | 3200 |
| DARLINGTON BEACH/TIDELANDS (undev) | 1406 | 1 | 0 | 1 | 1 | 1 | 4600 | 18400 |
| MARINE PARK BOAT LAUNCH | 1406 | 1 | 0 | 5 | 2 | 3 | 710 | 7810 |
| HOWARTH PARK | 1406 | 1 | 5 | 1 | 5 | 3 | 3960 | 59400 |
| GLENDALE, BEACH 99 | 1406 | 3 | 1 | 3 | 3 | 3 | 1160 | 15080 |
| END OF CULTUS BAY ROAD | 1406 | 1 | 1 | 3 | 3 | 2 | 60 | 600 |
| WEST PASS BRIDGE | 1406 | 1 | 0 | 5 | 3 | 1 | 50 | 500 |
| NORTH MARINE VIEW PARK | 1406 | 1 | 0 | 1 | 0 | 2 | 600 | 2400 |
| FOREST PARK | 1406 | 1 | 2 | 1 | 3 | 3 | 3000 | 30000 |
| POSSESSION BEACH PARK | 1406 | 1 | 3 | 3 | 3 | 3 | 500 | 6500 |
| SOUTH MARINE VIEW PARK | 1406 | 1 | 0 | 1 | 0 | 2 | 600 | 2400 |
| CAMANO ISLAND STATE PARK | 1406 | 3 | 3 | 5 | 5 | 5 | 6700 | 140700 |
| GLENDALE, BEACH 100 | 1406 | 3 | 1 | 3 | 3 | 3 | 2550 | 33150 |
| Subregional Score: | 1406 | | | | | | | 363146 |
| SALISBURY POINT COUNTY PARK | 1501 | 1 | 3 | 5 | 5 | 3 | 520 | 8840 |
| BYWATER BAY STATE PARK (undev) | 1501 | 3 | 1 | 3 | 3 | 3 | 21944 | 285272 |
| WHITE ROCK | 1501 | 1 | 1 | 3 | 3 | 3 | 1500 | 16500 |
| MATS MATS BAY BOAT LAUNCH | 1501 | 3 | 0 | 5 | 5 | 1 | 40 | 560 |
| FOULWEATHER BLUFF, BEACH 64 | 1501 | 1 | 1 | 3 | 1 | 3 | 3364 | 30276 |
| SHINE TIDELANDS | 1501 | 1 | 1 | 4 | 4 | 3 | 1500 | 19500 |
| Subregional Score: | 1501 | | | | | | | 360948 |
| HICKS COUNTY PARK | 1504 | 3 | 5 | 5 | 5 | 4 | 460 | 10120 |
| KITSAP MEMORIAL STATE PARK | 1504 | 1 | 5 | 3 | 5 | 3 | 1797 | 30549 |
| SQUAMISH HARBOR, BEACH 59 | 1504 | 3 | 1 | 3 | 3 | 3 | 1335 | 17355 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| TOANDOS PENINSULA, BEACH 57B | 1504 | 1 | 1 | 3 | 3 | 3 | 12050 | 132550 |
| CASE SHOAL, BEACH 59A | 1504 | 1 | 1 | 3 | 3 | 3 | 4000 | 44000 |
| Subregional Score: | 1504 | | | | | | | 234574 |
| SCENIC BEACH STATE PARK | 1505 | 5 | 3 | 3 | 5 | 5 | 1600 | 33600 |
| TOANDOS TIDELANDS STATE PARK | 1505 | 3 | 1 | 3 | 3 | 3 | 10455 | 135915 |
| Subregional Score: | 1505 | | | | | | | 169515 |
| TABOOK POINT, BEACH 57 | 1506 | 3 | 1 | 3 | 3 | 3 | 3280 | 42640 |
| SEAL ROCK CAMPGROUND | 1506 | 5 | 4 | 3 | 3 | 5 | 2700 | 54000 |
| FLAPJACK COVE TIDELANDS, BEACH 54 | 1506 | 1 | 1 | 3 | 3 | 3 | 567 | 6237 |
| BOLTON PENINSULA, BEACH 56 | 1506 | 1 | 1 | 3 | 3 | 3 | 2400 | 26400 |
| JACKSON COVE, BEACH 55 | 1506 | 1 | 1 | 3 | 3 | 3 | 2791 | 30701 |
| DOSEWALLIPS STATE PARK | 1506 | 3 | 5 | 4 | 4 | 4 | 5250 | 105000 |
| RIGHT SMART COVE STATE PARK (undev) | 1506 | 1 | 1 | 3 | 3 | 3 | 100 | 1100 |
| H.J. CARROLL STATE PARK (undev) | 1506 | 1 | 1 | 3 | 3 | 3 | 560 | 6160 |
| PLEASANT HARBOR STATE PARK | 1506 | 1 | 0 | 5 | 5 | 1 | 100 | 1200 |
| Subregional Score: | 1506 | | | | | | | 273438 |
| POINT WHITNEY TIDELANDS | 1507 | 5 | 5 | 5 | 5 | 4 | 2000 | 48000 |
| QUILCENE BOAT HAVEN | 1507 | 3 | 3 | 5 | 5 | 3 | 100 | 1900 |
| Subregional Score: | 1507 | | | | | | | 49900 |
| ANDERSON COVE, BEACH 40 | 1508 | 1 | 1 | 3 | 1 | 3 | 2145 | 19305 |
| DEWATTO BAY, BEACH 44A | 1508 | 3 | 1 | 3 | 1 | 3 | 514 | 5654 |
| HOODSPORT, BEACH 43 | 1508 | 3 | 1 | 3 | 1 | 3 | 2951 | 32461 |
| LILLIWAUP TIDELANDS STATE PARK | 1508 | 3 | 1 | 1 | 3 | 3 | 4122 | 45342 |
| LILLIWAUP PUBLIC BEACH | 1508 | 1 | 5 | 1 | 3 | 3 | 900 | 11700 |
| JORSTED CREEK BEACH | 1508 | 3 | 2 | 1 | 3 | 3 | 500 | 6000 |
| HARVEY RENDSLAND STATE PARK (undev) | 1508 | 1 | 1 | 1 | 3 | 4 | 1405 | 14050 |
| HOOD CANAL SALMON HATCHERY | 1508 | 5 | 1 | 1 | 3 | 2 | 600 | 7200 |
| TRITON COVE, BEACH 50 | 1508 | 1 | 1 | 3 | 3 | 3 | 2610 | 28710 |
| HOOD CANAL, BEACH 47 | 1508 | 1 | 1 | 3 | 1 | 3 | 900 | 8100 |
| DEWATTO BAY, BEACH 44B | 1508 | 3 | 1 | 3 | 1 | 3 | 713 | 7843 |
| HOOD CANAL, BEACH 46 | 1508 | 1 | 1 | 3 | 1 | 3 | 1643 | 14787 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| HOOD CANAL, BEACH 48 | 1508 | 1 | 1 | 3 | 1 | 3 | 9072 | 81648 |
| Subregional Score: | 1508 | | | | | | | 282800 |
| HOOD CANAL RECREATIONAL PARK | 1509 | 1 | 0 | 5 | 2 | 2 | 1000 | 10000 |
| POTLATCH STATE PARK | 1509 | 5 | 5 | 5 | 5 | 4 | 9570 | 229680 |
| Subregional Score: | 1509 | | | | | | | 239680 |
| BELFAIR STATE PARK | 1510 | 3 | 5 | 3 | 5 | 4 | 3520 | 70400 |
| UNION PUBLIC LAUNCHING AREA | 1510 | 3 | 0 | 5 | 1 | 1 | 30 | 300 |
| TWANOH STATE PARK | 1510 | 5 | 5 | 5 | 5 | 5 | 2867 | 71675 |
| PORT OF ALLYN PUBLIC BOAT RAMP | 1510 | 3 | 0 | 5 | 2 | 3 | 30 | 390 |
| Subregional Score: | 1510 | | | | | | | 142765 |
| PICNIC POINT COUNTY PARK | 1601 | 3 | 5 | 3 | 5 | 3 | 1200 | 22800 |
| POINT NO POINT COUNTY PARK | 1601 | 3 | 5 | 3 | 5 | 3 | 1895 | 36005 |
| DOUBLE BLUFF EAST BEACH | 1601 | 3 | 3 | 2 | 2 | 3 | 40 | 520 |
| DAVE MACKIE MEMORIAL COUNTY PARK | 1601 | 1 | 5 | 5 | 5 | 3 | 400 | 7600 |
| EGLON BOAT LAUNCH | 1601 | 1 | 0 | 5 | 3 | 2 | 40 | 440 |
| HANSVILLE, BEACH 69 | 1601 | 1 | 1 | 3 | 1 | 3 | 2420 | 21780 |
| OLYMPIC BEACH PARK | 1601 | 5 | 3 | 1 | 5 | 2 | 300 | 4800 |
| POINT NO POINT, BEACH 68 | 1601 | 3 | 1 | 3 | 1 | 3 | 3036 | 33396 |
| BRACKETTS LANDING BEACH | 1601 | 5 | 5 | 1 | 5 | 3 | 1800 | 34200 |
| MEADOWDALE COUNTY PARK (undev) | 1601 | 1 | 1 | 1 | 1 | 2 | 840 | 5040 |
| Subregional Score: | 1601 | | | | | | | 166581 |
| SHILSHOLE BAY MARINA | 1602 | 3 | 0 | 5 | 2 | 2 | 4000 | 48000 |
| KINGSTON MARINA | 1602 | 1 | 0 | 5 | 1 | 2 | 400 | 3600 |
| BALLARD ELKS PUBLIC ACCESS | 1602 | 1 | 0 | 0 | 0 | 3 | 100 | 400 |
| ARNESS COUNTY PARK | 1602 | 1 | 3 | 1 | 5 | 3 | 400 | 5200 |
| RICHMOND BEACH COUNTY PARK | 1602 | 3 | 3 | 3 | 5 | 4 | 900 | 16200 |
| HIRAM M. CHITTENDON LOCKS | 1602 | 5 | 0 | 1 | 1 | 2 | 2500 | 22500 |
| CARKEEK PARK | 1602 | 1 | 3 | 3 | 3 | 3 | 2000 | 26000 |
| HARBOR ISLAND MARINA | 1602 | 1 | 0 | 5 | 1 | 1 | 100 | 800 |
| GOLDEN GARDENS PARK | 1602 | 3 | 5 | 5 | 5 | 3 | 3850 | 80850 |
| DISCOVERY PARK | 1602 | 1 | 1 | 3 | 5 | 4 | 12000 | 168000 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| ANTHONY'S HOME PORT, PUBLIC ACCESS | 1602 | 1 | 0 | 0 | 0 | 3 | 100 | 400 |
| INDIANOLA DOCK | 1602 | 1 | 0 | 4 | 1 | 2 | 40 | 320 |
| COMMODORE PARK | 1602 | 1 | 0 | 1 | 1 | 2 | 1200 | 6000 |
| SUQUAMISH CENTER | 1602 | 1 | 1 | 5 | 3 | 2 | 1500 | 18000 |
| FAY BAINBRIDGE STATE PARK | 1602 | 3 | 3 | 5 | 5 | 3 | 1420 | 26980 |
| Subregional Score: | 1602 | | | | | | | 423250 |
| MANCHESTER BOAT LAUNCH | 1603 | 1 | 0 | 5 | 2 | 3 | 40 | 440 |
| MAGNOLIA PARK | 1603 | 1 | 0 | 1 | 2 | 2 | 1200 | 7200 |
| EAGLE HARBOR PARK | 1603 | 1 | 0 | 5 | 3 | 2 | 1000 | 11000 |
| HARPER COUNTY PARK | 1603 | 1 | 1 | 4 | 3 | 2 | 500 | 5500 |
| EDMONDS MARINA BEACH | 1603 | 5 | 5 | 5 | 5 | 2 | 978 | 21516 |
| HARBOR VISTA PARK (undev) | 1603 | 1 | 1 | 1 | 2 | 2 | 1000 | 7000 |
| RESTORATION POINT | 1603 | 1 | 0 | 1 | 2 | 2 | 1000 | 6000 |
| BLAKE ISLAND STATE PARK | 1603 | 1 | 5 | 5 | 5 | 5 | 17307 | 363447 |
| EMMA SCHMITZ MEMORIAL/ME-KWA MOOKS PARK | 1603 | 3 | 1 | 1 | 2 | 3 | 2000 | 20000 |
| ANDOVER PLACE | 1603 | 1 | 0 | 1 | 3 | 3 | 20 | 160 |
| LINCOLN PARK | 1603 | 1 | 5 | 3 | 5 | 3 | 5350 | 90950 |
| LOWMAN BEACH PARK | 1603 | 1 | 1 | 1 | 5 | 3 | 400 | 4400 |
| HARPER PUBLIC FISHING PIER | 1603 | 3 | 0 | 1 | 2 | 2 | 30 | 240 |
| Subregional Score: | 1603 | | | | | | | 537853 |
| ALKI BEACH PARK | 1604 | 1 | 5 | 3 | 5 | 3 | 13200 | 224400 |
| WATERFRONT PARK | 1604 | 3 | 0 | 1 | 1 | 2 | 50 | 350 |
| DON ARMENI PARK | 1604 | 1 | 0 | 5 | 2 | 2 | 1200 | 12000 |
| WASHINGTON STREET BOAT HARBOR | 1604 | 1 | 0 | 4 | 1 | 1 | 200 | 1400 |
| ELLIOTT BAY PARK | 1604 | 1 | 0 | 1 | 2 | 2 | 4100 | 24600 |
| SMITH COVE PARK | 1604 | 1 | 0 | 1 | 2 | 2 | 450 | 2700 |
| DUWAMISH HEAD | 1604 | 1 | 0 | 1 | 2 | 2 | 1500 | 9000 |
| MYRTLE EDWARDS PARK | 1604 | 3 | 0 | 1 | 2 | 2 | 1600 | 12800 |
| ALASKA SQUARE | 1604 | 1 | 0 | 1 | 1 | 1 | 225 | 900 |
| Subregional Score: | 1604 | | | | | | | 288150 |
| 20 PLACE S.W. STREET END ACCESS (undev) | 1605 | 1 | 3 | 1 | 3 | 2 | 40 | 400 |
| BROWNS POINT LIGHTHOUSE PARK | 1605 | 3 | 3 | 4 | 5 | 3 | 1200 | 21600 |
