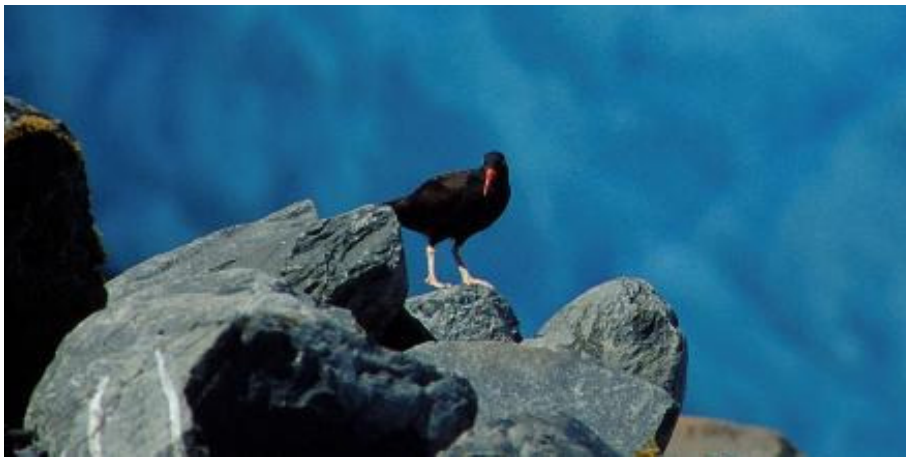
Assessment of Human Use and Associated Risk to Sensitive Resources in Prince William Sound, Alaska, USA

By

Lowell H. Suring
Principal Wildlife Ecologist
Northern Ecologic L.L.C.
10685 County Road A
Suring, Wisconsin 54174

Aaron J. Poe
Chugach National Forest
USDA Forest Service
3301 C Street, Suite 300
Anchorage, Alaska 99503

Prepared for the USDA Forest Service Alaska Region and Chugach National Forest, Anchorage, Alaska, USA



NORTHERN ECOLOGIC LLC

December 2010

Northern Ecologic L.L.C. Technical Bulletin 2010–6
http://www.northern-ecologic.com/

The suggested citation for this document is:

Suring, L. H., and A. J. Poe. 2010. Assessment of Human Use and Associated Risk to Sensitive Resources in Prince William Sound, Alaska, USA. Northern Ecologic L.L.C. Technical Bulletin 2010–6.

Cover photograph: Black oystercatcher in Prince William Sound, Chugach National Forest. Photograph taken by Aaron J. Poe.

Table of Contents

Executive Summary 1
Common Loon 2
Cormorant 2
Harlequin Duck 2
Bald Eagle 2
Black Oystercatcher 2
Kittlitz's Murrelet 3
Marbled Murrelet 3
Pigeon Guillemot 3
Common Murre 3
Seabird Colonies 3
Sea Otter 3
Steller Sea Lion 3
Harbor Seal 4
Dolly Varden 4
Cutthroat Trout 4
Pacific Herring (spawn) 4
Salmon Streams 4
Sockeye Salmon 4
Blue Mussel 4
Eel Grass 5
All Sensitive Resources – Primary Hot Spots 5
All Sensitive Resources – Secondary Hot Spots 5
Introduction 5
Methods 6
Study Area 6
Spatial Scale 6
Sensitive Resources 7
Selection of Resources 7
Modeled Density Index 8

Determination of Hot Spots and Areas of High Potential for Management of Interactions... 8
Development of Recommendations for Management ... 17
Results ... 17
Sensitive Resources ... 17
Common Loon ... 17
Cormorant ... 17
Harlequin Duck ... 18
Bald Eagle ... 18
Black Oystercatcher ... 18
Kittlitz's Murrelet ... 19
Marbled Murrelet ... 19
Pigeon Guillemot ... 19
Common Murre ... 19
Seabird Colonies ... 20
Sea Otter ... 20
Steller Sea Lion ... 20
Harbor Seal ... 21
Dolly Varden ... 21
Cutthroat Trout ... 21
Pacific Herring (spawn) ... 22
Salmon Streams ... 22
Sockeye Salmon ... 23
Blue Mussel ... 23
Eel Grass ... 23
Density Index ... 24
Common Loon ... 24
Cormorant ... 26
Harlequin Duck ... 26
Bald Eagle ... 26
Black Oystercatcher ... 27
Kittlitz's Murrelet ... 27

Marbled Murrelet 27
Pigeon Guillemot 27
Common Murre 28
Seabird Colonies 29
Sea Otter 29
Steller Sea Lion 29
Harbor Seal 30
Dolly Varden 30
Cutthroat Trout 30
Pacific Herring (spawn) 30
Salmon Streams 31
Sockeye Salmon 32
Blue Mussel 32
Eel Grass 32
Recreation 33
Sensitive Resource Areas of High Potential for Management of Interactions and Recreation Hot Spots 34
Common Loon 34
Cormorant 36
Harlequin Duck 36
Bald Eagle 38
Black Oystercatcher 39
Kittlitz's Murrelet 40
Marbled Murrelet 41
Pigeon Guillemot 43
Common Murre 45
Seabird Colonies 46
Sea Otter 48
Steller Sea Lion 48
Harbor Seal 50
Dolly Varden 51

Cutthroat Trout 52
Pacific Herring (spawn) 53
Salmon Streams 55
Sockeye Salmon 57
Blue Mussel 59
Eel Grass 63
All Sensitive Resources – Primary Hot Spots 64
All Sensitive Resources – Secondary Hot Spots 64
Discussion 68
Common Loon 68
Other Considerations 68
Cormorant 69
Other Considerations 69
Harlequin Duck 69
Bald Eagle 70
Black Oystercatcher 70
Kittlitz's Murrelet 71
Other Considerations 71
Marbled Murrelet 72
Other Considerations 72
Pigeon Guillemot 72
Other Considerations 73
Common Murre 73
Other Considerations 74
Seabird Colonies 74
Sea Otter 75
Other Considerations 75
Steller Sea Lion 75
Harbor Seal 77
Dolly Varden 77
Cutthroat Trout 78

Pacific Herring (spawn) 78
Salmon Streams 79
Sockeye Salmon 79
Blue Mussel 80
Eel Grass 80
All Sensitive Resources 81
Literature References 82
Appendix A 107

List of Tables

Table 1. Sensitive resources identified in Prince William Sound, Alaska with components of risk and associated weighting factors. 9

Table 2. Determination of weighting factors for sensitive resources in Prince William Sound, Alaska. 15

Table 3. Percentage of study area within General Areas and number of General Areas by mean density index class for each sensitive resource. 24

Table 4. Comparison of the estimated mean density index class for each sensitive resource by General Area with the estimated mean recreation density[a]. 34

Table 5. General Areas identified as potential areas for management of interactions between common loons and recreationists. 36

Table 6. General Areas identified as potential areas for management of interactions between harlequin ducks and recreationists. 37

Table 7. General Areas identified as potential areas for management of interactions between bald eagles and recreationists. 38

Table 8. General Areas identified as potential areas for management of interactions between black oystercatchers and recreationists. 40

Table 9. General Areas identified as potential areas for management of interactions between Kittlitz's murrelets and recreationists. 41

Table 10. General Areas identified as potential areas for management of interactions between marbled murrelets and recreationists. 42

Table 11. General Areas identified as potential areas for management of interactions between pigeon guillemots and recreationists. 44

Table 12. General Areas identified as potential areas for management of interactions between common murres and recreationists. 45

Table 13. General Areas identified as potential areas for management of interactions between seabird colonies and recreationists. 46

Table 14. General Areas identified as potential areas for management of interactions between sea otters and recreationists. 49

Table 15. General Areas identified as potential areas for management of interactions between Steller sea lions and recreationists. 49

Table 16. General Areas identified as potential areas for management of interactions between harbor seals and recreationists. 50

Table 17. General Areas identified as potential areas for management of interactions between Dolly Varden and recreationists. 52

Table 18. General Areas identified as potential areas for management of interactions between cutthroat trout and recreationists..... 53

Table 19. General Areas identified as potential areas for management of interactions between Pacific herring spawning sites and recreationists. 54

Table 20. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists..... 55

Table 21. General Areas identified as potential areas for management of interactions between sockeye salmon and recreationists. 58

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists..... 59

Table 23. General Areas identified as potential areas for management of interactions between eel grass and recreationists..... 63

Table 24. General Areas identified as potential Primary Hot Spots for management of interactions between all sensitive resources and recreationists. 64

Table 25. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists. 65

List of Figures

Figure 1: Sensitive resource risk study area in Prince William Sound, Alaska. 7

Figure 2. Cumulative mean density index for all sensitive resources by General Area and thresholds for primary and secondary Hot Spots in Prince William Sound, Alaska. 16

Figure 3. Distribution of density index classes for common loon in Prince William Sound, Alaska. 26

Figure 4. Distribution of density index classes for cormorant in Prince William Sound, Alaska. 26

Figure 5. Distribution of density index classes for harlequin duck in Prince William Sound, Alaska. 27

Figure 6. Distribution of density index classes for bald eagle in Prince William Sound, Alaska. 27

Figure 7. Distribution of density index classes for black oyster catcher in Prince William Sound, Alaska. 28

Figure 8. Distribution of density index classes for Kittlitz's murrelet in Prince William Sound, Alaska. 28

Figure 9. Distribution of density index classes for marbled murrelet in Prince William Sound, Alaska. 28

Figure 10. Distribution of density index classes for pigeon guillemot in Prince William Sound, Alaska. 28

Figure 11. Distribution of density index classes for common murre in Prince William Sound, Alaska. 29

Figure 12. Distribution of density index classes for seabird colonies in Prince William Sound, Alaska. 29

Figure 13. Distribution of density index classes for sea otter in Prince William Sound, Alaska. 30

Figure 14. Distribution of density index classes for Steller sea lion in Prince William Sound, Alaska. 30

Figure 15. Distribution of density index classes for harbor seal in Prince William Sound, Alaska. 31

Figure 16. Distribution of density index classes for Dolly Varden in Prince William Sound, Alaska. 31

Figure 17. Distribution of density index classes for cutthroat trout in Prince William Sound, Alaska. 31

Figure 18. Distribution of density index classes for Pacific herring (spawn) in Prince William Sound, Alaska. 31

Figure 19. Distribution of density index classes for salmon streams in Prince William Sound, Alaska. 32

Figure 20. Distribution of density index classes for sockeye salmon in Prince William Sound, Alaska. 32

Figure 21. Distribution of density index classes for blue mussel in Prince William Sound, Alaska. 33

Figure 22. Distribution of density index classes for eel grass in Prince William Sound, Alaska.33

Figure 23. Distribution of density index classes for recreation in Prince William Sound, Alaska. 33

Figure 24. General Areas identified as potential areas for management of interactions between common loons and recreationists. 36

Figure 25. General Areas identified as potential areas for management of interactions between harlequin ducks and recreationists. 37

Figure 26. General Areas identified as potential areas for management of interactions between bald eagles and recreationists. 39

Figure 27. General Areas identified as potential areas for management of interactions between black oystercatchers and recreationists. 40

Figure 28. General Areas identified as potential areas for management of interactions between Kittlitz's murrelets and recreationists. 41

Figure 29. General Areas identified as potential areas for management of interactions between marbled murrelets and recreationists. 43

Figure 30. General Areas identified as potential areas for management of interactions between pigeon guillemots and recreationists. 44

Figure 31. General Areas identified as potential areas for management of interactions between common murres and recreationists. 45

Figure 32. General Areas identified as potential areas for management of interactions between seabird colonies and recreationists. 48

Figure 34. General Areas identified as potential areas for management of interactions between Steller sea lions and recreationists. 50

Figure 35. General Areas identified as potential areas for management of interactions between harbor seals and recreationists. 51

Figure 36. General Areas identified as potential areas for management of interactions between Dolly Varden and recreationists. 52

Figure 37. General Areas identified as potential areas for management of interactions between Dolly Varden and recreationists..... 53

Figure 38. General Areas identified as potential areas for management of interactions between Pacific herring spawning sites and recreationists. 55

Figure 39. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists..... 57

Figure 41. General Areas identified as potential areas for management of interactions between blue mussel and recreationists. 62

Figure 42. General Areas identified as potential areas for management of interactions between eel grass and recreationists..... 63

Figure 43. General Areas identified as potential Primary Hot Spots for management of interactions between all sensitive resources and recreationists. 64

Figure 44. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists. 68

Assessment of Human Use and Associated Risk to Sensitive Resources in Prince William Sound, Alaska, USA

EXECUTIVE SUMMARY

Natural resource managers are becoming increasingly concerned about impacts of recreation and other human uses on wildlife (Knight and Gutzwiller 1995) because recreation has been identified as a major reason for the decline of species at risk (Losos et al. 1995, Czech et al. 2000) and because the number of people taking part in nature-based and wilderness recreation activities is increasing (Cordell et al. 2008). To manage for coexistence between wildlife and human uses in Prince William Sound, particularly recreation, managers need to be aware of the potential consequences of recreation for wildlife. It is critical for management of sustainable human use and sensitive resources in Prince William Sound, that the location, timing, and nature of human use "Hot Spots" relative to wildlife concentrations be well understood by resource managers. Our objective was to describe individual and cumulative concentrations of sensitive resources relative to concentrations of human use to, in turn, identify key areas for management of human use and to provide recommendations leading to management of sustainable human use and sensitive resources. This analysis included the water and adjacent lands of Prince William Sound, bounded by Blying Sound and the Gulf of Alaska to the south and the Chugach Mountains to the north.

Wildlife and other sensitive resources still recovering from the short- and long-term persistent effects of the *Exxon Valdez* oil spill in 1989 provided a basis for selection of sensitive resources evaluated in this analysis. Also considered were species classified as threatened or endangered under the United States Endangered Species Act and seabird colonies. Twenty sensitive resources were selected for analysis. Spatial databases designed for use with a geographic information system (GIS) that described the distribution of individual breeding sites or colonies were available for all selected sensitive resources[1]. Statistical GIS analysis routines were used to estimate the distribution and density for each sensitive resource throughout Prince William Sound. A database with the estimated density of recreation use previously developed by Poe et al. (2010) was used to develop recreation index values throughout Prince William Sound. The modeled density values for each sensitive resource and the recreation index values were evaluated by analysis areas (called General Areas) to determine potential Hot Spots for interaction of recreation and sensitive resources and thus, potential areas of greater risk for the sensitive resources. Management recommendations resulting from this analysis fit into one of the following categories:

1. Targeted outreach to appropriate user group(s)

[1] These data represented the best available information at the time of this analysis. Predictions made on the basis of these data did not necessarily represent the total distribution of each species but rather represented a sampling of their distribution in Prince William Sound.