| NORMANDY BEACH PARK (undev) | 1605 | 1 | 3 | 1 | 5 | 3 | 1100 | 14300 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| POINT ROBINSON COUNTY PARK | 1605 | 1 | 1 | 3 | 5 | 4 | 550 | 7700 |
| THREE TREE STREET CORNER ACCESS | 1605 | 3 | 3 | 1 | 3 | 2 | 40 | 480 |
| DASH POINT PARK | 1605 | 3 | 5 | 3 | 5 | 2 | 700 | 12600 |
| N. E. VASHON COUNTY PARK (undev) | 1605 | 1 | 0 | 1 | 1 | 0 | 600 | 1800 |
| EAST VASHON ISLAND, BEACH 85 | 1605 | 3 | 0 | 3 | 1 | 2 | 1525 | 13725 |
| MAURY ISLAND, BEACH 83 | 1605 | 1 | 1 | 3 | 1 | 2 | 2000 | 16000 |
| DASH POINT STATE PARK | 1605 | 3 | 5 | 3 | 5 | 3 | 3000 | 57000 |
| DES MOINES MARINA | 1605 | 3 | 0 | 5 | 1 | 2 | 100 | 1100 |
| DUMAS BAY PARK WILDLIFE SANCTUARY (undev) | 1605 | 5 | 0 | 1 | 1 | 4 | 450 | 4950 |
| POVERTY BAY COUNTY PARK (undev) | 1605 | 1 | 0 | 1 | 1 | 2 | 1190 | 5950 |
| DES MOINES FISHING PIER | 1605 | 1 | 4 | 5 | 2 | 2 | 100 | 1400 |
| SALTWATER STATE PARK | 1605 | 3 | 5 | 5 | 5 | 3 | 1445 | 30345 |
| TRAMP HARBOR FISHING PIER | 1605 | 1 | 0 | 1 | 2 | 2 | 50 | 300 |
| THREE TREE POINT | 1605 | 3 | 3 | 1 | 3 | 2 | 40 | 480 |
| ED MUNRO/SEAHURST COUNTY PARK | 1605 | 3 | 1 | 3 | 5 | 2 | 5000 | 70000 |
| REDONDO COUNTY PARK (undev) | 1605 | 3 | 5 | 5 | 5 | 3 | 1060 | 22260 |
| Subregional Score: | 1605 | | | | | | | 282390 |
| RANDALL DRIVE BOAT LAUNCH | 1606 | 1 | 0 | 5 | 2 | 2 | 60 | 600 |
| END OF 146TH AVE. S.W. (undev) | 1606 | 1 | 1 | 1 | 3 | 2 | 100 | 800 |
| WEST VASHON ISLAND, BEACH 77 | 1606 | 1 | 0 | 1 | 1 | 0 | 760 | 2280 |
| SUNRISE BEACH PARK (undev) | 1606 | 3 | 5 | 1 | 5 | 3 | 1200 | 20400 |
| JERISICH PARK | 1606 | 3 | 0 | 5 | 2 | 1 | 60 | 660 |
| WEST VASHON ISLAND, BEACH 78 | 1606 | 1 | 0 | 1 | 1 | 0 | 1780 | 5340 |
| SPRING BEACH COUNTY PARK (undev) | 1606 | 1 | 3 | 3 | 1 | 2 | 1300 | 13000 |
| OLLALA BOAT LAUNCH | 1606 | 3 | 0 | 5 | 2 | 1 | 40 | 440 |
| Subregional Score: | 1606 | | | | | | | 43520 |
| COMMENCEMENT PARK | 1607 | 3 | 3 | 1 | 5 | 3 | 500 | 7500 |
| OLD TOWN DOCK | 1607 | 5 | 0 | 5 | 1 | 2 | 10 | 130 |
| CITY WATERWAY DOCK | 1607 | 3 | 0 | 3 | 2 | 1 | 100 | 900 |
| Subregional Score: | 1607 | | | | | | | 8530 |
| POINT FOSDICK, BEACH 1A | 1608 | 1 | 1 | 3 | 1 | 3 | 900 | 8100 |
| POINT FOSDICK, BEACH 1 | 1608 | 1 | 1 | 3 | 1 | 3 | 2300 | 20700 |
| POINT EVANS, BEACH 36 | 1608 | 1 | 1 | 3 | 1 | 3 | 2600 | 23400 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| TITLOW PARK | 1608 | 3 | 5 | 1 | 5 | 2 | 1500 | 24000 |
| END OF POINT FOSDICK ROAD (undev) | 1608 | 1 | 1 | 1 | 2 | 2 | 60 | 420 |
| Subregional Score: | 1608 | | | | | | | 76620 |
| SALTARS POINT BEACH | 1609 | 3 | 5 | 1 | 5 | 2 | 500 | 8000 |
| STEILACOOM BOAT LAUNCH | 1609 | 3 | 0 | 5 | 2 | 2 | 50 | 600 |
| SUNNYSIDE BEACH PARK | 1609 | 3 | 3 | 1 | 5 | 2 | 1400 | 19600 |
| CLYDE V. DAVIDSON FISHING PIER | 1609 | 5 | 5 | 4 | 2 | 2 | 500 | 9000 |
| EAGLE ISLAND STATE PARK | 1609 | 5 | 1 | 3 | 3 | 4 | 2600 | 41600 |
| Subregional Score: | 1609 | | | | | | | 78800 |
| NISQUALLY NATIONAL WILDLIFE REFUGE | 1610 | 5 | 0 | 1 | 3 | 5 | 39700 | 555800 |
| NISQUALLY HABITAT MANAGEMENT AREA | 1610 | 5 | 0 | 5 | 3 | 4 | 5280 | 89760 |
| Subregional Score: | 1610 | | | | | | | 645560 |
| DEVILS HEAD, BEACH 13 | 1611 | 1 | 1 | 3 | 1 | 3 | 1344 | 12096 |
| TOLMIE STATE PARK | 1611 | 3 | 5 | 5 | 5 | 4 | 1800 | 39600 |
| Subregional Score: | 1611 | | | | | | | 51696 |
| END OF 9TH AVE., FOX ISLAND | 1612 | 3 | 0 | 1 | 2 | 1 | 60 | 420 |
| END OF 37TH ST. N.W. BOAT LAUNCH | 1612 | 1 | 0 | 4 | 2 | 1 | 30 | 240 |
| BERG DRIVE N.W. BOAT LAUNCH | 1612 | 1 | 0 | 4 | 2 | 1 | 60 | 480 |
| Subregional Score: | 1612 | | | | | | | 1140 |
| MAPLE HOLLOW RECREATION SITE | 1613 | 3 | 0 | 1 | 4 | 4 | 1420 | 17040 |
| WAUNA, BEACH 35 | 1613 | 3 | 1 | 3 | 1 | 3 | 930 | 10230 |
| 36TH N.W. STREET END BOAT LAUNCH | 1613 | 3 | 0 | 5 | 2 | 2 | 60 | 720 |
| TOWHEAD ISLAND COUNTY PARK | 1613 | 1 | 0 | 4 | 2 | 2 | 1300 | 11700 |
| CUTTS ISLAND STATE PARK | 1613 | 3 | 1 | 5 | 3 | 3 | 2740 | 41100 |
| END OF KAMAS DRIVE, FOX ISLAND | 1613 | 3 | 1 | 1 | 3 | 2 | 30 | 300 |
| ANDERSON ISLAND, BEACH 8 | 1613 | 1 | 1 | 3 | 1 | 3 | 2656 | 23904 |
| HOME BOAT LAUNCH | 1613 | 1 | 0 | 4 | 2 | 1 | 30 | 240 |
| KOPACHUCK STATE PARK | 1613 | 5 | 5 | 1 | 5 | 4 | 5600 | 112000 |
| PENROSE POINT STATE PARK | 1613 | 3 | 3 | 5 | 2 | 4 | 10076 | 171292 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| WAUNA, BEACH 35A | 1613 | 3 | 1 | 3 | 1 | 3 | 1504 | 16544 |
| WAUNA BOAT LAUNCH | 1613 | 3 | 0 | 5 | 2 | 1 | 60 | 660 |
| Subregional Score: | 1613 | | | | | | | 405730 |
| WYCKOFF SHOAL, BEACH 39 | 1614 | 3 | 1 | 3 | 1 | 3 | 200 | 2200 |
| PIT PASSAGE, BEACH 6 | 1614 | 1 | 1 | 3 | 1 | 3 | 1935 | 17415 |
| Subregional Score: | 1614 | | | | | | | 19615 |
| LONGBRANCH BOAT LAUNCH | 1615 | 1 | 0 | 4 | 1 | 1 | 60 | 420 |
| LONGBRANCH DOCK | 1615 | 3 | 0 | 4 | 2 | 1 | 60 | 600 |
| Subregional Score: | 1615 | | | | | | | 1020 |
| FUDGE POINT, BEACH 24 | 1616 | 1 | 1 | 3 | 1 | 3 | 5872 | 52848 |
| ALLYN PARK | 1616 | 1 | 5 | 5 | 3 | 3 | 400 | 6800 |
| ROBERT F. KENNEDY RECREATION SITE | 1616 | 1 | 2 | 5 | 5 | 4 | 1000 | 17000 |
| END OF OLMAN ROAD, KPN | 1616 | 1 | 0 | 1 | 3 | 2 | 60 | 420 |
| McMICKEN ISLAND STATE PARK | 1616 | 1 | 1 | 3 | 3 | 3 | 1661 | 18271 |
| GRAPEVIEW BOAT RAMP | 1616 | 1 | 0 | 5 | 1 | 1 | 30 | 240 |
| STRETCH ISLAND, BEACH 20 | 1616 | 3 | 1 | 3 | 1 | 3 | 1800 | 19800 |
| VAUGHN BAY SPIT, BEACH 18 | 1616 | 1 | 1 | 3 | 1 | 3 | 1912 | 17208 |
| NEAR THE HERRON FERRY TERMINAL | 1616 | 3 | 1 | 1 | 3 | 2 | 160 | 1600 |
| STRETCH POINT STATE PARK | 1616 | 3 | 1 | 5 | 3 | 3 | 610 | 9150 |
| TAYLOR BAY, BEACH 16 | 1616 | 1 | 1 | 3 | 1 | 3 | 2500 | 22500 |
| ALLYN PORT & DOCK | 1616 | 1 | 1 | 5 | 3 | 3 | 24 | 312 |
| HALL ROAD STREET END BOAT LAUNCH | 1616 | 1 | 0 | 5 | 2 | 1 | 60 | 540 |
| Subregional Score: | 1616 | | | | | | | 166689 |
| WOODWARD BAY ROAD BRIDGE | 1617 | 1 | 0 | 3 | 2 | 2 | 50 | 400 |
| BOSTON HARBOR BOAT RAMP | 1618 | 1 | 0 | 5 | 2 | 3 | 60 | 660 |
| PERCIVAL LANDING NORTH | 1619 | 1 | 0 | 1 | 1 | 2 | 1000 | 5000 |
| PRIEST POINT PARK | 1619 | 1 | 3 | 1 | 3 | 3 | 3000 | 33000 |
| BURFOOT COUNTY PARK | 1619 | 1 | 3 | 2 | 5 | 4 | 1100 | 16500 |
| BAYVIEW MARKET PUBLIC ACCESS | 1619 | 1 | 0 | 1 | 2 | 2 | 100 | 600 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| OLYMPIA ISLE MARINA | 1619 | 3 | 0 | 5 | 2 | 2 | 5000 | 60000 |
| PERCIVAL LANDING | 1619 | 3 | 0 | 5 | 1 | 2 | 1300 | 14300 |
| Subregional Score: | 1619 | | | | | | | 129400 |
| FRYE COVE COUNTY PARK (undev) | 1620 | 1 | 1 | 1 | 4 | 4 | 2200 | 24200 |
| JARRELL COVE STATE PARK | 1622 | 5 | 1 | 5 | 5 | 5 | 3056 | 64176 |
| JARRELL COVE, BEACH 34 | 1622 | 1 | 1 | 3 | 1 | 3 | 2496 | 22464 |
| HARTSTENE BRIDGE BOAT RAMP | 1622 | 1 | 0 | 5 | 1 | 1 | 100 | 800 |
| HARTSTENE ISLAND, BEACH 33 | 1622 | 1 | 1 | 3 | 1 | 3 | 1442 | 12978 |
| Subregional Score: | 1622 | | | | | | | 100418 |
| WALKER COUNTY PARK | 1623 | 1 | 3 | 1 | 5 | 3 | 1650 | 21450 |
| SQUAXIN ISLAND STATE PARK | 1623 | 3 | 3 | 5 | 5 | 4 | 2673 | 53460 |
| Subregional Score: | 1623 | | | | | | | 74910 |
| ARCADIA LAUNCHING RAMP | 1624 | 1 | 0 | 5 | 1 | 1 | 60 | 480 |
| SHORECREST COUNTY PARK | 1626 | 1 | 5 | 5 | 5 | 4 | 320 | 6400 |
| SHELTON BOAT RAMP | 1627 | 1 | 0 | 4 | 1 | 1 | 30 | 210 |
| OLD MAN HOUSE STATE PARK | 1628 | 3 | 3 | 1 | 5 | 3 | 210 | 3150 |
| KEYPORT COUNTY PARK | 1629 | 1 | 1 | 5 | 4 | 2 | 150 | 1950 |
| LIBERTY BAY PARK | 1629 | 3 | 1 | 1 | 2 | 3 | 1438 | 14380 |
| POULSBO BOAT LAUNCH AND MARINA | 1629 | 3 | 0 | 5 | 1 | 1 | 100 | 1000 |
| AMERICAN LEGION PARK | 1629 | 1 | 1 | 1 | 2 | 3 | 1100 | 8800 |
| Subregional Score: | 1629 | | | | | | | 26130 |
| ILLAHEE STATE PARK | 1630 | 5 | 3 | 5 | 5 | 3 | 1785 | 37485 |
| SUQUAMISH MUSEUM & TRIBAL CENTER | 1630 | 1 | 1 | 1 | 3 | 2 | 1000 | 8000 |
| CRYSTAL SPRINGS PUBLIC FISHING PIER | 1630 | 3 | 0 | 1 | 2 | 1 | 100 | 700 |
| ILLAHEE PIER | 1630 | 3 | 0 | 1 | 2 | 1 | 100 | 700 |
| PORT OF BROWNSVILLE MARINE PARK AND MARINA | 1630 | 3 | 3 | 5 | 5 | 2 | 1000 | 18000 |