2. Monitor disturbance events and density and distribution of sensitive resources in General Areas identified as potential areas of concern
3. Determine degree of response of sensitive resources to disturbance by recreationists within Prince William Sound
4. Develop, implement, and monitor restrictions on use by recreationists in General Areas identified as potential areas of concern

Common Loon.–Areas of high potential for management of interactions between common loons and recreationists were generally distributed across northern Prince William Sound and made up 0.48 percent of the study area. Such interactions were expected to be infrequent and limited in duration since most human activity on the water takes place during summer months when few common loons occur on marine waters. Limited monitoring may be necessary (Category 2).

Cormorant.–Areas of high potential for management of interactions between cormorants and recreationists were not apparent in Prince William Sound from our analysis. As a result we anticipate infrequent and limited interactions. Limited monitoring may be necessary (Category 2).

Harlequin Duck.–Areas of high potential for management of interactions between harlequin ducks and recreationists were generally distributed across western Prince William Sound and made up 1.00 percent of the study area. Potential threats to these birds on wintering grounds include human disturbance so limiting interactions on these areas may be critical to the continued well being of harlequin ducks in Prince William Sound. Development, implementation, and monitoring of restrictions on use by recreationists in General Areas identified as potential areas of concern is recommended (Category 4).

Bald Eagle.–Areas of high potential for management of interactions between bald eagles and recreationists were generally distributed across northern and central Prince William Sound and made up 14.20 percent of the study area. Recommended guidelines for management in these areas include restricting use of motorized watercraft and aircraft. Determining response of bald eagles to use by recreationists in General Areas identified as potential areas of concern is recommended (Category 3).

Black Oystercatcher.–Areas of high potential for management of interactions between black oystercatcher and recreationists were distributed across eastern and western Prince William Sound and made up 0.75 percent of the study area. Preventative management actions for these areas may include moving established campsites away from known concentrated nesting areas. Development, implementation, and monitoring of restrictions on use by recreationists in General Areas identified as potential areas of concern is recommended as well as dissemination to recreationists of information on effects of disturbance to black oystercatchers in these areas (Categories 1 and 4).

Kittlitz's Murrelet.–Areas of high potential for management of interactions between Kittlitz's murrelets and recreationists were in eastern Prince William Sound and made up 0.85 percent of the study area. We recommend that managers develop guidelines for tour boats and recreational boaters to minimize disturbance of murrelets and regulate vessel traffic in these areas (Category 4).

Marbled Murrelet.–Areas of high potential for management of interactions between marbled murrelets and recreationists were in eastern and northern Prince William Sound and made up 2.15 percent of the study area. We recommend monitoring marbled murrelets response to disturbance by recreationists to determine if additional management actions are necessary (Category 3).

Pigeon Guillemot.–Areas of high potential for management of interactions between pigeon guillemot and recreationists were in eastern Prince William Sound with scattered areas through central Prince William Sound and made up 1.82 percent of the study area. We recommend monitoring pigeon guillemot response to disturbance by recreationists to determine if additional management actions are necessary (Category 3).

Common Murre.–Areas of high potential for management of interactions between common murre and recreationists were in northeastern and through central Prince William Sound and made up 0.26 percent of the study area. It will be necessary to determine the degree of management of recreationists that will be needed to minimize disturbance of common murres (Categories 1 and 3).

Seabird Colonies.–Areas of high potential for management of interactions between seabird colonies and recreationists were in northeastern and through central Prince William Sound and made up 6.04 percent of the study area. Human activity such as boat and pedestrian traffic can disturb seabird colonies, especially during nesting and should be minimized. We recommend disseminating information on the effects of disturbance and monitoring seabird use of the colonies and their response to human access to the colonies to determine if additional management actions are necessary (Categories 1 and 3).

Sea Otter.–Areas of high potential for management of interactions between sea otter and recreationists were in northeastern and northwestern Prince William Sound and made up 0.19 percent of the study area. We recommend monitoring sea otter response to disturbance by recreationists to determine if additional management actions are necessary (Category 3).

Steller Sea Lion.–Areas of high potential for management of interactions between Steller sea lion and recreationists were in central Prince William Sound and made up 0.30 percent of the study area. Consideration should be given to reducing disturbances in these areas by increasing the 90-m standard buffer distance and improving compliance with regulations through visitor education and increased enforcement (Categories 1, 3, and 4).

Harbor Seal.–Areas of high potential for management of interactions between harbor seal and recreationists were in eastern, northern, and central Prince William Sound and made up 0.74 percent of the study area. There is a need to develop and enforce more restrictive regulations that result in more effective separation between sources of disturbance and harbor seals (Category 4).

Dolly Varden.–Areas of high potential for management of interactions between Dolly Varden and recreationists were in eastern Prince William Sound with scattered areas across northern Prince William Sound and made up 0.33 percent of the study area. There appears to be limited need for management of these interactions at the time of this analysis. However, as recreation pressure increases in Prince William Sound and anglers begin utilizing Dolly Varden more, there is potential for local steams to become over fished and for disturbance to habitats. As a result, we recommend implementation of monitoring to determine response of Dolly Varden to disturbance by recreationists (Category 2).

Cutthroat Trout.–Areas of high potential for management of interactions between cutthroat trout and recreationists were located in eastern and northern Prince William Sound and made up 0.28 percent of the study area. We recommend implementation of monitoring to determine response of cutthroat trout to disturbance by recreationists with consideration given to restricting the harvest of cutthroat trout in these areas (Category 2).

Pacific Herring (spawn).–Areas of high potential for management of interactions between Pacific herring and recreationists were located in north central Prince William Sound and made up 2.45 percent of the study area. Consideration should be given to monitoring the response of spawning Pacific herring to vessels to determine if spawning activity is disrupted (Category 3).

Salmon Streams.–Areas of high potential for management of interactions between salmon and recreationists were located in western Prince William Sound with scattered areas across northern Prince William Sound and made up 4.99 percent of the study area. The recreation use of salmon index streams in these areas should be monitored to ensure that detrimental effects of disturbance do not occur. Streams with limited stocks of salmon in these areas may require additional population monitoring to ensure over harvest does not occur (Category 2).

Sockeye Salmon.–Areas of high potential for management of interactions between sockeye salmon and recreationists were located in western Prince William Sound with scattered areas across northern Prince William Sound and made up 1.10 percent of the study area. The use of sockeye salmon streams in these areas should be monitored to ensure that detrimental effects of disturbance do not occur (Category 2).

Blue Mussel.–Areas of high potential for management of interactions between blue mussel and recreationists were located in western Prince William Sound with scattered areas across central and northern Prince William Sound and made up 13.18 percent of the study area. Consideration

should be given to determining the degree of the threat of invasive species and the effects of physical disruption of mussel beds in Prince William Sound (Categories 1 and 3).

Eel Grass.–Areas of high potential for management of interactions between eel grass and recreationists were located across western and northern Prince William Sound and made up 0.41 percent of the study area. Consideration should be given to determining the degree of the threat of invasive species and the effects of physical disruption of eel grass beds in Prince William Sound (Categories 1 and 3).

All Sensitive Resources – Primary Hot Spots.–Primary Hot Spots for management of interactions between sensitive resources and recreationists were generally distributed across eastern and northern Prince William Sound and made up 0.49 percent of the study area. Because these areas have high concentrations and diversity of sensitive resources and anticipated high levels of human use, consideration should be given to redirecting recreation activities from these areas to ensure that sensitive resources are maintained (Category 4).

All Sensitive Resources – Secondary Hot Spots.–Secondary Hot Spots for management of interactions between sensitive resources and recreationists were concentrated across northwestern and northeastern Prince William Sound in the vicinities of Whittier and Valdez, with scattered areas elsewhere and made up 13.63 percent of the study area. These areas provide opportunities for focusing on-going recreation management activities (e.g., education, enforcement). They may also offer opportunities for interpretation of the sensitive resources present and their role in the Prince William Sound ecosystem (Categories 1 and 2).

This analysis provided insights to where the increasing human use of Prince William Sound may potentially impact sensitive resources. The projected interactions may either put these resources at risk to current threats to their well being or may impeded their recovery from previous perturbations (e.g., *Exxon Valdez* oil spill). These results offer an opportunity to focus development and implementation management actions on resources and in areas where interactions may occur to minimize or eliminate negative effects.

INTRODUCTION

Natural resource managers are becoming increasingly concerned about impacts of recreation and other human uses on wildlife (Knight and Gutzwiller 1995) because recreation has been identified as a major reason for the decline of species at risk (Losos et al. 1995, Czech et al. 2000) and because the number of people taking part in nature-based and wilderness recreation activities is increasing (Cordell et al. 2008). Wildlife viewing is one of the key recreational activities that take place on public lands, and this activity has grown in popularity in recent years (Cordell et al. 2008). Boyle and Samson (1985) and Knight and Cole (1995) have suggested that recreation may affect behavior and fitness of wildlife and have marked effects on individuals, populations, and communities. This is especially relevant in Prince William Sound where wildlife and other sensitive resources are still recovering from the *Exxon Valdez* oil spill (EVOS)

in 1989 (*Exxon Valdez* Oil Spill Trustee Council 2010). To manage for coexistence between wildlife and human uses in Prince William Sound, particularly recreation, managers need to be aware of the potential consequences of recreation for wildlife. Competing uses (e.g., sightseeing and wildlife viewing) are likely to converge in desirable areas, resulting in potential detrimental effects upon each use and creating a larger cumulative impact on the associated resources.

It is critical for management of sustainable human use and sensitive resources (e.g., recovered and recovering EVOS-injured resources) in Prince William Sound, that the location, timing, and nature of human use "Hot Spots" relative to wildlife concentrations be well understood by resource managers. Human use "Hot Spots" are important areas in Prince William Sound where human use is more concentrated relative to surrounding areas (Poe and Greenwood 2010). Human use is not evenly distributed in Prince William Sound (Murphy et al 2004). Particular locations are more desirable as water-based destinations for a variety of reasons including: proximity to communities, presence of scenic glaciers and post-glacial landscapes, availability of landing and camping areas, protected anchorages, sport-fish streams, cabins and other recreation infrastructure, and increased opportunities to harvest wildlife (Murphy et al. 2004). These areas may vary seasonally based on weather conditions and wildlife concentrations which are important for harvest and viewing activities. Sensitive resource "Hot Spots" are important areas in Prince William Sound where these resources are more concentrated relative to surrounding areas (Myers 1988. These areas also may vary seasonally based on weather conditions and availability of prey and other food resources.

Our objective was to describe individual and cumulative concentrations of sensitive resources relative to concentrations of human use to, in turn, identify key areas for management of human-use and to provide recommendations leading to management of sustainable human use and sensitive resources.

METHODS

Study Area

Prince William Sound is a 160-km-wide embayment in south-central Alaska that extends 150 km inland from the Gulf of Alaska. Numerous bays, fiords, and inlets form over 2,900 km of mainland coastline encircling the Sound, and an additional 1,900 km of shoreline are associated with its many islands (Fig. 1). The study area included the water and adjacent lands of Prince William Sound, bounded by Blying Sound and the Gulf of Alaska to the south and the Chugach Mountains to the north (Fig. 1).

Spatial Scale

Analysis areas called General Areas were delineated across Prince William Sound by Poe and Greenwood (2010) as a mid-level spatial unit useful for management of recreation use and sensitive resources. The focus of defining General Areas was on the tidal interface and

nearshore habitats. The tidal interface and nearshore habitats have high values as habitat and are particularly vulnerable to local and global human disturbances, including global climate change (Lubchenco et al. 1993, North Pacific Fishery Management Council 2002, Johnson et al. 2003) so a good understanding of how sensitive resources in these areas may be affected by increasing human use is needed to help managers maintain these resources. The open water areas of Prince William Sound were also delineated using existing saltwater polygons established by the Alaska

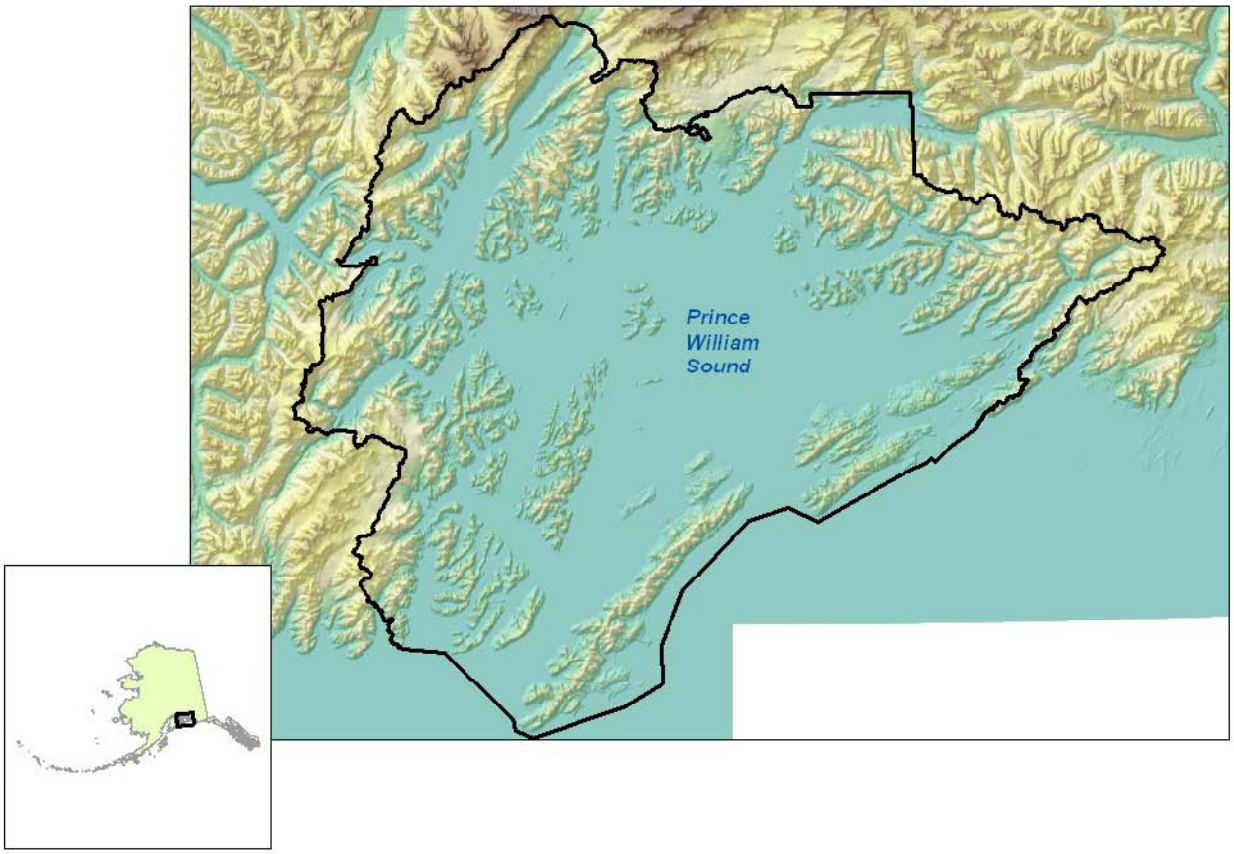


Figure 1: Sensitive resource risk study area in Prince William Sound, Alaska.

Department of Fish and Game (ADF&G) Sport Fish Division as reporting units for commercial sport fishing guides. The intent was to create analysis units large enough for ease of display and small enough to capture the spatial distribution of various landscape attributes including features of human use and density of sensitive resources. General Areas were defined mainly by named geographic features, such as bays, as shown on standard USGS topographic quads. The resulting General Areas varied widely in size, ranging from 1.2 to 80,900 ha (mean of 3,600 ha).

Sensitive Resources

Selection of Resources.–Wildlife and other sensitive resources are still recovering from the short- and long-term persistent effects of the EVOS in 1989 (Peterson et al. 2003, *Exxon Valdez* Oil Spill Trustee Council 2010). The identified resources injured as a result of the EVOS provided a

basis for selection of sensitive resources evaluated in this analysis. All EVOS-injured resources were evaluated; resources that had comprehensive spatial databases describing distribution and abundance were selected (17 of 27) (Table 1). Of the 14 species classified as threatened or endangered under the United States Endangered Species Act (Public Law 93-205) in Alaska (NOAA Fisheries Service 2010), only Steller sea lion occurred in Prince William Sound and had a comprehensive spatial database describing its distribution and abundance. Extensive survey and inventory work has been completed on the distribution and species composition of seabird colonies in Prince William Sound (USDI Fish and Wildlife Service 2004). These resources are particularly venerable to disturbance from human activities (Carney and Sydeman 1999). Considering these factors they were also selected for analysis.

Modeled Density Index.–Spatial databases designed for use with a geographic information system (GIS) that described the distribution of individual breeding sites or colonies were available for all selected sensitive resources. These data represented the best available information at the time of this analysis. Predictions made on the basis of these data did not necessarily represent the total distribution of each species but rather represented a sampling of their distribution in Prince William Sound. The databases provided either point or linear locations of these sites. These data were used to develop an index that described the density in an area for each resource (i.e., density index). A kernel density interpolation that estimated distribution and density was created for each resource using these databases and ArcGIS Spatial Analyst 9.3 (ESRI 2008). We used a search radius of 7,000 m (the default value when the entire Prince William Sound was considered) and a 100- x 100-m cell size (to correspond with a database of projected recreation density [Poe et al. 2010]). The kernel density algorithm provided an option for weighting the analysis for each sensitive resource. The initial predicted distribution and density was weighted to consider the resources' current (2010) degree of injury from the EVOS and the resources' vulnerability to disturbance (i.e., greater degree of injury and greater vulnerability to disturbance resulted in a higher weight) similar to the method of Haines et al. (2010) (Table 2).

We categorized the resulting index numbers into 4 ordinal 25% quantile bins, and 0, for 5 classes (values 0–4), using Spatial Analyst, representing cells with progressively greater density and risk to disturbance (i.e., 0–1 – very low, >1–2 – low, >2–3 – medium, >3–4 – high). We assumed that as density of sensitive resources increased, the risk from disturbance increased. A cumulative density for all sensitive resources was calculated by combining cell-by-cell density index values for each sensitive resource using map algebra in ArcGIS Spatial Analyst 9.3 (ESRI 2008). The mean density index value (ranging from 0–4) for each sensitive resource and the cumulative density index was calculated for each General Area using zonal statistics in ArcGIS Spatial Analyst 9.3 (ESRI 2008).

Determination of Hot Spots and Areas of High Potential for Management of Interactions.–A database with the estimated density of recreational boat use was previously developed from 1,000s of point locations of recreational vessels observed May-August of 2005, 2007, and 2008

Table 1. Sensitive resources identified in Prince William Sound, Alaska with components of risk and associated weighting factors.

Sensitive resource	Current (2010) status of EVOS injured resources[a]	Threat from disturbance or mortality resulting from recreation or commercial activities		
		Level of threat[b]	Sources	Weighting factor[c]
Common loon (*Gavia immer*)	1	2	Caron and Robinson 1994, Heimberger et al. 1983, Kaplan 2003, Newbrey et al. 2005, Ream 1976, Ruggles 1994, Strong and Bissonette 1989, Titus and VanDruff 1981, Vermeer 1973.	2
Cormorant (double-crested [*Phalacrocorax auritus*] and pelagic [*P. pelagicus*])	1	1	DesGranges and Reed 1981, Ellison and Cleary 1978, Henny et al. 1989, Kury and Gochfeld 1975.	1
Harlequin duck (*Histrionicus histrionicus*)	3	2[d]	Esler et al. 2000, Gilliland et al. 2002, Goudie and Jones 2004, Goudie 2006, MacCallum 2001, Rizzolo et al. 2005.	3
Bald eagle (*Haliaeetus leucocephalus*)	1	3	Anthony and Isaacs 1989, Becker 2002, Brown and Stevens 1997, Buehler et al. 1991a, Buehler et al. 1991b, Craig et al. 1988, Fletcher et al. 1999,	2

Table 1. Sensitive resources identified in Prince William Sound, Alaska with components of risk and associated weighting factors.

Sensitive resource	Current (2010) status of EVOS injured resources[a]	Threat from disturbance or mortality resulting from recreation or commercial activities		
		Level of threat[b]	Sources	Weighting factor[c]
			Fraser et al. 1985, Grubb and King 1991, Grubb et al. 1992, Mathisen 1968, McGarigal et al. 1991, Montopoli and Anderson 1991, Rodgers and Schwikert 2003, Schirato and Parsen 2006, Stalmaster and Kaiser 1988, Stalmaster and Newman 1978, Steidl and Anthony 1996, Steidl and Anthony 2000, Watson 1993, Wood et al. 1989, Wood et al. 1998.	
Black oystercatcher (*Haematopus bachmani*)	3	2	Andres 1999, Arimitsu et al. 2005, Golumbia et al. 2009, Irons et al. 2000, Lance et al. 2001, Lindberg et al. 1998, Morse et al. 2006, Murphy and Mabee 2000, Poe et al. 2009, Spiegel 2008.	2
Kittlitz's murrelet (*Brachyramphus brevirostris*)	4	2[d]	Agness 2006, Agness et al. 2008	3

Table 1. Sensitive resources identified in Prince William Sound, Alaska with components of risk and associated weighting factors.

Sensitive resource	Current (2010) status of EVOS injured resources[a]	Threat from disturbance or mortality resulting from recreation or commercial activities		
		Level of threat[b]	Sources	Weighting factor[c]
Marbled murrelet (*B. marmoratus*)	4	2	Bellefleur et al. 2009, Burger 1995, Burger 2002, Carter and Sealy 1984, Carter et al. 1995, Fry 1995, Hébert and Golightly 2006, Long and Ralph 1998, McShane et al. 2004, Piatt et al. 2007, Speckman et al. 2004	3
Pigeon guillemot (*Cepphus Columba*)	5	2[d]	Ewins 1993, Nelson 1987.	3
Common murre (*Uria aalge*)	1	1	Beale and Monaghan 2005, McChesney et al. 2007, Parrish 1997, Rojek et al. 2007, Thayer et al. 1999.	1
Seabird colonies	0	3	Arimitsu et al. 2007, Carney and Sydeman 1999, Erwin 1989	2
Sea otter (*Enhydra lutris*)	3	2	Curland 1997, Garshelis and Garshelis 1984, Lance et al. 2004, Sea Otter Recovery Team 2007.	2

Table 1. Sensitive resources identified in Prince William Sound, Alaska with components of risk and associated weighting factors.

Sensitive resource	Current (2010) status of EVOS injured resources[a]	Threat from disturbance or mortality resulting from recreation or commercial activities		
		Level of threat[b]	Sources	Weighting factor[c]
Steller sea lion (*Eumetopias jubatus*)	0	2	Atkinson et al. 2008, Kucey and Trites 2006, Kucey 2005, Loughlin and Tagart 2006, Mathews 2000a, Mathews 2000b, NMFS 2008, Szaniszlo 2005.	2
Harbor seal (*Phoca vitulina*)	1	3	Henry and Hammill 2001, Johnson and Acevedo-Gutierrez 2007	2
Dolly Varden (*Salvelinus mama*)	1	2	Cooke and Cowx 2006, Lewin et al. 2006	2
Cutthroat trout (*Oncorhynchus clarkia*)	2	2	Gresswell and Harding 1997, Cooke and Cowx 2006, Lewin et al. 2006	2
Pacific herring (*Clupea pallasii*)	5	2	Jørgensen et al. 2005, Kvadsheim and Sevaldsen 2005, Misund et al. 1996, Schwarz and Greer 1984, Skaret et al. 2005, Vabø et al. 2002, Wilson	3

Table 1. Sensitive resources identified in Prince William Sound, Alaska with components of risk and associated weighting factors.

Sensitive resource	Current (2010) status of EVOS injured resources[a]	Threat from disturbance or mortality resulting from recreation or commercial activities		
		Level of threat[b]	Sources	Weighting factor[c]
			and Dill 2002.	
Salmon	1	2[d]	Cooke and Cowx 2006, Lewin et al. 2006	2
Blue mussel (*Mytilus edulis*)	3	2[d]	Hamilton 2000.	2
Eelgrass (*Zostera marina*)	2[e]	3	Bell et al. 2001, Blaber et al. 2000, Francour et al. 1999, Hastings et al. 1995, Orth et al. 2006, Tallis et al. 2009, Walker et al. 1989.	3

[a] Status of resources injured from the effects of the *Exxon Valdez* oil spill (*Exxon Valdez* Oil Spill Trustee Council 2010).

0 – Not identified as a resource that was adversely affected by the *Exxon Valdez* oil spill.

1 – Recovered: recovery objectives have been met, and the current condition of the resource is not related to residual effects of the oil spill.

2 – Very likely recovered: while there has been limited scientific research on the recovery status of these resources in recent years, prior studies suggest that there had been substantial progress toward recovery in the decade following the spill. In addition so much time has passed since any indications of some spill injury, including exposure to oil, it is unlikely that there are any residual effects of the spill.

3 – Recovering: recovering resources are demonstrating substantive progress toward recovery objectives, but are still adversely affected by residual impacts of the spill or are currently being exposed to lingering oil. The amount of progress and time needed to attain full recovery varies depending on the species.

4 – Recovery unknown: for resources in the unknown category, data on life history or the extent of injury from the spill is limited. Moreover, given the length of time since the spill, it is unclear if new or further research will provide information that will help in comprehensively assessing the original injury or determining the residual effects of the spill such that a better evaluation of recovery can occur.

5 – Not recovering: resources that are not recovering continue to show little or no clear improvement from injuries stemming from the oil spill. Recovery objectives have not been met.

[b] Threat of disturbance

1 – The scientific literature is equivocal on whether disturbance or mortality from recreation or commercial activities is a threat to the resource.

2 – Empirical evidence reported in the literature indicated that the resource may respond negatively to disturbance but population status may not be threatened because of disturbance or mortality from recreation or commercial activities or there is limited empirical evidence that indicated that the resource may be threatened from disturbance or mortality from recreation or commercial activities.

3 – Substantial empirical evidence reported in the literature indicated that the resource may be threatened as a result of disturbance or mortality from recreation or commercial activities. Limited evidence has been published indicating that the resource is not threatened as a result of disturbance or mortality from recreation or commercial activities.

[c] See table 2 for calculation of weighting factors.

[d] Additional study is needed; life history characteristics indicate that the resource may be threatened by disturbance from recreation or commercial activities but there is limited empirical evidence reported in the literature supporting this.

[e] Eel grass did not have an EVOS injured resource status assigned; the status for subtidal community was used.

Table 2. Determination of weighting factors for sensitive resources in Prince William Sound, Alaska.

Current level of resource injury from the EVOS[b]	Level of threat from disturbance or mortality resulting from recreation or commercial activities[a]		
	1	2	3
0 – 1	**1**	**2**	**2**
2 – 3	**2**	**2**	**3**
4 – 5	**2**	**3**	**3**

[a] Values are from Table 1.

[b] Status of resources injured from the effects of the *Exxon Valdez* oil spill (EVOS) (*Exxon Valdez* Oil Spill Trustee Council 2010).

0 – Not identified as a resource that was adversely affected by the *Exxon Valdez* oil spill.

1 – Recovered: recovery objectives have been met, and the current condition of the resource is not related to residual effects of the oil spill.

2 – Very likely recovered: while there has been limited scientific research on the recovery status of these resources in recent years, prior studies suggest that there had been substantial progress toward recovery in the decade following the spill. In addition so much time has passed since any indications of some spill injury, including exposure to oil, it is unlikely that there are any residual effects of the spill.