**TABLE R-2. Recreation Vulnerability Ranking - Site Attribute and Subregional Scores**

| SITE NAME | COMPENSATION SCHEDULE SUBREGION | IBUTE SCORING fish & wildlife | water contact | boating use | beach use | aesthetic character | TOTAL SHORELINE LENGTH(ft) | RECREATION VULNERABILITY SCORE |
|---|---|---|---|---|---|---|---|---|
| Subregional Score: | 1630 | | | | | | | 64885 |
| BACHMANN PARK | 1631 | 1 | 0 | 1 | 3 | 2 | 70 | 490 |
| FIRST STREET DOCK | 1631 | 1 | 0 | 5 | 1 | 2 | 70 | 630 |
| EVERGREEN PARK | 1631 | 1 | 1 | 5 | 3 | 2 | 300 | 3600 |
| ROSS POINT TIDELANDS | 1631 | 3 | 1 | 1 | 3 | 2 | 650 | 6500 |
| PORT ORCHARD MARINA | 1631 | 3 | 0 | 5 | 1 | 2 | 1200 | 13200 |
| ANNAPOLIS PUBLIC ACCESS AREA | 1631 | 3 | 0 | 1 | 2 | 2 | 200 | 1600 |
| PORT ORCHARD BOAT LAUNCH | 1631 | 1 | 0 | 5 | 1 | 2 | 100 | 900 |
| Subregional Score: | 1631 | | | | | | | 26920 |
| SILVERDALE COUNTY PARK | 1632 | 3 | 0 | 5 | 5 | 2 | 600 | 9000 |
| LENTS LANE (undev) | 1632 | 1 | 0 | 1 | 3 | 1 | 30 | 180 |
| LIONS COMMUNITY PLAYFIELD | 1632 | 1 | 0 | 5 | 5 | 3 | 1700 | 23800 |
| N.A.D. MARINE PARK | 1632 | 1 | 0 | 1 | 3 | 3 | 800 | 6400 |
| ANNA SMITH PARK | 1632 | 1 | 1 | 1 | 3 | 2 | 680 | 5440 |
| TRACYTON BOAT LAUNCH | 1632 | 1 | 1 | 5 | 1 | 1 | 40 | 360 |
| Subregional Score: | 1632 | | | | | | | 45180 |
| MANCHESTER STATE PARK | 1633 | 5 | 2 | 3 | 5 | 4 | 3400 | 64600 |
| WYNN-JONES COUNTY PARK | 1633 | 1 | 0 | 1 | 3 | 3 | 250 | 2000 |
| FORT WARD STATE PARK | 1633 | 3 | 1 | 5 | 5 | 3 | 4300 | 73100 |
| Subregional Score: | 1633 | | | | | | | 139700 |
| BURTON ACRES COUNTY PARK | 1634 | 3 | 1 | 5 | 5 | 2 | 600 | 9600 |
| END OF 101 AVE. S.W. | 1634 | 1 | 1 | 3 | 3 | 2 | 100 | 1000 |
| SOUTH EAST VASHON ISLAND, BEACH 79 | 1634 | 1 | 0 | 1 | 1 | 0 | 627 | 1881 |
| DOCKTON COUNTY PARK | 1634 | 3 | 3 | 5 | 5 | 2 | 1400 | 25200 |
| Subregional Score: | 1634 | | | | | | | 37681 |
| CARRS LANDING PUBLIC ACCESS | 1635 | 1 | 0 | 1 | 2 | 1 | 415 | 2075 |
| MARINE PARK | 1635 | 3 | 0 | 1 | 3 | 2 | 200 | 1800 |
| POINT DEFIANCE PARK | 1635 | 3 | 5 | 5 | 5 | 5 | 12000 | 276000 |
| Subregional Score: | 1635 | | | | | | | 279875 |

**TABLE R-3. Composite Recreation Vulnerability Scores**

| SUBREGION | BASE SCORE | RVS (raw scores) Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|
| 101 NORTHERN OUTER COAST | 4752000.00 | 1188000 | 2185920 | 902880 | 475200 |
| 102 KALALOCH | 1805760 | 451440 | 830650 | 343094 | 180576 |
| 103 QUINAULT | 0 | 0 | 0 | 0 | 0 |
| 104 COPALIS BEACH | 1943040 | 485760 | 893798 | 369178 | 194304 |
| 105 GRAYS HARBOR | 220240 | 55060 | 101310 | 41846 | 22024 |
| 106 TWIN HARBORS BEACH | 1138164 | 284541 | 523555 | 216251 | 113816 |
| 107 WILLAPA BAY | 3353469 | 838367 | 1542596 | 637159 | 335347 |
| 108 LONG BEACH | 1585720 | 396430 | 729431 | 301287 | 158572 |
| 109 INNER SHELF | 0 | 0 | 0 | 0 | 0 |
| 110 OUTER SHELF | 0 | 0 | 0 | 0 | 0 |
| 111 SHELF EDGE | 0 | 0 | 0 | 0 | 0 |
| 112 CONTINENTIAL SLOPE | 0 | 0 | 0 | 0 | 0 |
| 201 STRAIT OF JUAN DE FUCA-OUTER | 0 | 0 | 0 | 0 | 0 |
| 203 CAPE FLATTERY | 0 | 0 | 0 | 0 | 0 |
| 204 NEAH BAY | 0 | 0 | 0 | 0 | 0 |
| 205 NEAH BAY TO CLALLAM BAY | 995010 | 248753 | 457705 | 189052 | 99501 |
| 206 CLALLAM BAY | 88560 | 22140 | 40738 | 16826 | 8856 |
| 207 CLALLAM BAY TO CRESCENT BAY | 1098655 | 274664 | 505381 | 208744 | 109866 |
| 208 CRESCENT BAY | 110000 | 27500 | 50600 | 20900 | 11000 |
| 209 CRESCENT BAY TO EDIZ HOOK | 282655 | 70664 | 130021 | 53704 | 28266 |
| 301 STRAIT OF JUAN DE FUCA-INNER | 0 | 0 | 0 | 0 | 0 |
| 302 EDIZ HOOK | 0 | 0 | 0 | 0 | 0 |
| 303 PORT ANGELES | 9700 | 2425 | 4462 | 1843 | 970 |
| 304 VOICE OF AMERICA | 42500 | 10625 | 19550 | 8075 | 4250 |
| 305 DUNGENESS SPIT | 0 | 0 | 0 | 0 | 0 |
| 306 DUNGENESS BAY/HARBOR | 871600 | 217900 | 400936 | 165604 | 87160 |
| 307 JAMESTOWN | 37300 | 9325 | 17158 | 7087 | 3730 |
| 308 SEQUIM BAY | 396717 | 99179 | 182490 | 75376 | 39672 |
| 309 MILLER PENINSULA | 24390 | 6098 | 11219 | 4634 | 2439 |
| 310 PROTECTION ISLAND | 0 | 0 | 0 | 0 | 0 |
| 311 DISCOVERY BAY | 16385 | 4096 | 7537 | 3113 | 1639 |
| 312 QUIMPER PENINSULA | 49965 | 12491 | 22984 | 9493 | 4997 |
| 313 WHIDBEY ISLAND | 39500 | 9875 | 18170 | 7505 | 3950 |
| 314 SMITH ISLAND | 0 | 0 | 0 | 0 | 0 |
| 315 DECEPTION PASS | 1778700 | 444675 | 818202 | 337953 | 177870 |
| 316 LOPEZ ISLAND (SOUTH SHORE) | 310319 | 77580 | 142747 | 58961 | 31032 |
| 317 SAN JUAN ISLAND (SOUTH SHORE | 255678 | 63920 | 117612 | 48579 | 25568 |
| 401 ADMIRALTY INLET | 770390 | 192598 | 354379 | 146374 | 77039 |
| 402 SOUTH ADMIRALTY INLET | 915410 | 228853 | 421089 | 173928 | 91541 |
| 403 PORT TOWNSEND | 112080 | 28020 | 51557 | 21295 | 11208 |
| 404 OAK BAY | 279270 | 69818 | 128464 | 53061 | 27927 |
| 405 KILISUT HARBOR | 1700 | 425 | 782 | 323 | 170 |
| 501 BELLINGHAM CHANNEL | 776905 | 194226 | 357376 | 147612 | 77691 |
| 502 GUEMES CHANNEL | 0 | 0 | 0 | 0 | 0 |
| 503 FIDALGO BAY | 185000 | 46250 | 85100 | 35150 | 18500 |
| 504 PADILLA BAY | 787164 | 196791 | 362095 | 149561 | 78716 |
| 505 SAMISH BAY | 151468 | 37867 | 69675 | 28779 | 15147 |
| 506 BELLINGHAM BAY | 744373 | 186093 | 342412 | 141431 | 74437 |
| 507 HALE PASSAGE | 83391 | 20848 | 38360 | 15844 | 8339 |
| 601 LUMMI BAY | 0 | 0 | 0 | 0 | 0 |

**TABLE R-3. Composite Recreation Vulnerability Scores**

| SUBREGION | BASE SCORE | RVS (raw scores) Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|
| 602 CHERRY POINT | 0 | 0 | 0 | 0 | 0 |
| 603 BIRCH BAY | 140640 | 35160 | 64694 | 26722 | 14064 |
| 604 SEMIAHOO SPIT | 126030 | 31508 | 57974 | 23946 | 12603 |
| 605 DRAYTON HARBOR | 23000 | 5750 | 10580 | 4370 | 2300 |
| 607 SAN JUAN ISLANDS-NORTHERN TT | 2733911 | 683478 | 1257599 | 519443 | 273391 |
| 608 GEORGIA STRAIT-EASTERN | 0 | 0 | 0 | 0 | 0 |
| 701 PT. ROBERTS | 66860 | 16715 | 30756 | 12703 | 6686 |
| 702 TSAWWASSEN BAY | 0 | 0 | 0 | 0 | 0 |
| 703 GEORGIA STRAIT-WESTERN | 0 | 0 | 0 | 0 | 0 |
| 801 NORTHERN HARO STRAIT | 701583 | 175396 | 322728 | 133301 | 70158 |
| 802 SOUTHERN HARO STRAIT | 615586 | 153897 | 283170 | 116961 | 61559 |
| 901 SOUTHERN ROSARIO STRAIT | 1554084 | 388521 | 714879 | 295276 | 155408 |
| 902 CENTRAL ROASARIO STRAIT | 399329 | 99832 | 183691 | 75873 | 39933 |
| 903 NORTHERN ROSARIO STRAIT | 230665 | 57666 | 106106 | 43826 | 23067 |
| 1001 PRESIDENT CHANNEL | 392722 | 98181 | 180652 | 74617 | 39272 |
| 1002 NORTHERN AREAS | 312644 | 78161 | 143816 | 59402 | 31264 |
| 1101 SPEIDEN CHANNEL | 102298 | 25575 | 47057 | 19437 | 10230 |
| 1102 NORTHERN SAN JUAN CHANNEL | 336438 | 84110 | 154761 | 63923 | 33644 |
| 1103 SOUTHERN SAN JUAN CHANNEL | 641236 | 160309 | 294969 | 121835 | 64124 |
| 1104 WASP PASS | 888729 | 222182 | 408815 | 168859 | 88873 |
| 1105 UPRIGHT CHANNEL | 561676 | 140419 | 258371 | 106718 | 56168 |
| 1106 HARNEY CHANNEL | 301143 | 75286 | 138526 | 57217 | 30114 |
| 1107 OBSTRUCTION PASS | 8100 | 2025 | 3726 | 1539 | 810 |
| 1108 THATCHER PASS | 268074 | 67019 | 123314 | 50934 | 26807 |
| 1201 MOSQUITO/ROCHE COMPLEX | 133312 | 33328 | 61324 | 25329 | 13331 |
| 1202 FRIDAY HARBOR | 63673 | 15918 | 29290 | 12098 | 6367 |
| 1203 GRIFFIN BAY | 417867 | 104467 | 192219 | 79395 | 41787 |
| 1205 FISHERMAN BAY | 0 | 0 | 0 | 0 | 0 |
| 1206 SWIFTS/SHOAL BAYS | 0 | 0 | 0 | 0 | 0 |
| 1207 DEER HARBOR | 22410 | 5603 | 10309 | 4258 | 2241 |
| 1208 WEST SOUND | 87169 | 21792 | 40098 | 16562 | 8717 |
| 1209 EAST SOUND | 418962 | 104741 | 192723 | 79603 | 41896 |
| 1210 LOPEZ SOUND | 793735 | 198434 | 365118 | 150810 | 79374 |
| 1401 SKAGIT BAY | 1309320 | 327330 | 602287 | 248771 | 130932 |
| 1402 PENN COVE/CRESCENT HARBOR | 185770 | 46443 | 85454 | 35296 | 18577 |
| 1403 SARATOGA PASSAGE | 132600 | 33150 | 60996 | 25194 | 13260 |
| 1404 HOLMES HARBOR | 29450 | 7363 | 13547 | 5596 | 2945 |
| 1405 PORT SUSAN | 140120 | 35030 | 64455 | 26623 | 14012 |
| 1406 POSSESSION SOUND | 363146 | 90787 | 167047 | 68998 | 36315 |
| 1501 HOOD CANAL ENTRANCE | 360948 | 90237 | 166036 | 68580 | 36095 |
| 1502 PORT LUDLOW | 234574 | 58644 | 107904 | 44569 | 23457 |
| 1503 PORT GAMBLE | 0 | 0 | 0 | 0 | 0 |
| 1504 NORTHERN HOOD CANAL | 0 | 0 | 0 | 0 | 0 |
| 1505 CENTRAL HOOD CANAL | 169515 | 42379 | 77977 | 32208 | 16952 |
| 1506 DABOB BAY | 273438 | 68360 | 125781 | 51953 | 27344 |
| 1507 QUILCENE BAY | 49900 | 12475 | 22954 | 9481 | 4990 |
| 1508 SOUTHCENTRAL HOOD CANAL | 282800 | 70700 | 130088 | 53732 | 28280 |
| 1509 ANNAS BAY | 239680 | 59920 | 110253 | 45539 | 23968 |
| 1510 GREAT BEND | 142765 | 35691 | 65672 | 27125 | 14277 |
| 1601 N. PUGET SOUND | 166581 | 41645 | 76627 | 31650 | 16658 |
| 1602 N. CENTRAL PUGET SOUND | 423250 | 105813 | 194695 | 80418 | 42325 |

**TABLE R-3. Composite Recreation Vulnerability Scores**

| SUBREGION | BASE SCORE | RVS (raw scores) Spring | Summer | Fall | Winter |
|---|---|---|---|---|---|
| 1603 CENTRAL PUGET SOUND | 537853 | 134463 | 247412 | 102192 | 53785 |
| 1604 ELLIOT BAY | 288150 | 72038 | 132549 | 54749 | 28815 |
| 1605 EAST PASSAGE | 282390 | 70598 | 129899 | 53654 | 28239 |
| 1606 COLVOS PASSAGE | 43520 | 10880 | 20019 | 8269 | 4352 |
| 1607 COMMENCEMENT BAY | 8530 | 2133 | 3924 | 1621 | 853 |
| 1608 NARROWS | 76620 | 19155 | 35245 | 14558 | 7662 |
| 1609 STEILACOOM | 78800 | 19700 | 36248 | 14972 | 7880 |
| 1610 NISQUALLY | 645560 | 161390 | 296958 | 122656 | 64556 |
| 1611 TREBLE-JOHNSON | 51696 | 12924 | 23780 | 9822 | 5170 |
| 1612 HALE PASSAGE | 1140 | 285 | 524 | 217 | 114 |
| 1613 CARR INLET | 405730 | 101433 | 186636 | 77089 | 40573 |
| 1614 PITT PASSAGE | 19615 | 4904 | 9023 | 3727 | 1962 |
| 1615 DRAYTON HARBOR | 1020 | 255 | 469 | 194 | 102 |
| 1616 CASE INLET | 166689 | 41672 | 76677 | 31671 | 16669 |
| 1617 HENDERSON INLET | 400 | 100 | 184 | 76 | 40 |
| 1618 DANA PASSAGE | 660 | 165 | 304 | 125 | 66 |
| 1619 BUDD INLET | 129400 | 32350 | 59524 | 24586 | 12940 |
| 1620 ELD INLET | 24200 | 6050 | 11132 | 4598 | 2420 |
| 1621 TOTTEN INLET | 0 | 0 | 0 | 0 | 0 |
| 1622 PICKERING PASSAGE | 100418 | 25105 | 46192 | 19079 | 10042 |
| 1623 PEALE PASSAGE | 74910 | 18728 | 34459 | 14233 | 7491 |
| 1624 SQUAXIN | 480 | 120 | 221 | 91 | 48 |
| 1625 SKOOKUM INLET | 0 | 0 | 0 | 0 | 0 |
| 1626 HAMMERSLEY INLET | 6400 | 1600 | 2944 | 1216 | 640 |
| 1627 OAKLAND BAY | 210 | 53 | 97 | 40 | 21 |
| 1628 AGATE PASSAGE | 3150 | 788 | 1449 | 599 | 315 |
| 1629 LIBERTY BAY | 26130 | 6533 | 12020 | 4965 | 2613 |
| 1630 PORT ORCHARD | 64885 | 16221 | 29847 | 12328 | 6489 |
| 1631 SINCLAIR INLET | 26920 | 6730 | 12383 | 5115 | 2692 |
| 1632 DYES INLET | 45180 | 11295 | 20783 | 8584 | 4518 |
| 1633 RICH PASSAGE | 139700 | 34925 | 64262 | 26543 | 13970 |
| 1634 QUARTERMASTER HARBOR | 37681 | 9420 | 17333 | 7159 | 3768 |
| 1635 DALCO PASSAGE | 279875 | 69969 | 128743 | 53176 | 27988 |
| 1636 BALCH PASS | 0 | 0 | 0 | 0 | 0 |

## 3.0 The Oil Effects Rankings

The oil effects rankings rate the relative propensity of spilled oils to cause the following three environmental effects: acute toxicity, mechanical injury, and environmental persistence. The rankings were developed by Leschine et al. (1991) and reviewed by the Oil Effects Advisory Committee. Some small modifications have been made to Leschine et al.'s rankings based on comments received on the draft Rule during the public comment period. The three effects were rated for the following crude oil and five oil products which comprise approximately 90% of the volume of oil shipped through Washington coastal waters: Prudhoe Bay crude oil, bunker C, no. 2 fuel oil, gasoline, kerosene and kerosene-type jet fuel. The resultant ranking relatively rate the severity of the effect caused by the selected oils on a one to five scale where a score of five represents the propensity to cause the most harmful effect, and a score of one represents the propensity to cause the least harmful effect. The following sections describe development of the oil effects rankings.

### 3.1 Acute Toxicity Ranking

Leschine et al. (1991) found that relative differences in acute toxicity effects among crude oils and petroleum products are best described by content, absolute toxicity and solubility of constituent 1-, 2- and 3- ring aromatic compounds. The following formula was developed to describe these relationships:

$$\text{Relative Acute Toxicity} = SOL_1 * PCT\text{-}WT_1 + SOL_2 * PCT\text{-}WT_2 + SOL_3 * PCT\text{-}WT_3$$

where: $SOL_i$ = solubility in seawater of i-ring aromatic hydrocarbons;
$PCT\text{-}WT_i$ = percent-weight of i-ring aromatic hydrocarbons in crude oil or refined product; and
$i = 1, 2, 3$.

Solubilities and percent-weight composition of 1-, 2- and 3-ring aromatic hydrocarbon compounds of the crude oil and oil products were determined from existing information. Formula results were then scaled to a one to five ranking (one value falls slightly below one). Because formula results did not adequately represent the acute toxicity for bunker C, the acute toxicity ranking for this oil product was made equivalent to the ranking derived for no. 2 fuel oil. This decision was based on empirical information derived from oil toxicity studies by Anderson et al. (1974). The pre-calculated acute toxicity ranking scores provided below in Table O-1 are used in determinations of damages when applying the compensation schedule.

**TABLE O-1. Relative Acute Toxicity Rank for Selected Oils.**

| Crude Oil or Oil Product | Relative Acute Toxicity Rank ($OIL_{AT}$) |
|---|---|
| Prudhoe Bay Crude Oil | 0.9 |
| Bunker C | 2.3 |
| No. 2 Fuel Oil | 2.3 |
| Gasoline | 5.0 |
| Kerosene | 1.4 |
| Jet Fuel | 1.4 |

### 3.2 Mechanical Injury Ranking

Mechanical injury is primarily caused by the ability of some oils and oil products to coat or smother flora and fauna. Leschine et al. (1991) found that relative differences in an oil's propensity to cause mechanical injury are best described by differences in API gravity (another way to describe an oil's specific gravity or density). Leschine et al. (1991) used the following general relationship to describe an oil's propensity to cause mechanical injury: the lower an oil's API gravity (i.e., the higher the specific gravity or density), the greater the oil's propensity to cause mechanical injury. To rank mechanical injury on a relative scale, API gravity was first converted to specific gravity using the following formula:

$$\text{Specific Gravity} = 141.5/(API^{0} + 131.5).$$

Linear interpolation was then used to scale specific gravity to a one to five scale. Table O-2 provides the API gravity of the selected crude oil and oil products, and the mechanical injury ranking score.

**TABLE O-2. API Gravity and Mechanical Injury Rank for Selected Oils.**

| Crude Oil or Oil Product | API Gravity | Relative Mechanical Injury Rank |
|---|---|---|
| Prudhoe Bay Crude Oil | 27.8 | 3.6 |
| Bunker C | 13.0 | 5.0 |
| No. 2 Fuel Oil | 31.6 | 3.2 |
| Kerosene | 41.5 | 2.4 |
| Gasoline | 62.4 | 1.0 |
| Jet Fuel | 35.8 - 56.7 | 2.4 |

## 3.3 Persistence Ranking

Because limitations in the available data do not allow comparisons to be made between an oil's propensity to persist in the environment and specific classes of compounds comprising the oil, Leschine et al. (1991) used a judgmental approach to relatively rank the oils' propensity to persist in the environment. An oil's propensity to persist in the environment was classified into one of the five categories listed in Table O-3.