3 – Recovering: recovering resources are demonstrating substantive progress toward recovery objectives, but are still adversely affected by residual impacts of the spill or are currently being exposed to lingering oil. The amount of progress and time needed to attain full recovery varies depending on the species.

4 – Recovery unknown: for resources in the unknown category, data on life history or the extent of injury from the spill is limited. Moreover, given the length of time since the spill, it is unclear if new or further research will provide information that will help in comprehensively assessing the original injury or determining the residual effects of the spill such that a better evaluation of recovery can occur.

5 – Not recovering: resources that are not recovering continue to show little or no clear improvement from injuries stemming from the oil spill. Recovery objectives have not been met.

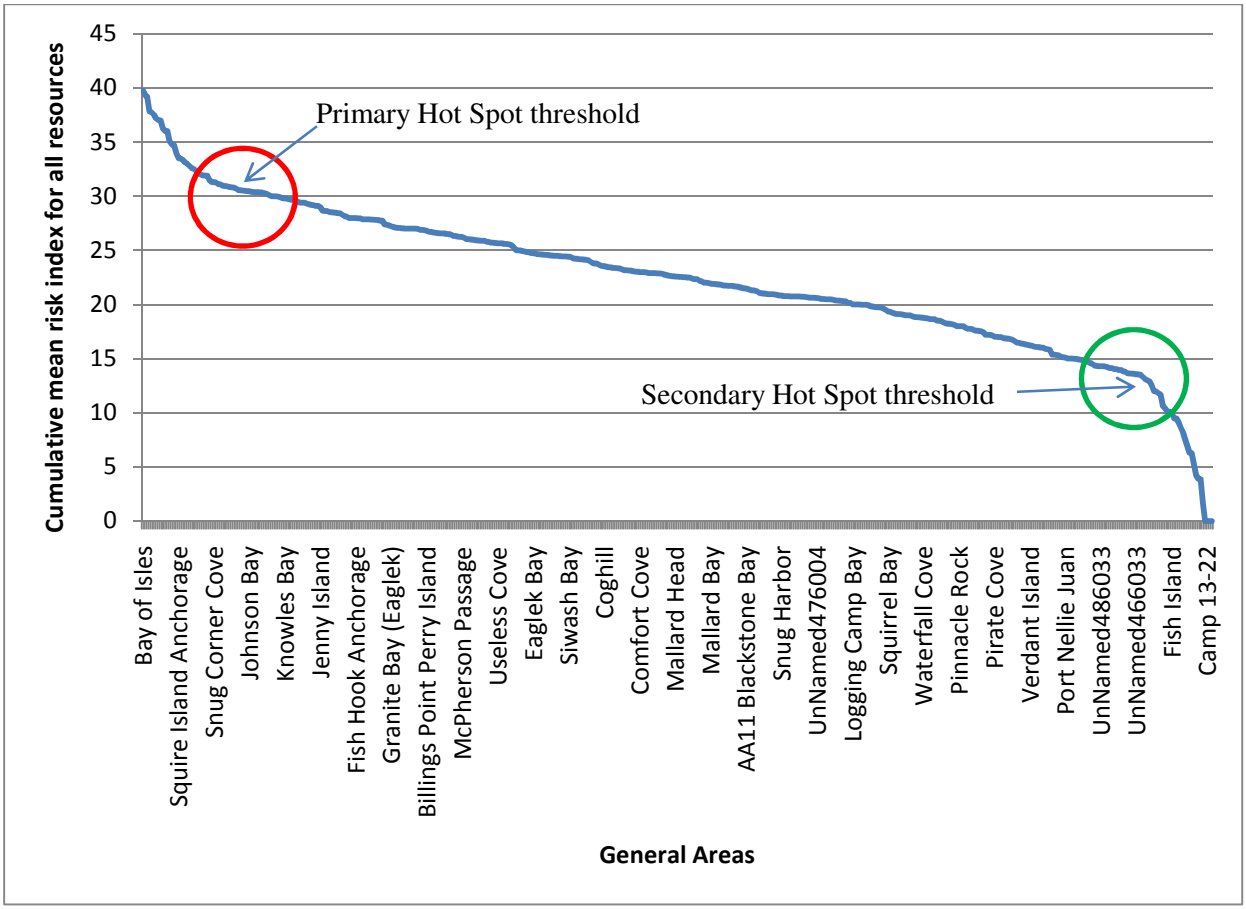


Figure 2. Cumulative mean density index for all sensitive resources by General Area and thresholds for primary and secondary Hot Spots in Prince William Sound, Alaska.

(Poe et al. 2010). These data were categorized into 4 ordinal 25% quantile bins, and 0, for 5 classes (values 0–4), using Spatial Analyst, representing cells with progressively greater recreation density (i.e., 0–1 – very low, >1–2 – low, >2–3 – medium, >3–4 – high). The mean recreation index value (ranging from 0–4) was calculated for each General Area using zonal statistics in ArcGIS Spatial Analyst 9.3 (ESRI 2008). The modeled density values for each sensitive resource and the recreation index values were evaluated for each General Area to determine areas of high potential for interaction of recreation and sensitive resources and thus, potential areas of greater risk for the sensitive resources. A General Area was considered an area of high potential for a sensitive resource if its mean density index was ≥2 (medium to high) and its mean recreation index was ≥3 (high). For the cumulative density index (i.e., all sensitive resources combined) a General Area was considered a Primary Hot Spot if its cumulative mean density index was ≥30 (see Fig. 2) and its mean recreation index was ≥3. A General Area was considered a Secondary Hot Spot if its cumulative mean density index was ≥13–<30 (see Fig. 2) and its mean recreation index was ≥3.

Ranks of mean density index values for each sensitive resource and the cumulative density index values by General Area were compared to mean recreation index values for each General Area using the Kruskal-Wallis test. In the Kruskal-Wallis test the null hypothesis assumes that the samples are from identical populations, while the alternative hypothesis assumes that the samples come from different populations. This calculation provided insight to whether estimated density of a sensitive resource had any relationship (positive or negative) to the estimated density of recreation use.

Development of Recommendations for Management.–Management recommendations resulting from this analysis were developed under one of the following categories:

1. Targeted outreach to appropriate user group(s) (e.g., Crawford et al. 2001)
2. Monitor disturbance events and density and distribution of sensitive resources in General Areas identified as potential areas of concern (e.g., Cole 2004)
3. Determine degree of response of sensitive resources to disturbance by recreationists within Prince William Sound (e.g., Steidl and Powell 2006)
4. Develop, implement, and monitor restrictions on use by recreationists in General Areas identified as potential areas of concern (e.g., Duffus and Dearden 1993)

RESULTS

Sensitive Resources

Common Loon.–Alaska and Minnesota have the largest breeding populations of common loons in the USA (Evers 2004). Approximately 9,000 common loons were distributed across Alaska during the breeding season (Groves et al. 1996). Development and recreational pressures on common loon habitats have been implicated in declining breeding loons and reduced breeding success (Titus and VanDruff 1981). They are considered to be most sensitive to disturbance during the egg-laying and incubating period (mid-May to July) (Caron and Robinson 1994).

The distribution of common loons in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, waterbird surveys conducted by the USDI Fish and Wildlife Service. These surveys were conducted during July in 2003, 2005, and 2007, using methods developed by Klosiewski and Laing (1994) (McKnight et al. 2006). Point locations of common loons from these surveys were used in ArcGIS Spatial Analyst 9.3 (ESRI 2008) to create a kernel point density interpolation of the 3-year cumulative dataset.

Cormorant.–Approximately 1,900 breeding pairs of double-crested cormorants have been recorded in south-central Alaska (Carter et al. 1995). Human disturbance has been reported to result in increased predation by gulls and crows on eggs and young of double-crested cormorants and associated reduction in productivity (Ellison and Cleary 1978).

The distribution of cormorants in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, waterbird surveys conducted by the USDI Fish and Wildlife Service using the same process described above for common loons.

Harlequin Duck.–Approximately 7,500 harlequin ducks have been recorded in Prince William Sound (Agler et al. 1999). Chronic exposure to disturbance during the breeding season may have negative consequences for individual harlequin ducks (Goudie and Jones 2004). Chronic disturbance may also compromise the ability of harlequin ducks to molt, as they alter their time budgets by continually avoiding sources of disturbance (Gilliland et al. 2002).

The distribution of harlequin ducks in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, waterbird surveys conducted by the USDI Fish and Wildlife Service using the same process described above for common loons.

Bald Eagle.–Prince William Sound was reported to provide year-round and seasonal habitat for about 5,000 bald eagles (Bowman et al. 1993, 1995) that are primarily associated with shoreline habitats (i.e., nearly all nests occurred within 200 m of the beach [Hodges and Robards 1982]). However, they are considered to be most sensitive to disturbance during the egg-laying and incubating period (mid-May to July) (Anthony and Isaacs 1989, McGarigal et al. 1991).

More than 1,500 nest sites were documented in the study area during aerial surveys from 1989 through 1994 (Bowman et al. 1997) and were complied as points in GIS format by Alyeska Pipeline and Service Company (2004). Not all portions of the study area were surveyed so nests in those areas were not mapped; new nests may also have been constructed in surveyed areas that were not mapped.

Black Oystercatcher.–Black oystercatchers are ground-nesting birds associated with coastal habitats and are particularly vulnerable to human disturbance, given the propensity for humans to concentrate recreational activities in these regions (Burke et al. 2001). Over 65% (i.e., ~5,000) of the world's population of black oystercatchers breeds in Alaska (Andres and Falxa 1995), with 800 to 1,200 individuals inhabiting Prince William Sound (Isleib and Kessel 1973, Irons et al. 2000). Human disturbance in this area has caused changes in their abundance and distribution; leading, in some, instances to local extirpations (Andres and Falxa 1995). They have a small population size, limited distribution, and low rate of reproductive success. Consequently, they have been also designated a Species of High Conservation Concern in the state (Alaska Shorebird Working Group 2000).

Data describing locations of nesting sites of black oystercatchers were collected from 2001–2009 in Prince William Sound following techniques described in Poe et al. (2009). Surveys conducted on ~ 80% of the shoreline in Prince William Sound targeted the most likely habitat to support nesting birds. Nesting territories were identified by observers from land and water craft when black oystercatchers demonstrated territorial behavior; nests or chicks were not

always observed. Locations of territories were complied as points in GIS format for this analysis.

Kittlitz's Murrelet.–Most of the world population of Kittlitz's murrelets inhabits Alaskan waters; approximately 5% of the remaining birds occur in eastern Siberia (Day et al. 1999). Marine bird surveys in Prince William Sound indicated an 84% decline in Kittlitz's murrelets from approximately 6,400 birds in 1989 to 1,000 birds in 2000; surveys indicated ~2,000 birds in 2001 (Lance et al. 2001, Stephensen et al. 2001, Kuletz et al. 2003a). Kittlitz's murrelets are susceptible to disturbance from increased boat traffic near tidewater glaciers and may be at risk from increasing human use of Prince William Sound (Day et al. 1999, 2003; USDI Fish and Wildlife Service 2003).

The distribution of Kittlitz's murrelets in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, waterbird surveys conducted by the USDI Fish and Wildlife Service using the same process described above for common loons.

Marbled Murrelet.–Surveys conducted in the northern Gulf of Alaska, suggested that about 280,000 marbled murrelets resided in Alaska during summer. Small-boat surveys of Prince William Sound indicated that marbled murrelet populations declined by about 50% between 1972 and 1992. Repetitive small-boat surveys conducted in Prince William Sound after the EVOS yielded a summer (July) population estimate of about 89,000 marbled murrelets (Klosiewski and Laing 1994, Piatt and Naslund 1995). Kuletz (1994) reported that marbled murrelet numbers were negatively correlated with numbers of boats and low-flying aircraft. Evidence also suggested that breeding may have been disrupted as a result of disturbance.

The distribution of marbled murrelets in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, waterbird surveys conducted by the USDI Fish and Wildlife Service using the same process described above for common loons.

Pigeon Guillemot.–Estimated number of resident pigeon guillemots in Prince William Sound declined from 15,567 birds in July 1972 to an average of 4,401 birds in July 1989-1993 as determined from surveys with small boats (Agler et al. 1999). During the nesting period, pigeon guillemots are extremely sensitive to disturbance (Nelson 1987). Birds were reported to be wary and frightened by the slightest disturbance (e.g., gull alarms, loud noise from boats anchored nearby).

The distribution of pigeon guillemots in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, waterbird surveys conducted by the USDI Fish and Wildlife Service using the same process described above for common loons.

Common Murre.–The common murre population in Alaska has been estimated to be approximately 2.8 million breeding birds at 230 colonies (USDI Fish and Wildlife Service 2006). The post-EVOS murre population in the area of Prince William Sound affected by the EVOS

was estimated to be ~12,000 birds (Piatt and Anderson 1995). Aircraft and boat disturbance, especially during April and May, have been implicated as factors affecting productivity colonies of common murres (Carter et al. 2001, Rojek et al. 2007).

The distribution of common murres in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, waterbird surveys conducted by the USDI Fish and Wildlife Service using the same process described above for common loons.

Seabird Colonies.–More than 240 seabird colonies have been identified within Prince William Sound (USDI Fish and Wildlife Service 2004). Species present in these colonies included auklets, cormorants, dovekies, eiders, fulmars, guillemots, gulls, kittiwakes, murrelets, murres, oystercatchers, petrels, puffins, shearwaters, and terns. Four of these colonies supported nesting populations > 5,000 individuals. Most of the breeding birds lay eggs from early May to early July, thus, these areas are expected to be highly sensitive to disturbance during the early spring and summer months (Carney and Sydeman 1999).

The source database for these observations contains current and historical data on breeding population sizes, species composition, and location of seabird colonies in Alaska and the Russian Far East (Stephensen and Irons 2003). Population data in the database were obtained by counting or estimating breeding bird numbers using standardized techniques (USDI Fish and Wildlife Service 1999). These data have been collected over many years, by different observers, and using differing survey methods; thus inhibiting long-term comparisons due to the variable data quality (Stephensen and Mendenhall 1998). For this analysis, we used the most recent estimates for each colony represented in the database within the study area.

Sea Otter.–Sea otters have a broad distribution within Prince William Sound but especially inhabit the near-shore areas on a year-round basis (Burn 1994). Sea otter populations declined precipitously following the EVOS in 1989. While populations are recovering (minimum population estimate of 2,054 in 1993 and a maximum estimate of 3,119 in 1998), Bodkin et al. (2002) did not find evidence of population growth through 2000 so recovery remained incomplete.

The distribution of sea otters in Prince William Sound was predicted using data from systematic, Prince William Sound-wide, flight surveys conducted by the USDI Geological Survey, Alaska Biological Science Center (Bodkin and Udveitz 1999). We selected all point locations resulting from surveys in 1994, 1999, 2002, and 2003. Point locations of sea otters from these surveys were used in ArcGIS Spatial Analyst 9.3 (ESRI 2008) to create a kernel point density interpolation of the 4-year cumulative dataset.

Steller Sea Lion.–Steller sea lions are year-round residents of Prince William Sound, but distributions shift seasonally in response to available food. The greatest numbers and densities of sea lions generally coincide with herring spawning activities in April through May. Eleven rookeries and haulouts were identified in Prince William Sound to which sea lions return for

pupping and breeding activities (mid-May to mid-July, peaking in June), for rest sites, and for molting sites (July through November).

From the late 1960s through 2000, the western population segment of Steller sea lions declined >80% in abundance, with steepest declines of approximately 15% per year occurring in the late 1980s and slower declines of about 5% per year in the 1990s (based on non-pup counts; Loughlin et al. 1992, Sease and Loughlin 1999). In response to the population declines in Alaska, the Steller sea lion was listed in 1990 as a threatened species under the US Endangered Species Act and in 1997 as an endangered species (National Marine Fishery Service 2008).

Spatial and tabular descriptions of habitat for sea lions in Prince William Sound were obtained from the ADF&G (Alaska Department of Fish and Game 1985b, Alaska Department of Fish and Game 1993/1994) and were compiled as polygons in GIS format by Alyeska Pipeline and Service Company (2004). We converted the polygons to points for our analysis.

Harbor Seal.–Although harbor seals are found throughout the year in near-shore areas of Prince William Sound, their counts have declined by >50% between 1988 and 1999 (Frost et al. 2005). The >70 identified harbor seal haulouts in Prince William Sound are particularly sensitive areas during pupping activities (June – July) (Henry and Hammill 2001). Birth occurs onshore in traditional pupping areas, peaking during the second week of June. Seals feed in the near-shore zones, haul out in many different areas to rest and sun, and use traditional areas for molting in the late summer (July – October). Therefore, these areas are considered to be of high priority for protection, particularly in spring through late summer months.

Spatial and tabular descriptions of habitat for harbor seals in Prince William Sound were obtained from the ADF&G (Alaska Department of Fish and Game 1993/1994) and the National Marine Fisheries Service (Loughlin 1993) and were compiled as polygons in GIS format by Alyeska Pipeline and Service Company (2004). We converted the polygons to points for our analysis.

Dolly Varden.–Survival and population size of Dolly Varden are determined by available habitat; most often stream population sizes are small. Anglers often catch Dolly Varden incidentally to other fisheries instead of targeting this species directly (Marston and Brazil 2008). All streams and salt water in Prince William Sound are open year-round to Dolly Varden fishing.

The stream database designating habitat for Dolly Varden was created during 1990 – 1994 using the ADF&G's anadromous stream catalog and atlas (Johnson and Daigneault 2008). Data for selected streams were updated using information collected by the USDA Forest Service and the ADF&G in 2002, 2007, and 2009.

Cutthroat Trout.–Wild cutthroat trout occurred in streams throughout Prince William Sound (Marston and Brazil 2008). However, the ADF&G has found that many of the stocks in Prince William Sound are small and display high annual fluctuations in production (Whitmore et al.

1991). Because of this, these populations may be susceptible to over-exploitation by anglers, and presumably, may be sensitive to other adverse impacts such as disturbance and catastrophic events (Hodges and Buckley 1995). Coastal cutthroat trout have been impacted by anthropogenic practices such as logging (Holtby 1987), over-harvest (Gresswell and Harding 1997), and artificial propagation (Campton 1985). Spawning begins in April and lasts into June; the sport-fish season is closed for cutthroat during this time (i.e., 15 April through 14 June).

The stream database designating habitat for cutthroat trout was created during 1990 – 1994 using the ADF&G's anadromous stream catalog and atlas (Johnson and Daigneault 2008). Data for selected streams were updated using information collected by the USDA Forest Service and the ADF&G in 2002, 2007, and 2009.

Pacific Herring (spawn).–Spawning grounds of Pacific herring are typically in sheltered inlets, sounds, bays, and estuaries rather than along open coastlines (Haegele and Schweigert 1985). Herring primarily spawned in April (Alaska Department of Fish and Game 1991, McGurk and Brown 1996) in the east, north, and central portions of Prince William Sound (Norcross et al. 1996) although spawning begins in mid-March and extends through mid-May. When adequate spawning biomass was available, spring harvests of roe and spawn were allowed; a herring food/bait fishery also occurred in the fall (Lewis at al. 2008). However, recent seasons have been closed because of low herring abundance (Lewis at al. 2008). During the spring in Prince William Sound, adult spawning herring and their offspring are vulnerable to predation, weather patterns, ocean conditions, and human activities (Norcross et al. 2001). Human activities that may affect populations of Pacific herring include alteration of water chemistry and/or temperature, alteration of spawning substrate, alteration of intertidal areas, increase in turbidity, reduction in food supply, reduction in cover (i.e., aquatic vegetation), obstruction of migration routes, introduction of shock waves into the aquatic environment, and harvest (Alaska Department of Fish and Game 1985a).

The ADF&G documented Pacific herring spawning events in Prince William Sound from 1973–2007 and mapped spawning sites as linear features, generally following the coast line (Haegele et al. 1981, Biggs and Funk 1988). These data were obtained from the Prince William Sound Herring Data Portal where spawn events were recorded in GIS format (Bochenek 2009).

Salmon Streams.–Approximately 1,000 streams that flow into Prince William Sound and that support salmon populations have been identified and mapped. Five species of salmon spawn in these streams: sockeye, chum (*Oncorhynchus keta*), pink (*Oncorhynchus gorbuscha*), coho (Oncorhynchus kisutch), and king (*Oncorhynchus tshawytscha*). Pink salmon are the most abundant and are the primary commercial species. Pink and chum salmon often spawn near the mouths of freshwater streams and in intertidal zones. These salmon are most sensitive during spawning (June-March) and the first summer of life prior to heading for open ocean regions (April-August). Sensitivity again increases as the adults return to natal streams to spawn (May-September).

The stream database designating habitat for salmon used in this analysis was created using the ADF&G's anadromous stream catalog and atlas (Johnson and Daigneault 2008) and incorporated the 240 "salmon index streams" that are used to estimating overall salmon escapement numbers for Prince William Sound.

Sockeye Salmon.–The stream database designating habitat for sockeye salmon was created during 1990 – 1994 using the ADF&G's anadromous stream catalog and atlas (Johnson and Daigneault 2008). Data for selected streams were updated using information collected by the USDA Forest Service and the ADF&G in 2002, 2007, 2008, and 2009.

Blue Mussel.–Blue mussels occurred along 933 km or 16% of the mapped shoreline in the Prince William Sound (Lindeberg et al. 2009). Increasing fishing effort and technical developments in marine fisheries such as the use of heavy gear and powerful vessels may lead to increased disturbance of blue mussel beds resulting in reduced populations (Dolmer et al. 2001).

Field surveys were conducted in Prince William Sound in 2004 and 2007 to collect aerial video and digital still photographs of the coastal and near-shore zone during zero-meter tide levels and lower (daylight summer tides) (Lindeberg et al. 2009). The imagery and associated audio commentary were used to map the geomorphic and biological features of the shoreline according to the ShoreZone Coastal Habitat Mapping Protocol (Harney et al. 2008). Blue mussels were particularly associated with fiord habitats with freshwater and/or silty glacial water. Blue mussels were observed at all wave exposures and were distributed across all sections of Prince William Sound with a patchy distribution along most of the 933 km of the shoreline where they were observed.

Eel Grass.–Seagrasses provide key ecological services, including organic carbon production and export, nutrient cycling, sediment stabilization, and enhanced biodiversity (Orth et al. 2006). More specifically, seagrasses provide food, cover, and nursery habitat for many marine species (Dean et al. 2000, Johnson et al. 2003). Eel grass was recorded along 45%, or 2,526 km, of the shoreline in Prince William Sound, with nearly two-thirds of that mapped as a 'continuous' distribution (Lindeberg et al. 2009).

However, seagrasses are challenged with rapid environmental changes as a result of coastal human population pressures. Multiple stressors, including sediment and nutrient runoff, physical disturbance, invasive species, disease, commercial fishing practices, aquaculture, overgrazing, algal blooms, and global warming, cause seagrass declines at scales of square meters to hundreds of square kilometers (Orth et al. 2006). Anthropogenic physical disturbances which may impact seagrasses include dredging (Zieman and Zieman 1989), prop scarring (Sargent et al. 1994), and boat moorings (Walker et al. 1989) which directly remove biomass and alter the physical environment. Mechanical disturbances associated with commercial shellfish and bait harvesting operations have also been shown to adversely affect seagrasses (Fonseca et al. 1984, Peterson et al. 1987) and to reduce mudflat biodiversity (Brown and Wilson 1997).

Many of these studies suggested that the resulting reductions in seagrass biomass may take years to recover to predisturbance levels.

Field surveys were conducted in Prince William Sound in 2004 and 2007 to collect aerial video and digital still photographs of the coastal and nearshore zone during zero-meter tide levels and lower (daylight summer tides) (Lindeberg et al. 2009). The imagery and associated audio commentary were used to map the geomorphic and biological features of the shoreline according to the ShoreZone Coastal Habitat Mapping Protocol (Harney et al. 2008).

Density Index

Common Loon.–Scattered centers of high density were projected across northern Prince William Sound near Port Wells, Tatitlek, Port Gravina, and Hawkins Island (Fig. 3). The majority of the study area had General Areas with mean density index values that were very low or low (99.4% of the areas) (Table 3).

Table 3. Percentage of study area within General Areas and number of General Areas by mean density index class for each sensitive resource.

	Density index class (% of study area / # of General Areas)			
Sensitive resource	Very low	Low	Moderate	High
Birds				
Common loon	94.1/441	5.3/19	0.4/11	0.2/8
Cormorant	97.6/473	2.3/3	tr[a]/1	0.1/2
Harlequin duck	78.0/328	15.6/92	6.1/48	0.3/11
Bald eagle	43.4/201	42.8/118	10.8/108	3.0/52
Black oyster catcher	73.0/359	23.8/90	3.1/27	0.2/3
Kittlitz's murrelet	95.1/449	3.7/16	0.7/10	0.5/4
Marbled murrelet	37.3/200	50.1/148	10.6/88	2.0/43
Pigeon guillemot	78.8/352	16.9/83	2.9/30	1.3/14
Common murre	39.7/346	34.2/68	19.3/46	6.6/19
Seabird colonies	42.2/173	26.9/87	21.2/116	9.7/103

Table 3. Percentage of study area within General Areas and number of General Areas by mean density index class for each sensitive resource.

Sensitive resource	Density index class (% of study area / # of General Areas)			
	Very low	Low	Moderate	High
Mammals				
Sea otter	79.2/391	16.5/73	3.6/11	0.7/4
Sea lion	95.6/435	4.0/20	0.2/10	0.3/14
Harbor seal	54.1/247	30.6/70	8.8/59	6.4/103
Fish				
Dolly Varden	88.0/356	5.2/46	5.0/41	1.8/36
Cutthroat trout	87.5/374	6.2/37	4.9/35	1.4/33
Pacific herring spawn	70.8/306	19.2/62	1.6/50	8.4/61
Salmon index streams	61.1/170	19.9/78	11.7/96	7.3/135
Sockeye salmon	85.4/344	8.0/55	4.5/44	2.1/36
Invertebrates				
Blue mussel	27.1/66	36.8/101	17.2/127	19.0/185
Plants				
Eel grass	85.3/370	13.2/83	1.4/22	0.2/4

[a] tr = trace; < 0.1 percent

Cormorant.–A single center of high density was projected in southern Prince William Sound near Elrington Island (Fig. 4). The majority of the study area had General Areas with mean density index values that were very low or low (99.9% of the area) (Table 3).

Harlequin Duck.–Centers of high density were projected across northern Prince William Sound and in central Prince William Sound near Knight and Montague islands (Fig. 5). Although the majority of the study area had General Areas with mean density index values that were very low or low (93.6% of the area), 6.4% of the area was moderate to high (Table 3).

Bald Eagle.–Centers of high density were projected across northeastern Prince William Sound and throughout central Prince William Sound (Fig. 6). Although the majority of the study area had General Areas with mean density index values that were very low or low (86.2% of the area), 13.8% of the area was moderate to high (Table 3).

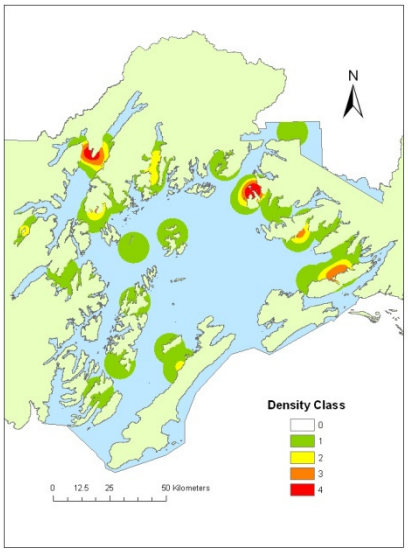


Figure 3. Distribution of density index classes for common loon in Prince William Sound, Alaska.