**TABLE O-3. Oil Persistence Categories.**

| Expected Oil Retention Time | Relative Persistence Rank |
|---|---|
| Five to ten years or more | 5 |
| Two to five years | 4 |
| One to two years | 3 |
| One month to one year | 2 |
| Days to weeks | 1 |

Persistence ranking scores were then assigned to the selected oils based on empirical information (Leschine et al., 1991). These scores are presented in Table O-4.

**TABLE O-4. Persistence Scores for Selected Oils.**

| Crude Oil or Oil Product | Relative Persistence Rank |
|---|---|
| Prudhoe Bay Crude Oil | 5 |
| Bunker C | 5 |
| No. 2 Fuel Oil | 2 |
| Gasoline | 1 |
| Kerosene | 1 |
| Kerosene-Type Jet Fuel | 1 |

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Dr. Thomas Leschine
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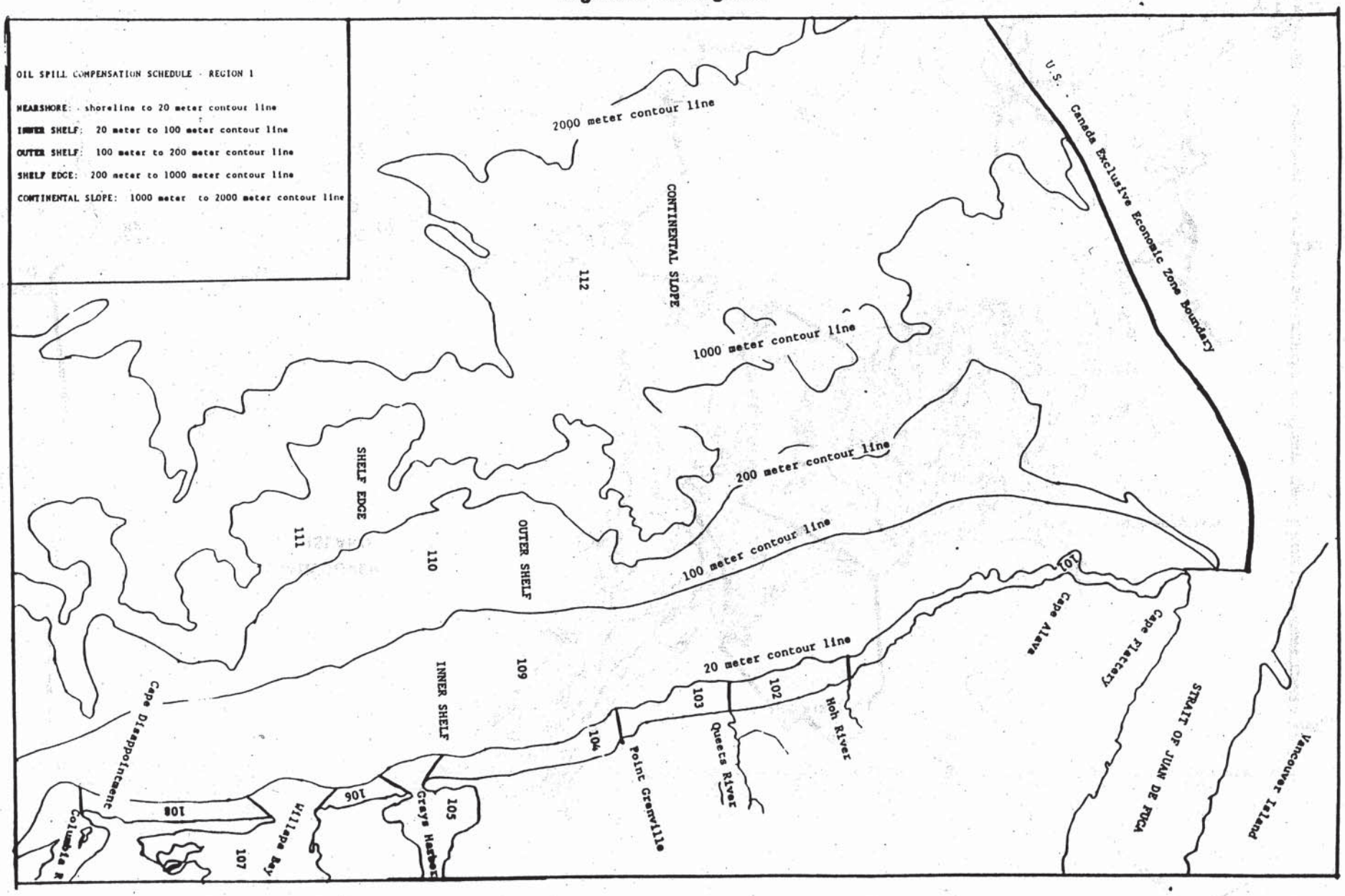
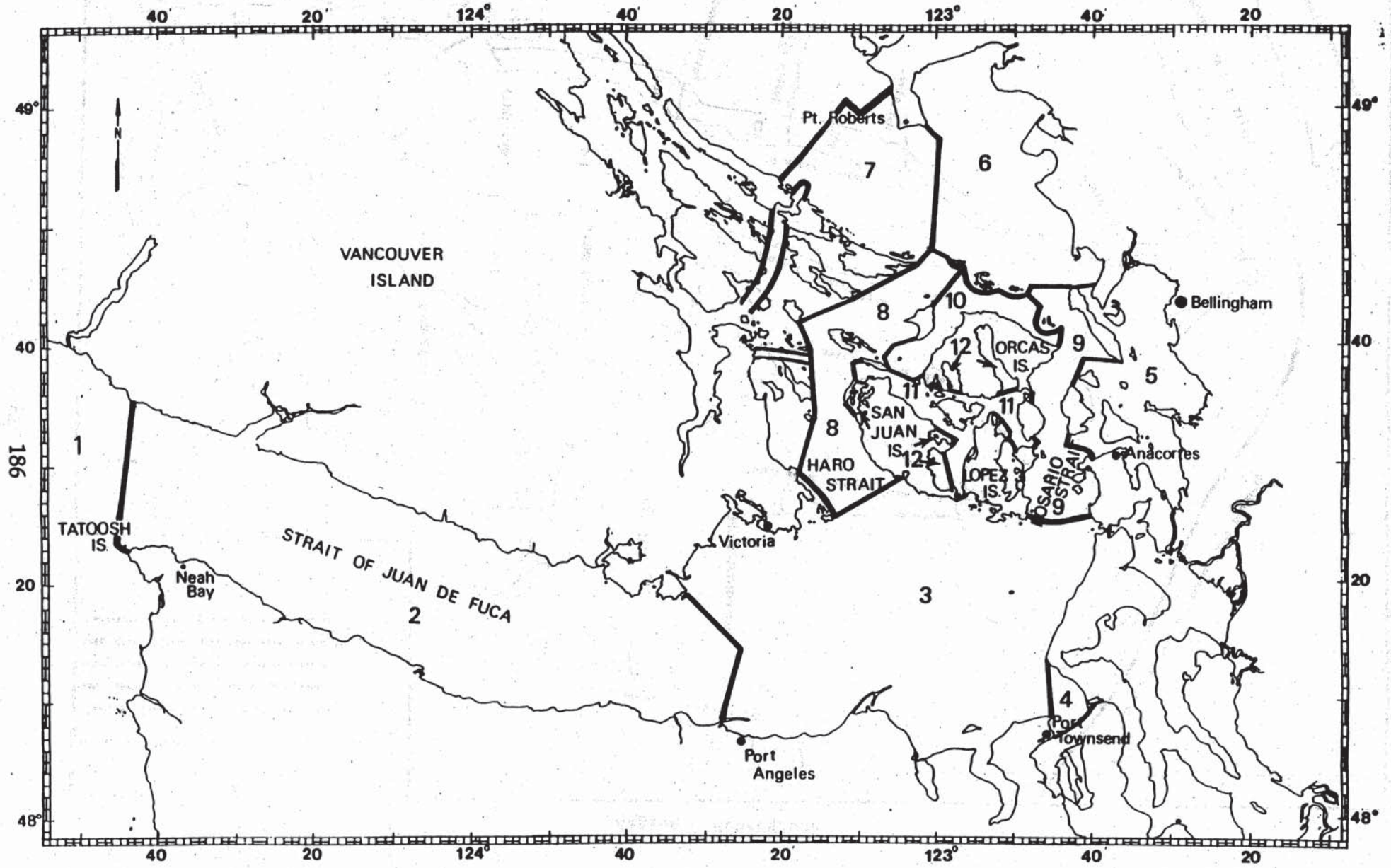
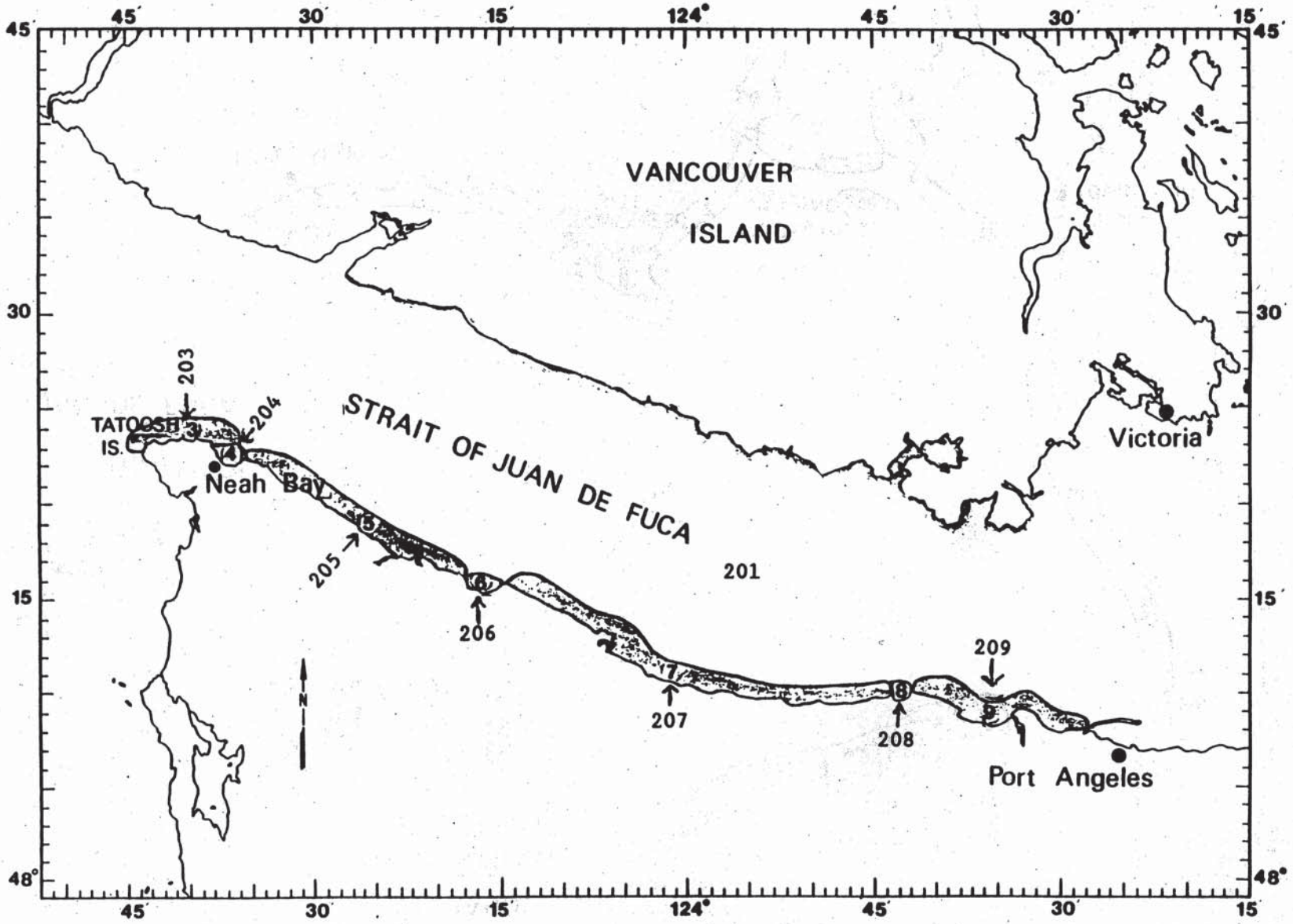
# APPENDIX B
# COMPENSATION SCHEDULE REGIONS AND SUBREGIONS