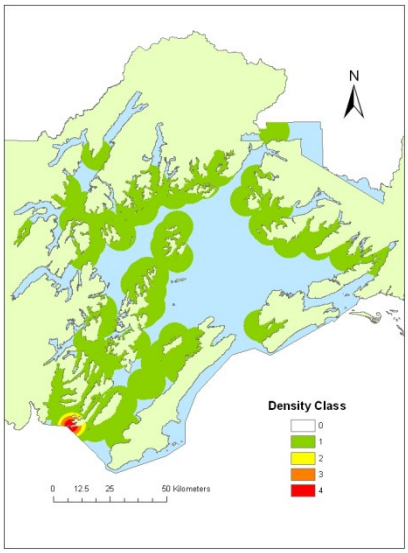


Figure 4. Distribution of density index classes for cormorant in Prince William Sound, Alaska.

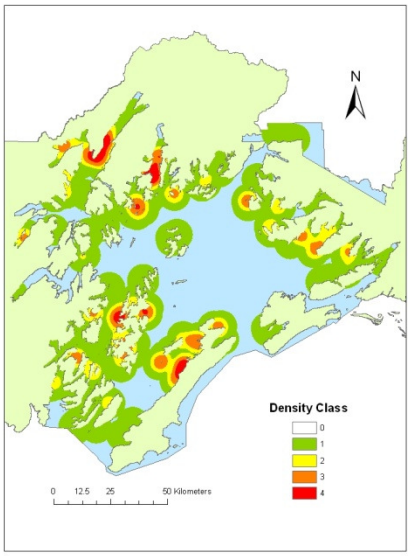


Figure 5. Distribution of density index classes for harlequin duck in Prince William Sound, Alaska.

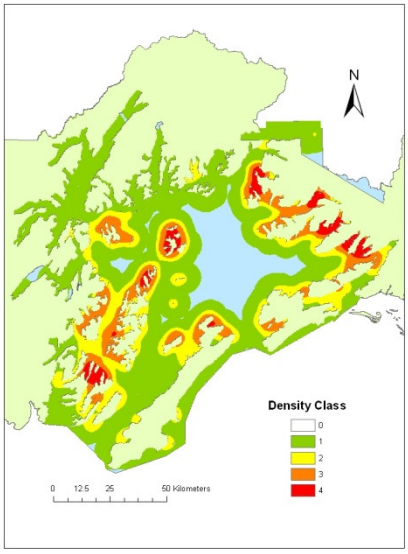


Figure 6. Distribution of density index classes for bald eagle in Prince William Sound, Alaska.

Black Oystercatcher.–Centers of high density were projected to be scattered across northern Prince William Sound with concentrations on the west side of Montague Island (Fig. 7). The majority of the study area had General Areas with mean density index values that were very low or low (96.8% of the area) (Table 3).

Kittlitz's Murrelet.–Centers of high density were projected to be concentrated in northwestern Prince William Sound particularly in Harriman Fiord (Fig. 8). The majority of the study area had General Areas with mean density index values that were very low or low (98.8% of the area) (Table 3).

Marbled Murrelet.–Centers of high density were projected across northern Prince William Sound and in central Prince William Sound near Knight and Chenega islands (Fig. 9). Although the majority of the study area had General Areas with mean density index values that were very low or low (87.4% of the area), 12.6% of the area was moderate to high (Table 3).

Pigeon Guillemot.–Centers of high density were projected across central and northeastern Prince William Sound with a concentration near southern Knight and Chenega islands (Fig. 10). The majority of the study area had General Areas with mean density index values that were very low or low (95.7% of the area) (Table 3).

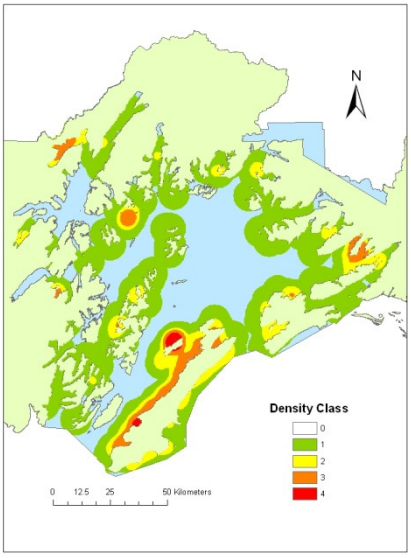


Figure 7. Distribution of density index classes for black oyster catcher in Prince William Sound, Alaska.

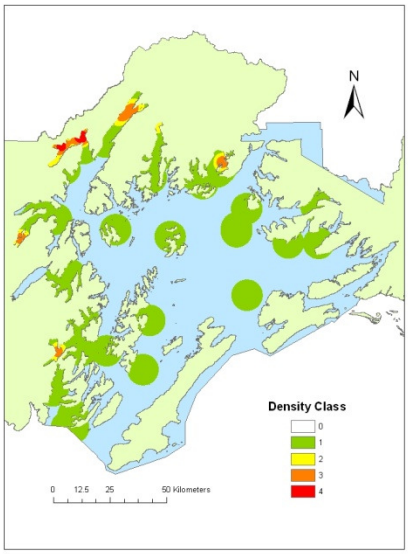


Figure 8. Distribution of density index classes for Kittlitz's murrelet in Prince William Sound, Alaska.

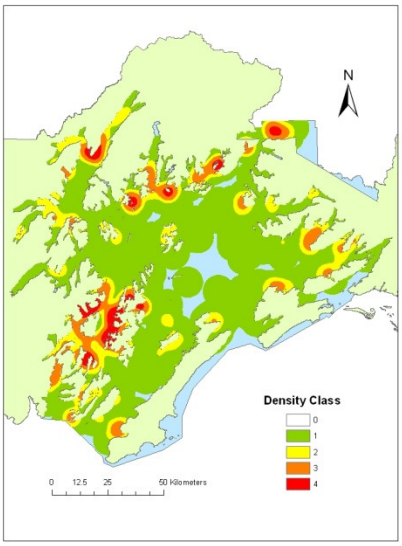


Figure 9. Distribution of density index classes for marbled murrelet in Prince William Sound, Alaska.

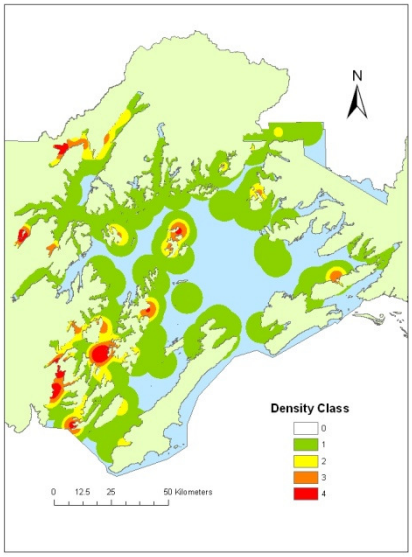


Figure 10. Distribution of density index classes for pigeon guillemot in Prince William Sound, Alaska.

Common Murre.–Centers of high density were projected across northeastern, central, and south-central Prince William Sound with a large concentration near northern Montague Island and

western Hinchinbrook Island (Fig. 11). Less than 74% of the study area had General Areas with mean density index values that were very low or low while >25% had moderate or high values (Table 3).

Seabird Colonies.–Centers of high density were projected throughout the periphery of Prince William Sound with large concentrations in central Prince William Sound near Naked, Perry, and Esther islands (Fig. 12). Less than 70% of the study area had General Areas with mean density index values that were very low or low while >30% had moderate or high values (Table 3).

Sea Otter.–Single centers of high density were projected east of Hawkins Island and at Port Wells (Fig. 13). The majority of the study area had General Areas with mean density index values that were very low or low (95.7% of the area) (Table 3).

Steller Sea Lion.–Ten centers of high density were projected across Prince William Sound which were associated with major haulouts (Fig. 14). The majority of the study area had General Areas with mean density index values that were very low or low (99.6% of the area) (Table 3).

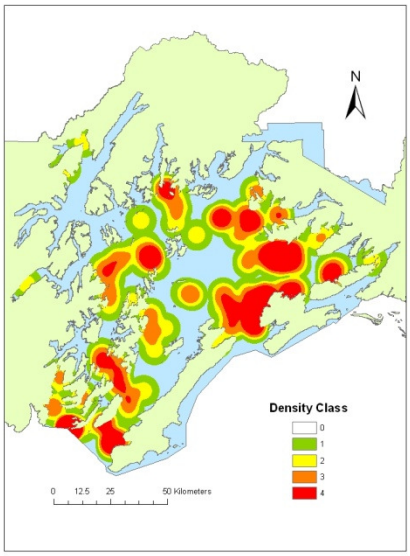


Figure 11. Distribution of density index classes for common murre in Prince William Sound, Alaska.

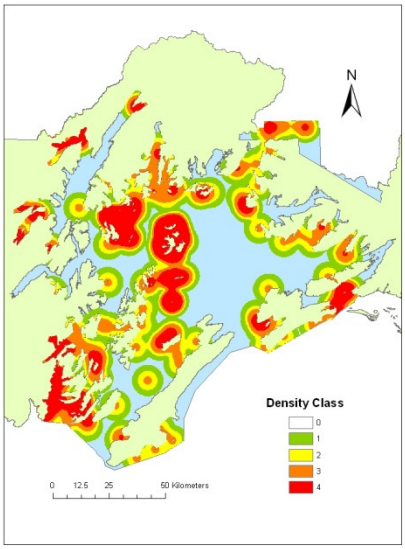


Figure 12. Distribution of density index classes for seabird colonies in Prince William Sound, Alaska.

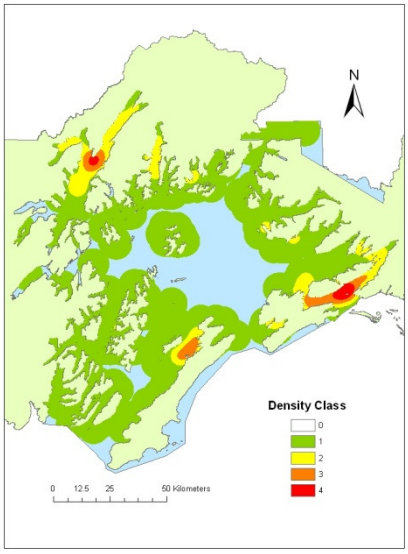


Figure 13. Distribution of density index classes for sea otter in Prince William Sound, Alaska.

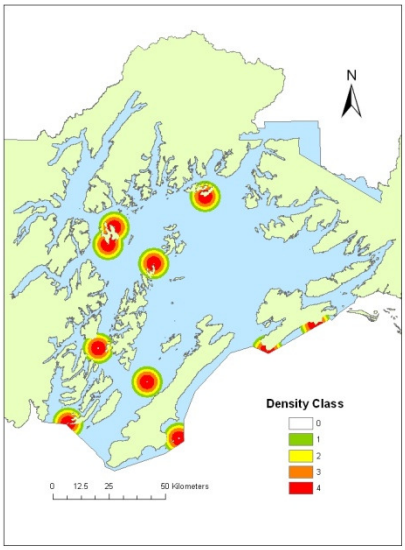


Figure 14. Distribution of density index classes for Steller sea lion in Prince William Sound, Alaska.

Harbor Seal.–Centers of high density were projected across Prince William Sound which were associated with major haulouts and pupping areas (Fig. 15). Although the majority of the study area had General Areas with mean density index values that were very low or low (84.7% of the area), 15.3% of the area was moderate to high (Table 3).

Dolly Varden.–Centers of high density were projected throughout the periphery of Prince William Sound with large concentrations in eastern Prince William Sound near Hawkins, Hinchinbrook, and Montague islands (Fig. 16). The majority of the study area had General Areas with mean density index values that were very low or low (93.2% of the area) (Table 3).

Cutthroat Trout.–Centers of high density were projected throughout the periphery of Prince William Sound with large concentrations in eastern Prince William Sound near Hawkins, Hinchinbrook, and Montague islands; Port Gravina; and Port Fidalgo (Fig. 17). The majority of the study area had General Areas with mean density index values that were very low or low (93.7% of the area) (Table 3).

Pacific Herring (spawn).–Centers of high density were projected across northern Prince William Sound with additional large concentrations near Montague, Green, and Naked islands (Fig. 18). Although the majority of the study area had General Areas with mean density index values that were very low or low (90% of the area), 10% of the area was moderate to high (Table 3).

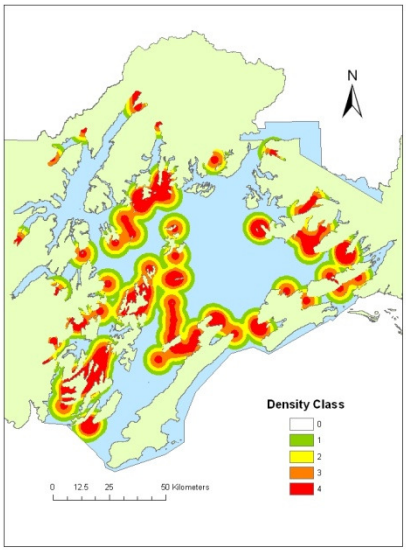


Figure 15. Distribution of density index classes for harbor seal in Prince William Sound, Alaska.

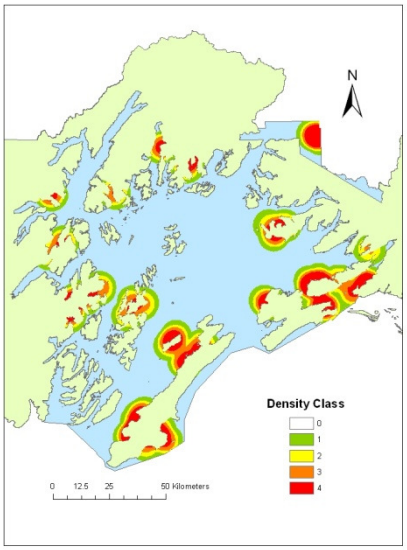


Figure 16. Distribution of density index classes for Dolly Varden in Prince William Sound, Alaska.

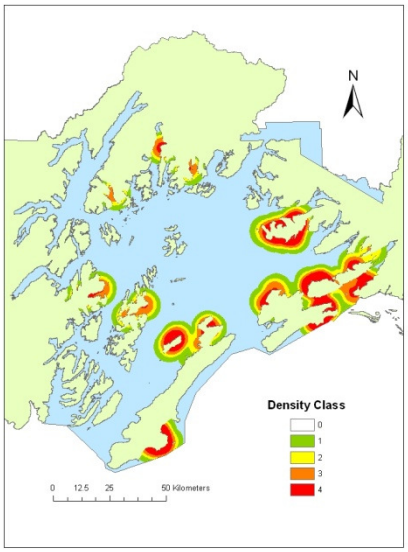


Figure 17. Distribution of density index classes for cutthroat trout in Prince William Sound, Alaska.