# Region 1 Subregions

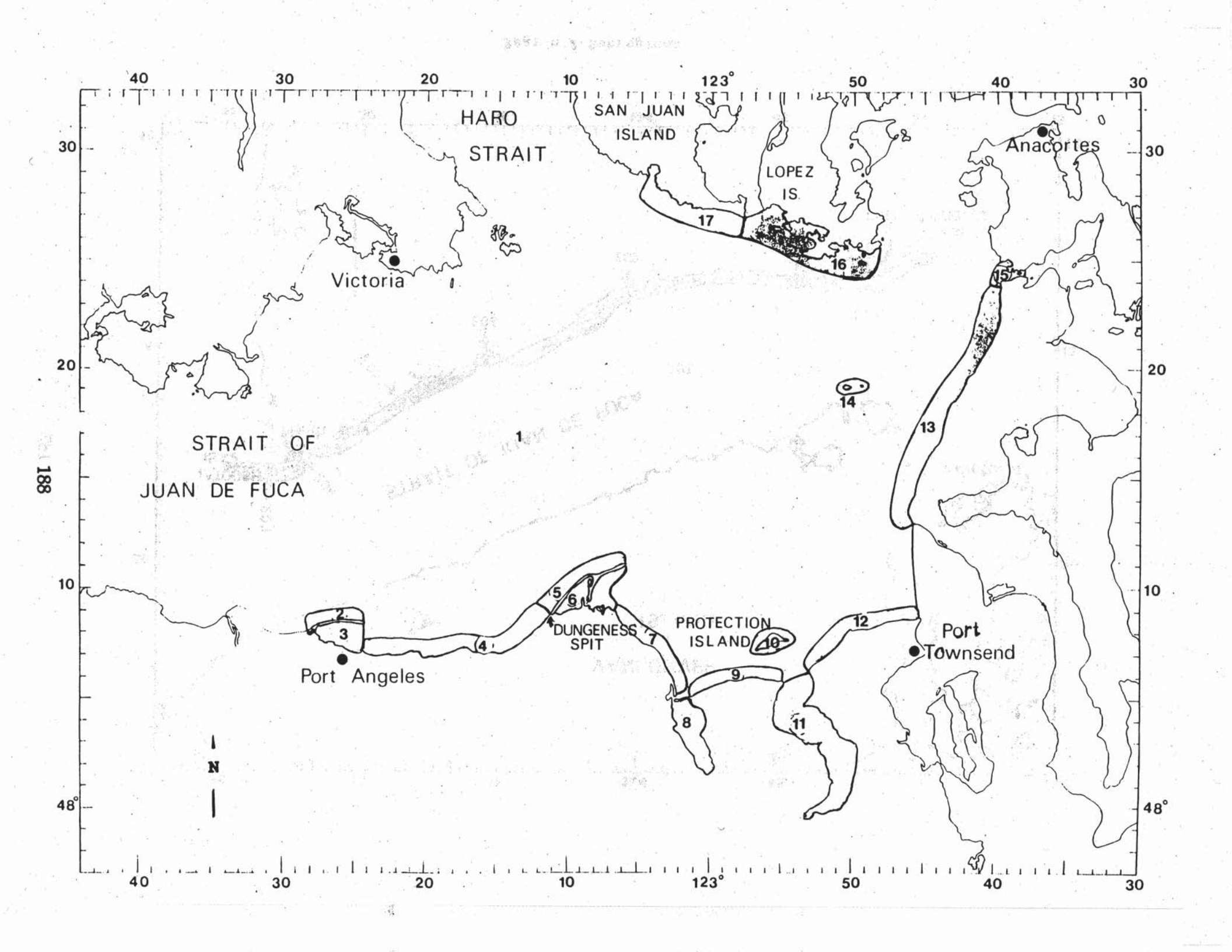


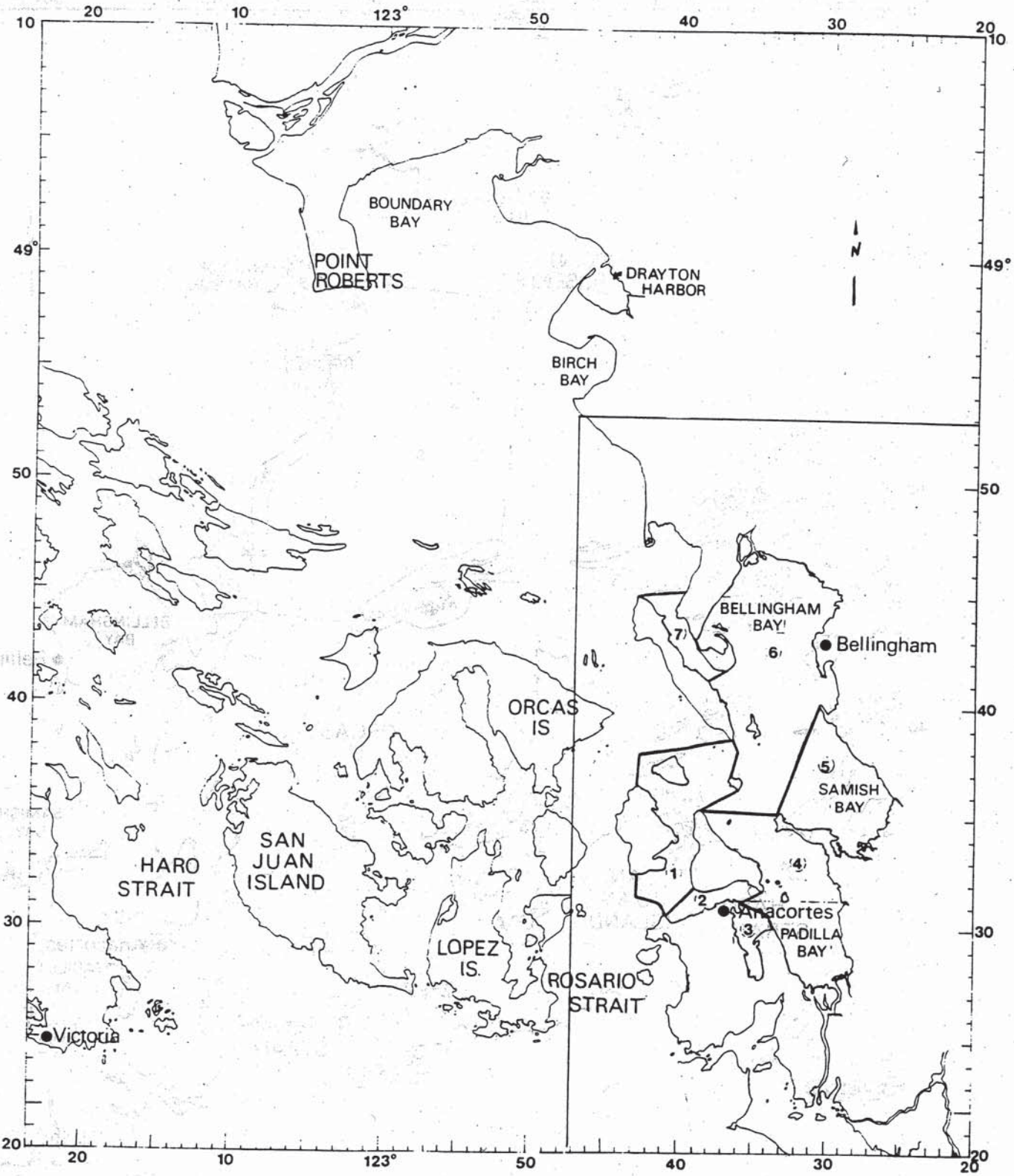



**Northern Puget Sound, Strait of Juan de Fuca and Outer Coast Compensation Schedule Regions**

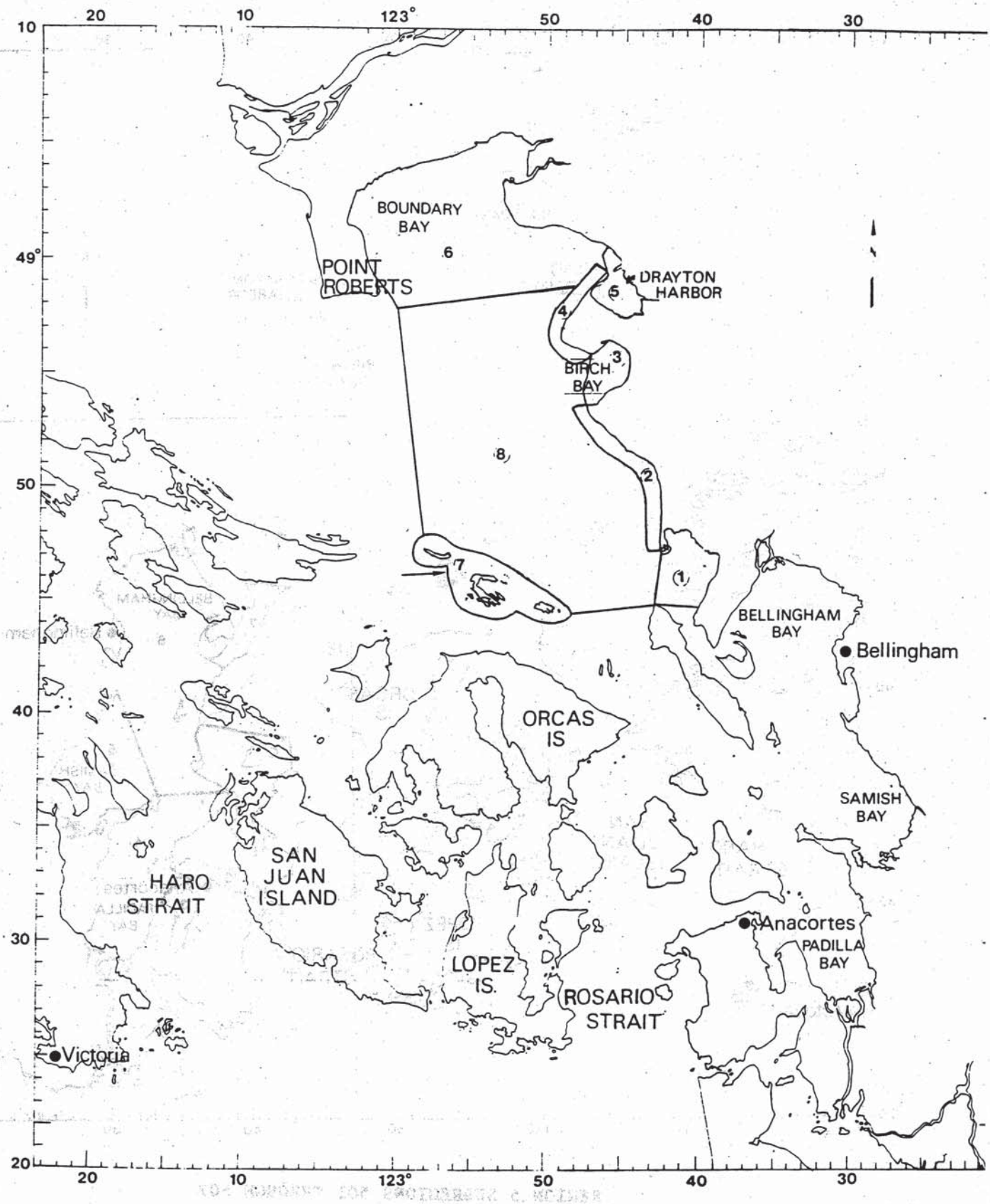



Region 2 Subregions

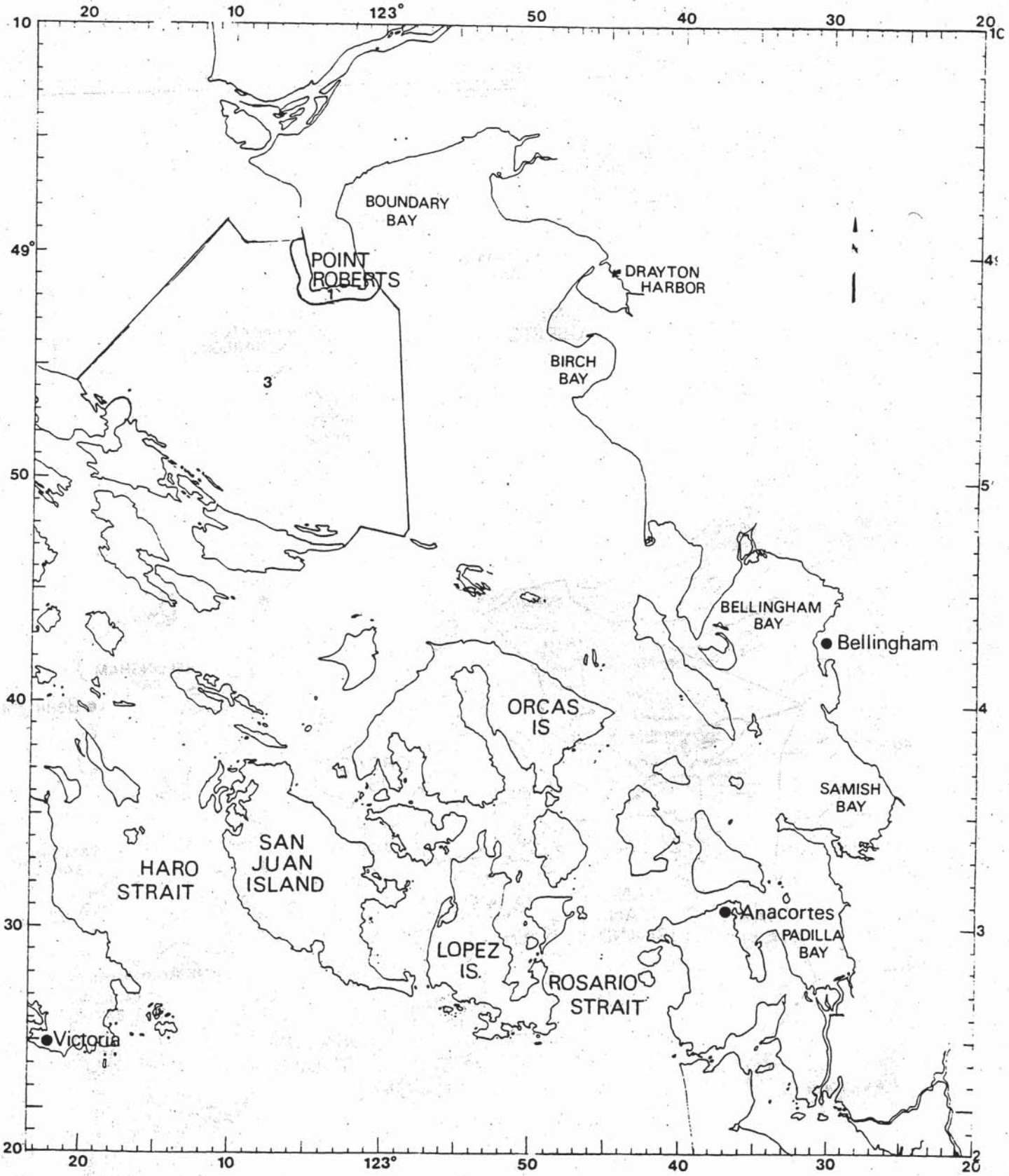

HARO
STRAIT
SAN JUAN
ISLAND
LOPEZ
IS.
Anacortes
Victoria
STRAIT OF
JUAN DE FUCA
DUNGENESS
SPIT
PROTECTION
ISLAND
Port
Townsend
Port Angeles
N
123°
188