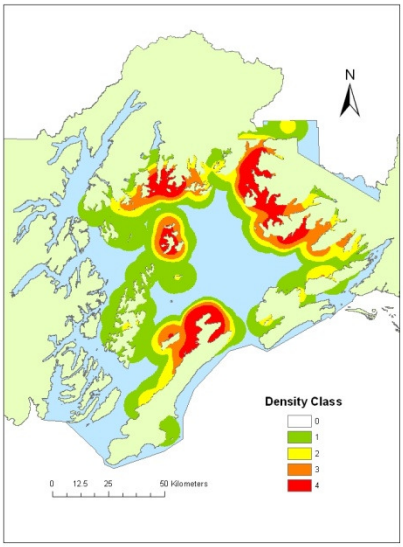


Figure 18. Distribution of density index classes for Pacific herring (spawn) in Prince William Sound, Alaska.

Salmon Streams.–Projected centers of high density were nearly continuous throughout the periphery of Prince William Sound (Fig. 19). Although the majority of the study area had

General Areas with mean density index values that were very low or low (81% of the area), 19% of the area was moderate to high (Table 3).

Sockeye Salmon.–Projected centers of high density were scattered throughout the periphery of Prince William Sound (Fig. 20). The majority of the study area had General Areas with mean density index values that were very low or low (93.4% of the area) (Table 3).

Blue Mussel.–Projected centers of high density were nearly continuous throughout the periphery of Prince William Sound with concentrations in the western and northwestern portions (Fig. 21). Although the majority of the study area had General Areas with mean density index values that were very low or low (nearly 64% of the area), >36% of the area was moderate to high (Table 3).

Eel Grass.–A few centers of high density were projected to be scattered throughout the periphery of Prince William Sound with a concentration near Chenega Island (Fig. 22). The majority of the study area had General Areas with mean density index values that were very low or low (98.5% of the area) (Table 3).

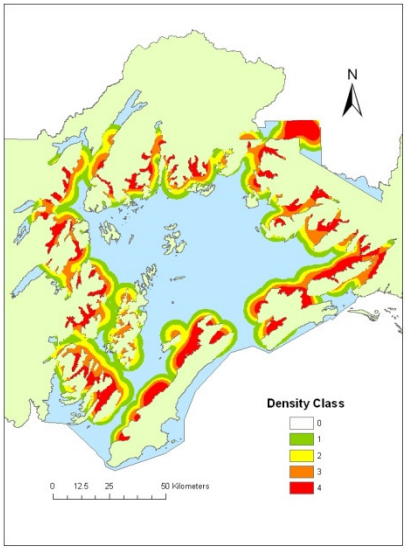


Figure 19. Distribution of density index classes for salmon streams in Prince William Sound, Alaska.

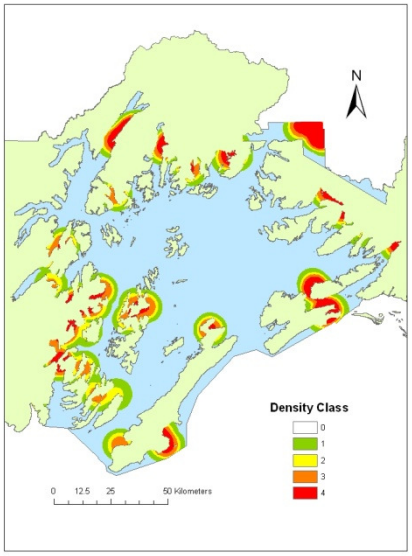


Figure 20. Distribution of density index classes for sockeye salmon in Prince William Sound, Alaska.

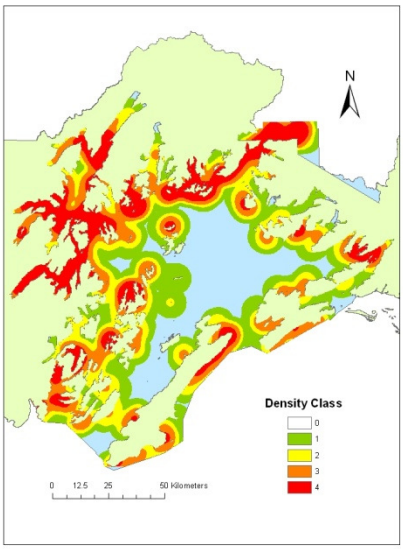


Figure 21. Distribution of density index classes for blue mussel in Prince William Sound, Alaska.

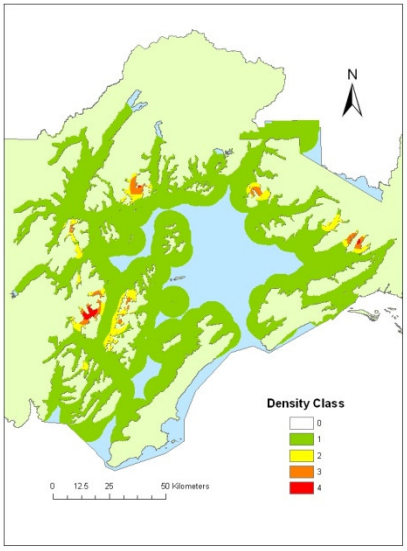


Figure 22. Distribution of density index classes for eel grass in Prince William Sound, Alaska.

Recreation.–Projected centers of high density recreation were concentrated in western and northern Prince William Sound (Fig. 23). Although the majority of the study area had General Areas with mean recreation index values that were very low or low (68% of the area), 32% of the area was moderate to high.

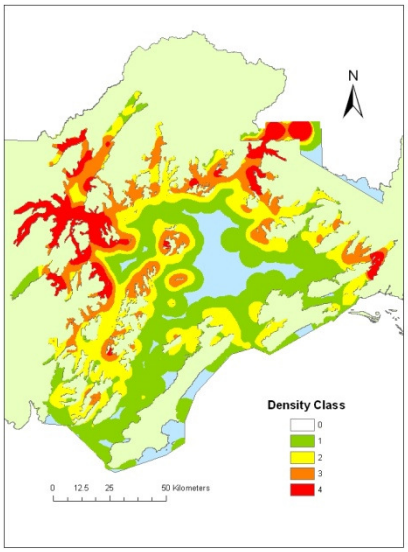


Figure 23. Distribution of density index classes for recreation in Prince William Sound, Alaska.

Sensitive Resource Areas of High Potential for Management of Interactions and Recreation Hot Spots

Common Loon.–When the estimated mean density index class for common loon was ranked by General Area and compared to the estimated mean recreation density classes for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

Table 4. Comparison of the estimated mean density index class for each sensitive resource by General Area with the estimated mean recreation density[a].

	Kruskal-Wallis test statistics		
Sensitive resource	Adjusted H	Degrees of freedom	P value
Birds			
Common loon	588.2	1	<0.001
Cormorant	598.1	1	<0.001
Harlequin duck	378.2	1	<0.001
Bald eagle	116.3	1	<0.001
Black oyster catcher	448.3	1	<0.001
Kittlitz's murrelet	608.3	1	<0.001
Marbled murrelet	176.0	1	<0.001
Pigeon guillemot	408.0	1	<0.001
Common murre	424.6	1	<0.001
Seabird colonies	62.2	1	<0.001
Mammals			
Sea otter	481.2	1	<0.001
Sea lion	640.1	1	<0.001

Table 4. Comparison of the estimated mean density index class for each sensitive resource by General Area with the estimated mean recreation density[a].

Sensitive resource	Kruskal-Wallis test statistics		
	Adjusted H	Degrees of freedom	P value
Harbor seal	143.4	1	<0.001
Fish			
Dolly Varden	396.2	1	<0.001
Cutthroat trout	431.2	1	<0.001
Pacific herring spawn	239.6	1	<0.001
Salmon index streams	37.2	1	<0.001
Sockeye salmon	379.9	1	<0.001
Invertebrates			
Blue mussel	1.9	1	<0.001
Plants			
Eel grass	445.4	1	<0.001

[a]Results of this analysis indicated there was not a relationship between the estimated mean density index class for most sensitive resources by General Area with the estimated mean recreation density. There were limited relationships noted for seabird colonies, salmon index stream, and eel grass that were not statistically significant.

When General Areas with moderate to high estimated mean density index class for common loon were compared with General Areas with mean recreation density classes estimated to be high, 11 were identified as potential areas for management of interactions between common loons and recreationists (Table 5, Fig. 24). They were generally distributed across northern Prince William Sound and made up 0.48 percent of the study area.

Table 5. General Areas identified as potential areas for management of interactions between common loons and recreationists.

General Area	Percent of study area
Barry Arm	0.01
Busby Island	0.02
Ellamar	0.01
Kelly's Cove	0.00
Lake Bay	0.09
Pakenham Point	0.00
Quillian Bay	0.00
South Esther SMP	0.01
Tatitlek	0.31
Tatitlek Narrows	0.01
Virgin Bay	0.01
Total percent	0.48
Number of General Areas	11

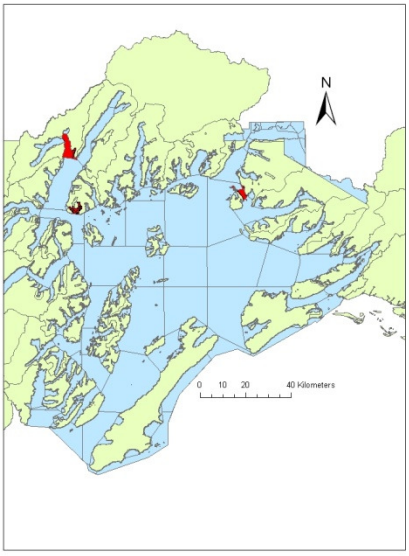


Figure 24. General Areas identified as potential areas for management of interactions between common loons and recreationists.

Cormorant.–When the estimated mean density index class for cormorant was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for cormorant were compared with General Areas with mean recreation density classes estimated to be high, none were identified as potential areas for management of interactions between cormorants and recreationists.

Harlequin Duck.–When the estimated mean density index class for harlequin duck was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for harlequin duck were compared with General Areas with mean recreation density classes estimated to be high, 22 were identified as potential areas for management of interactions

between harlequin ducks and recreationists (Table 6, Fig. 25). They were generally distributed across western Prince William Sound and made up 1.00 percent of the study area.

Table 6. General Areas identified as potential areas for management of interactions between harlequin ducks and recreationists.

General Area	Percent of study area
Agayuut Bay	0.00
Agayuut Island	0.00
Barry Arm	0.31
Bettles Bay SMP	0.00
Cat Head	0.00
Coghill	0.07
Coghill Lake Tr	0.00
Cow Pens	0.01
Granite Point	0.00
Harriman Fjord	0.36
Harriman south shore complex	0.01
Hummer Bay	0.03
Junction Island	0.00
Kelly's Cove	0.02
Lucky Bay	0.01
Paddy Bay	0.04
Pakenham Point	0.01
Pirate Cove	0.01
Serpentine Cove	0.02
Sheep Point	0.00
Surprise Inlet	0.07
Willard Island	0.01
Total percent	1.00
Number of General Areas	22

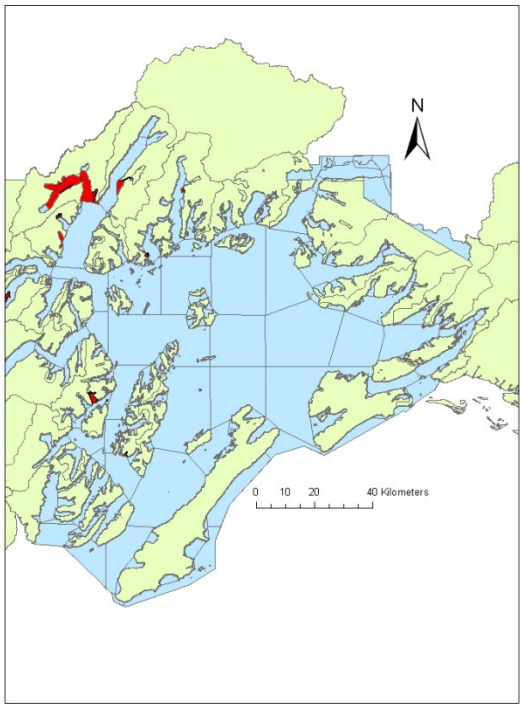


Figure 25. General Areas identified as potential areas for management of interactions between harlequin ducks and recreationists.

Bald Eagle.–When the estimated mean density index class for bald eagle was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for bald eagle were compared with General Areas with mean recreation density classes estimated to be high, 22 were identified as potential areas for management of interactions between bald eagles and recreationists (Table 7, Fig. 26). They were generally distributed across northern and central Prince William Sound and made up 14.20 percent of the study area.

Table 7. General Areas identified as potential areas for management of interactions between bald eagles and recreationists.

General Area	Percent of study area
Bear Cove	1.18
Bettles Island	1.84
Billings Point Perry Island	3.59
Block Island Eleanor Island	4.33
Bomb Point	0.83
Busby Island	0.02
Cabin Bay	0.00
Cat Head	0.05
Channel Islands The Narrows	0.01
Crab Bay	0.03
Day Care Cove	0.02
Deep Bay	0.36
Deer Cove Knight	0.02
Disk Island	0.06
Disk Island Anchorage	0.04
East Twin Bay	0.02
Eleanor Island	0.02
Ellamar	0.00
Fool Island	0.00
Foul Pass	0.04

Table 7. General Areas identified as potential areas for management of interactions between bald eagles and recreationists.

General Area	Percent of study area
Galena Bay	0.00
Granite Bay (Dangerous Passage)	0.04
Gull Island	0.01
Hole-in-the-wall	0.14
Ingot Cove	0.00
Ingot Island	0.00
Italian Bay	0.02
Junction Island	0.00
Louis Bay	0.01
Lower Passage	0.03
Lucky Bay	0.03
McPherson Bay	0.04
McPherson Passage	0.70
Naked Island	0.00
NE Galena Coves (Lethcoe)	0.02
Northwest Bay	0.02
Observation Island	0.01
Outside Bay	0.02
Passage Anchorage	0.00
Pt Nowell	0.00
Rocky Point	0.38

Table 7. General Areas identified as potential areas for management of interactions between bald eagles and recreationists.