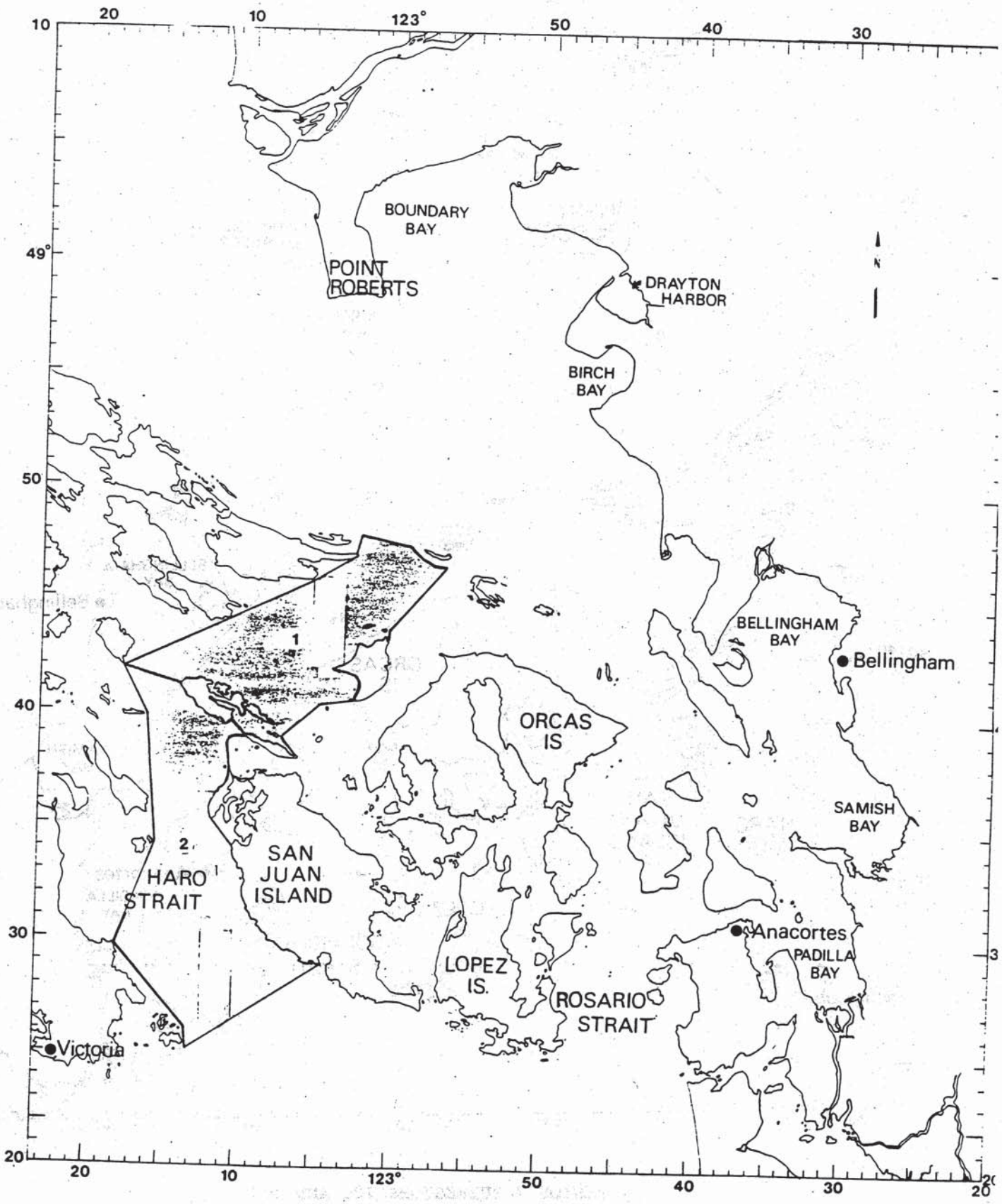

**REGION 5 SUBREGIONS 501 THROUGH 507**



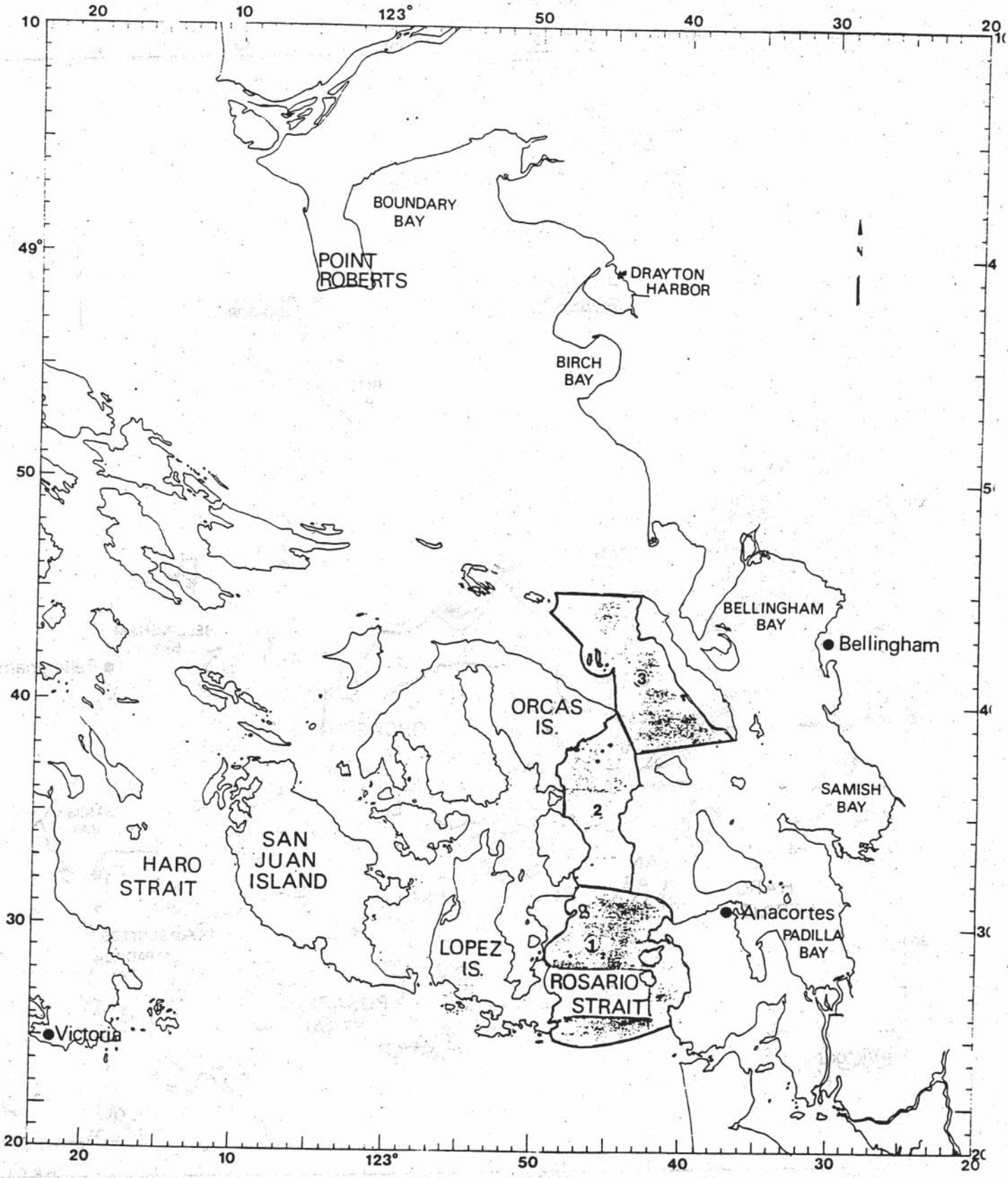

**REGION 6 SUBREGIONS 601 THROUGH 607**



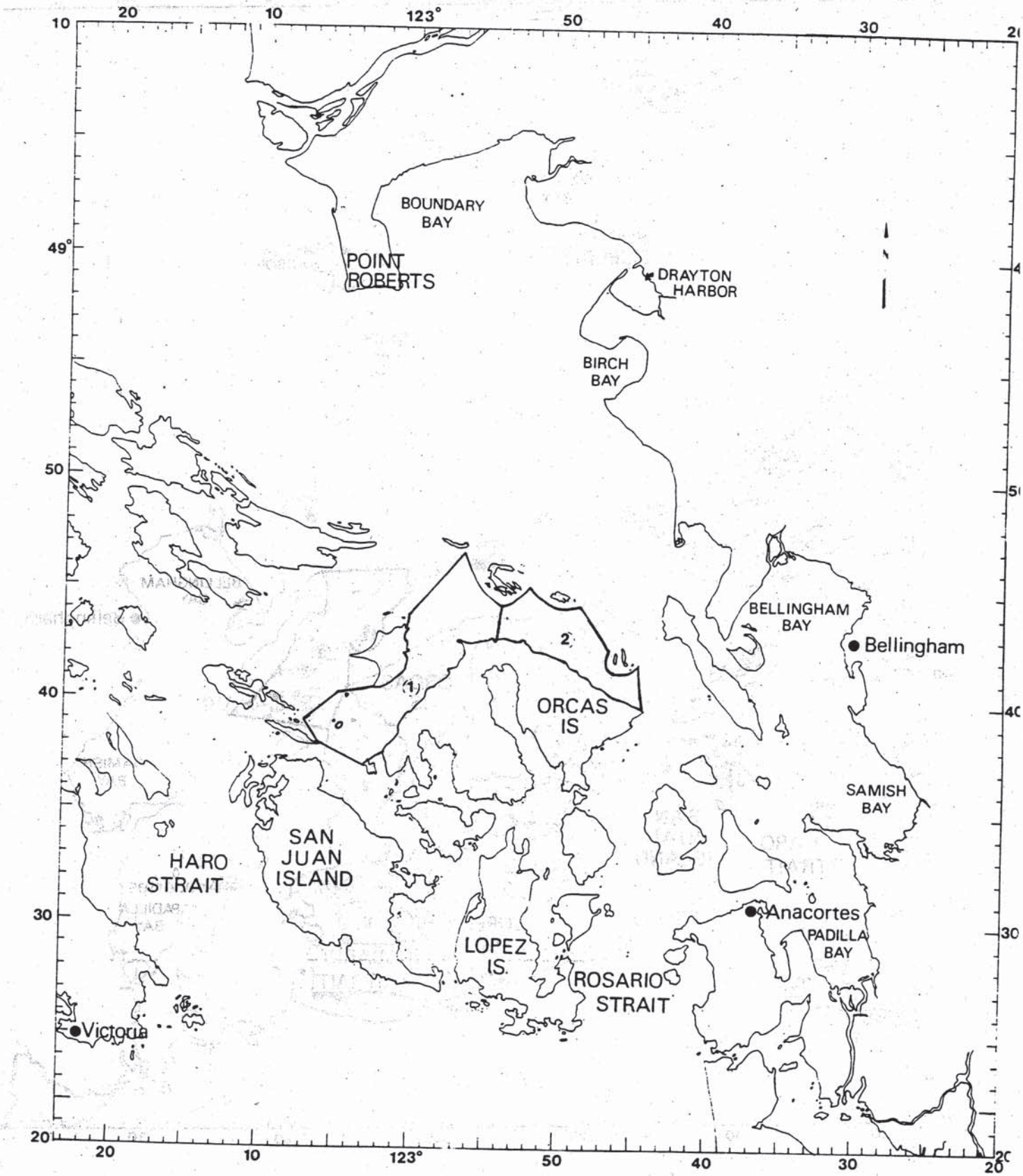

**REGION 7 SUBREGIONS 701 AND 703**



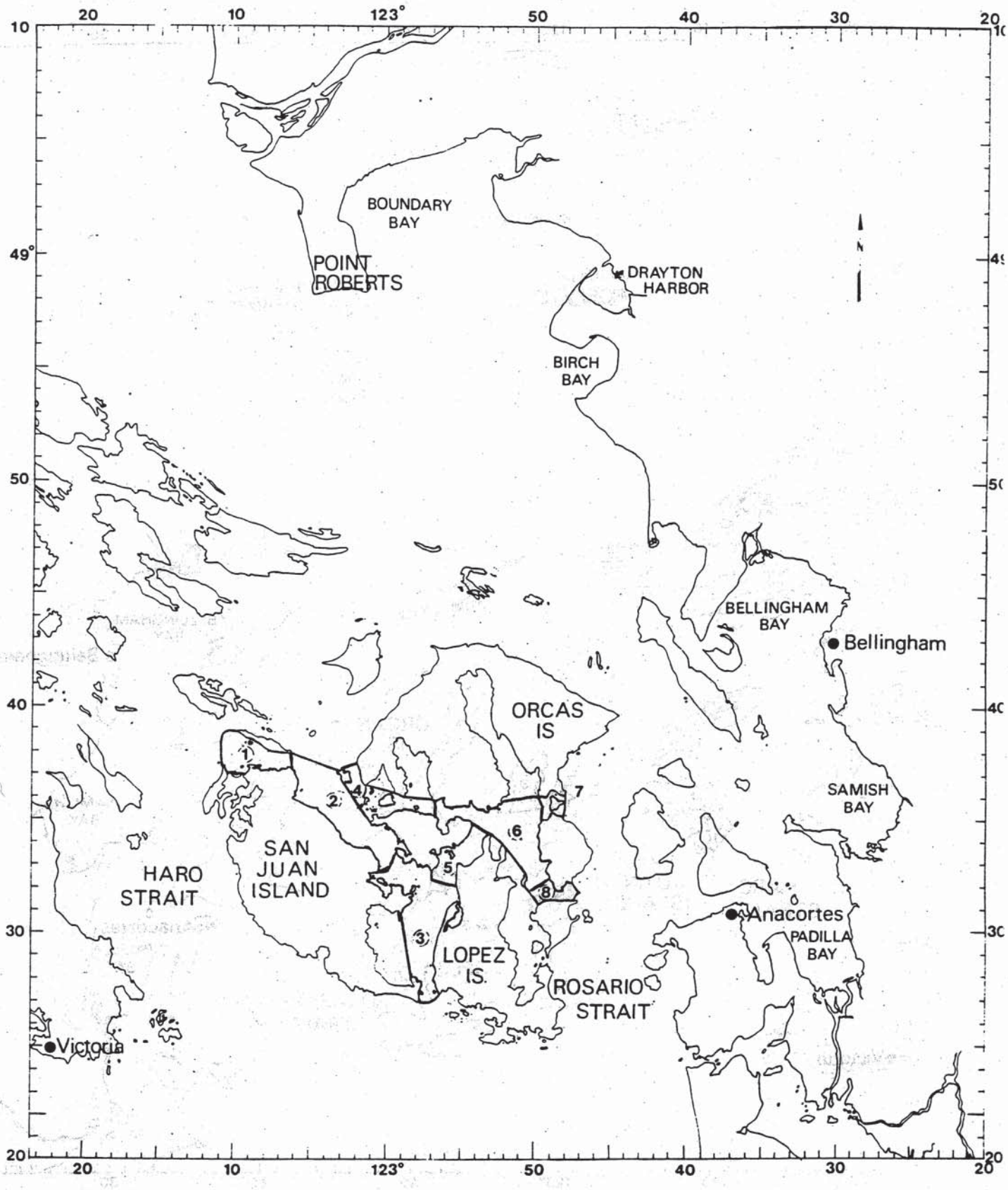

**REGION 8 SUBREGIONS 801 AND 802**



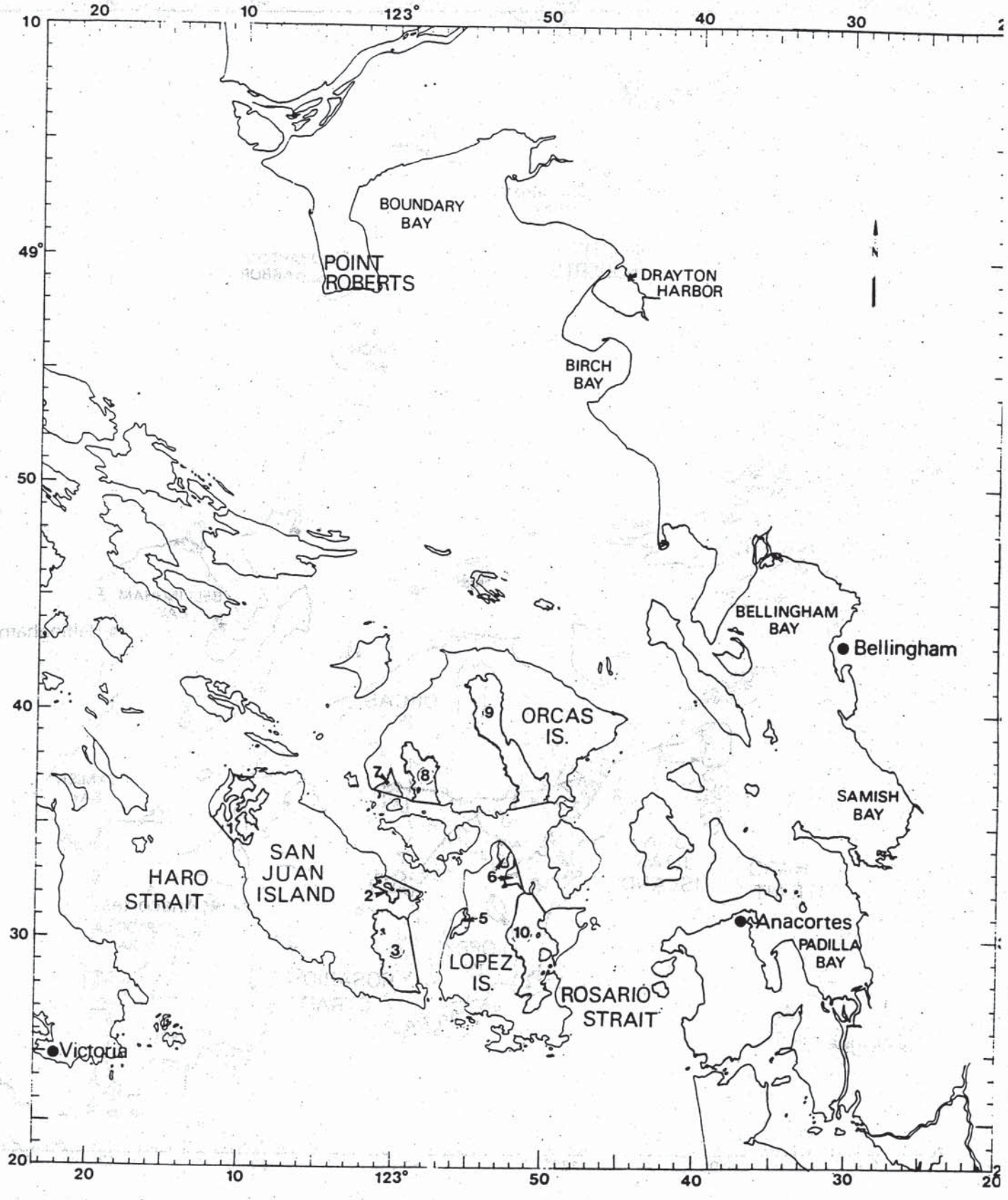

**REGION 9 SUBREGIONS 901 THROUGH 903**



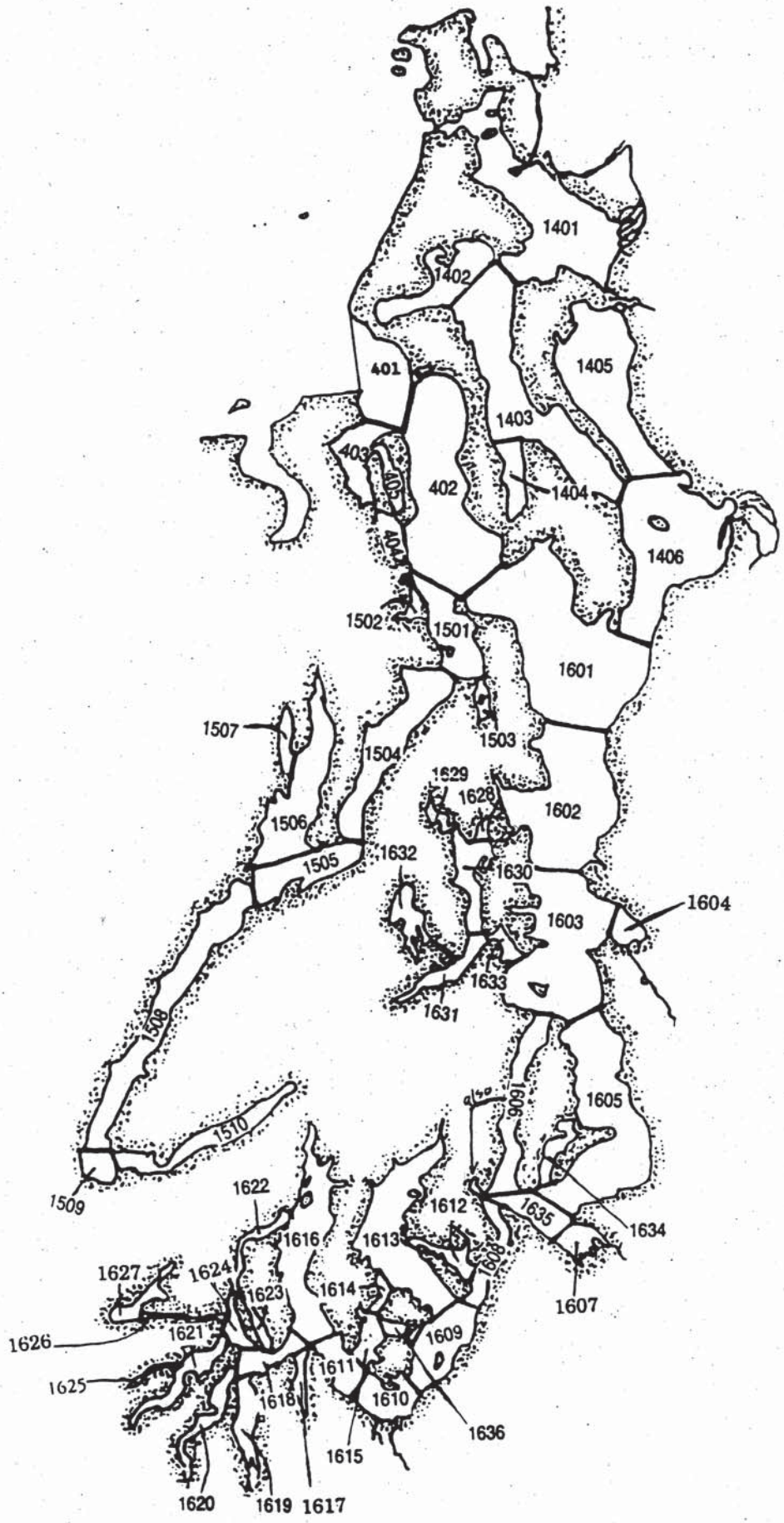

**REGION 10 SUBREGIONS 1001 AND 1002**




**REGION 11 SUBREGIONS 1101 THROUGH 1108**




**REGION 12 SUBREGIONS 1201 THROUGH 1203 AND 1205 THROUGH 1210**




SUBREGIONS OF REGIONS 4, 14, 15 AND 16