General Area	Percent of study area
(Lethcoe)	
Sawmill Bay Evans Island	0.11
Sheep Point	0.00
Simpson Bay southeast arm	0.00
Squire Island	0.00
Squire Island Anchorage	0.00
Tatitlek	0.02
Tatitlek Narrows	0.00
Unnamed north of Galena	0.11
Virgin Bay	0.01
West Twin Bay	0.00
Total percent	14.20
Number of General Areas	51

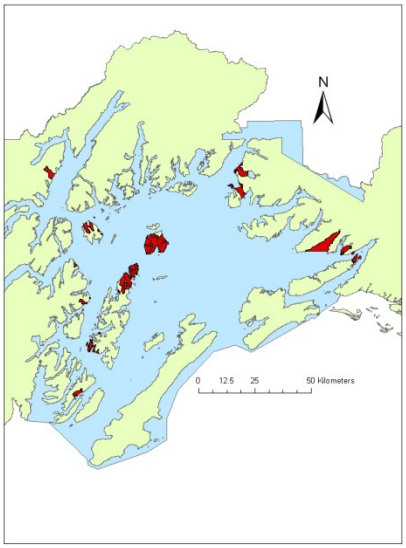


Figure 26. General Areas identified as potential areas for management of interactions between bald eagles and recreationists.

Black Oystercatcher.–When the estimated mean density index class for black oystercatcher was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for black oystercatcher were compared with General Areas with mean recreation density classes estimated to be high, 24 were identified as potential areas for management of interactions between black oystercatcher and recreationists (Table 8, Fig. 27). Major concentrations were distributed across eastern and western Prince William Sound and made up 0.75 percent of the study area.

Table 8. General Areas identified as potential areas for management of interactions between black oystercatchers and recreationists.

General Area	Percent of study area
Bear Cove	0.01
Bomb Point	0.00
Channel Islands The Narrows	0.00
Dalli Bay	0.00
Deep Bay	0.03
Deep Water Bay	0.03
Derickson Bay Nellie Juan	0.07
Disk Island Anchorage	0.00
Emerald Cove (Heather Bay)	0.01
Harriman Fjord	0.36
Harriman south shore complex	0.01
Hinge Beach (Doran Straight)	0.00
Hole-in-the-wall	0.00
Louis Bay	0.02
NE Galena Coves (Lethcoe)	0.01
Nellie Juan Glacier and spit	0.01
Nellie Juan Lagoon	0.02
Observation Island	0.00
Rocky Point (Lethcoe)	0.01
Serpentine Cove	0.02
Sheep Point	0.00

Table 8. General Areas identified as potential areas for management of interactions between black oystercatchers and recreationists.

General Area	Percent of study area
Simpson Bay southeast arm	0.06
Surprise Inlet	0.07
Unnamed north of Galena	0.01
Total percent	0.75
Number of General Areas	24

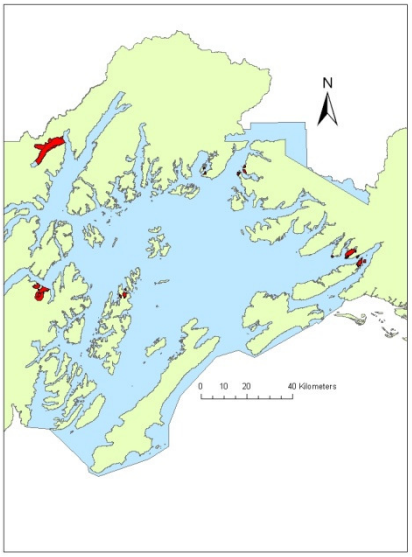


Figure 27. General Areas identified as potential areas for management of interactions between black oystercatchers and recreationists.

Kittlitz's Murrelet.–When the estimated mean density index class for Kittlitz's murrelet was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for Kittlitz's murrelet were compared with General Areas with mean recreation density classes estimated to be high, 11 were identified as potential areas for management of interactions between Kittlitz's murrelets and recreationists (Table 9, Fig. 28). Major concentrations were in eastern Prince William Sound and made up 0.85 percent of the study area.

Table 9. General Areas identified as potential areas for management of interactions between Kittlitz's murrelets and recreationists.

General Area	Percent of study area
AA11 Blackstone Bay	0.01
Barry Arm	0.31
Dalli Bay	0.00
Harriman Fjord	0.36
Harriman south shore complex	0.01
Head of Barry Arm	0.04
Heather Island	0.01
Hinge Beach (Doran Straight)	0.00
Serpentine Cove	0.02
Surprise Inlet	0.07
Willard Island	0.01
Total percent	0.85
Number of General Areas	11

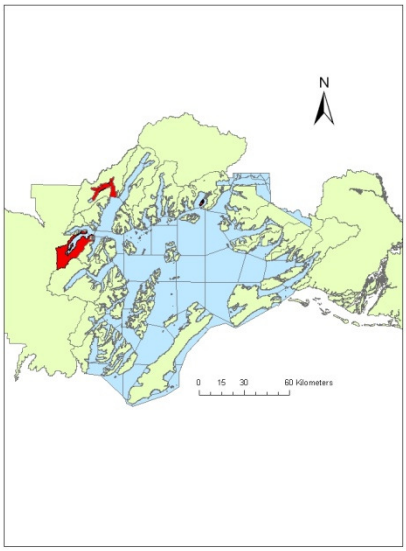


Figure 28. General Areas identified as potential areas for management of interactions between Kittlitz's murrelets and recreationists.

Marbled Murrelet.–When the estimated mean density index class for marbled murrelet was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for marbled murrelet were compared with General Areas with mean recreation density classes estimated to be high, 65 were identified as potential areas for management of interactions between marbled murrelets and recreationists (Table 10, Fig. 29). Major concentrations were in eastern and northern Prince William Sound and made up 2.15 percent of the study area.

Table 10. General Areas identified as potential areas for management of interactions between marbled murrelets and recreationists.

General Area	Percent of study area
AA13 West Knight Island Passage	0.02
Agayuut Bay	0.00
Agayuut Island	0.00
Anderson Bay Valdez	0.02
Barry Arm	0.31
Bear Cove	0.01
Bettles Bay	0.09
Bettles Bay SMP	0.00
Bettles Island	0.00
Billings Point Perry Island	0.00
Brave Harbor	0.00
Cat Head	0.00
Coghill Lake Tr	0.00
Crab Bay	0.00
Crafton Island	0.00
Culross Cove	0.01
Culross Island	0.01
Dalli Bay	0.00
Day Care Cove	0.00
DECISION POINT SMP	0.00
Deer Cove Knight	0.01
Dual Head	0.01
Eagle Bay	0.02
East Finger Inlet	0.01
Emerald Cove (Heather Bay)	0.01
Eshamy Bay	0.12
Gold Creek/Camp Bowie	0.01
Goose Bay	0.01
Granite Bay (Dangerous Passage)	0.02
Granite Point	0.00
Harriman south shore complex	0.01

Table 10. General Areas identified as potential areas for management of interactions between marbled murrelets and recreationists.

General Area	Percent of study area
Head of Pigot Bay	0.03
Heather Island	0.01
Hinge Beach (Doran Straight)	0.00
Hobo Bay	0.02
Italian Bay	0.00
Jackpot Bay	0.09
Jackson Hole	0.01
Junction Island	0.00
Kelly's Cove	0.02
Logging Camp Bay	0.00
Lucky Bay	0.01
Mueller Cove	0.01
Olsen Cove	0.00
Olsen Island	0.00
Paddy Bay	0.04
Pakenham Point	0.01
Passage Anchorage	0.01
Port Valdez	0.82
Pt Nowell	0.00
Sawmill Bay Evans Island	0.04
Sawmill Bay SMP	0.00
Sawmill Bay Valdez Arm	0.04
Serpentine Cove	0.02
Sheep Point	0.00
Shoup Bay	0.05
Shoup Bay SMP	0.13
South Olsen Island	0.00
Squire Island	0.01
Squire Island Anchorage	0.00
Squirrel Cove	0.00
Surprise Cove	0.02
Surprise Cove SMP	0.01
Useless Cove	0.01

Table 10. General Areas identified as potential areas for management of interactions between marbled murrelets and recreationists.

General Area	Percent of study area
West Culross Anchorage	0.00
Total percent	2.15
Number of General Areas	65

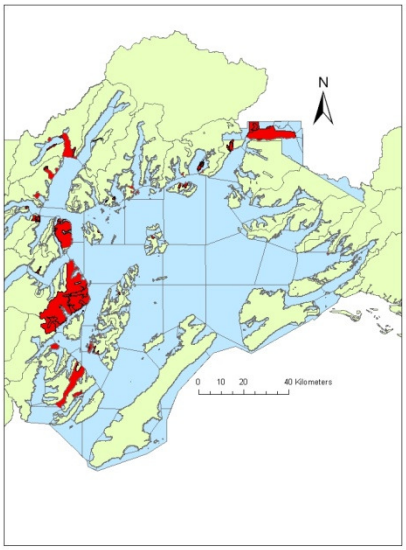


Figure 29. General Areas identified as potential areas for management of interactions between marbled murrelets and recreationists.

Pigeon Guillemot.–When the estimated mean density index class for pigeon guillemot was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for pigeon guillemot were compared with General Areas with mean recreation density classes estimated to be high, 30 were identified as potential areas for management of interactions between pigeon guillemot and recreationists (Table 11, Fig. 30). Major concentrations were in eastern Prince William Sound with scattered areas through central Prince William Sound and made up 1.82 percent of the study area.

Table 11. General Areas identified as potential areas for management of interactions between pigeon guillemots and recreationists.

General Area	Percent of study area
AA11 Blackstone Bay	0.01
Barry Arm	0.31
Billings Point Perry Island	0.00
Blackstone Bay	0.56
Cabin Bay	0.07
Cat Head	0.00
Coghill Lake Tr	0.00
Dalli Bay	0.00
Day Care Cove	0.00
Deer Cove Knight	0.01
Ellamar	0.00
Harriman Fjord	0.36
Harriman south shore complex	0.01
Hinge Beach (Doran Straight)	0.00
Italian Bay	0.00
Jackpot Bay	0.09
Kelly's Cove	0.02
Lucky Bay	0.01
McPherson Passage	0.06
Outside Bay	0.05
Passage Anchorage	0.01
Serpentine Cove	0.02
Squire Island	0.01
Squire Island Anchorage	0.00
Surprise Inlet	0.07
Tatitlek	0.00

.

Table 11. General Areas identified as potential areas for management of interactions between pigeon guillemots and recreationists.

General Area	Percent of study area
Tatitlek Narrows	0.09
Three Fingers Cove	0.02
Virgin Bay	0.01
Willard Island	0.01
Total percent	1.82
Number of General Areas	30

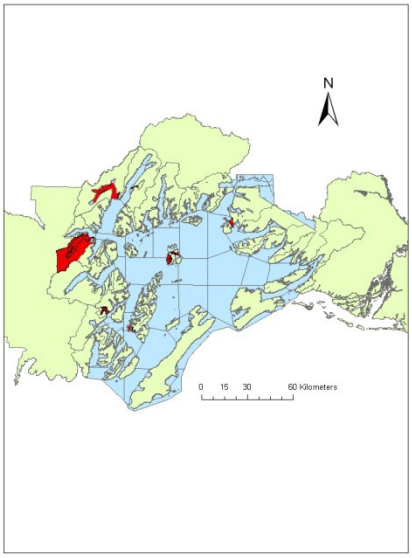


Figure 30. General Areas identified as potential areas for management of interactions between pigeon guillemots and recreationists.

Common Murre.–When the estimated mean density index class for common murre was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for common murre were compared with General Areas with mean recreation density classes estimated to be high, 23 were identified as potential areas for management of interactions between common murre and recreationists (Table 12, Fig. 31). Scattered areas were in northeastern and through central Prince William Sound and made up 0.26 percent of the study area.

Table 12. General Areas identified as potential areas for management of interactions between common murres and recreationists.

General Area	Percent of study area
Bear Cove	0.01
Bettles Bay SMP	0.00
Busby Island	0.00
Channel Islands The Narrows	0.00
Crafton Island	0.00
Deep Bay	0.03
Deer Cove Knight	0.01
Eleanor Island	0.01
Ellamar	0.00
Falls Bay	0.02
Granite Point	0.00
Gull Island	0.00
Hinge Beach (Doran Straight)	0.00
Italian Bay	0.00
Lucky Bay	0.01
Northwest Bay	0.04
Olsen Island	0.00
Pt Nowell	0.00
Squire Island	0.01
Squire Island Anchorage	0.00
Tatitlek	0.00
Tatitlek Narrows	0.09
Virgin Bay	0.01
Total percent	0.26
Number of General Areas	23

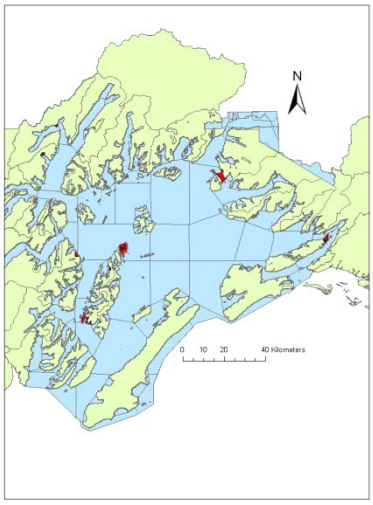


Figure 31. General Areas identified as potential areas for management of interactions between common murres and recreationists.

Seabird Colonies.–When the estimated mean density index class for common murre was ranked by General Area and compared to the estimated mean recreation density class for the same General Area a weak, though non-statistically significant, relationship was shown between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for common murre were compared with General Areas with mean recreation density classes estimated to be high, 94 were identified as potential areas for management of interactions between common murre and recreationists (Table 13, Fig. 32). Scattered areas were in northeastern and through central Prince William Sound and made up 6.04 percent of the study area.

Table 13. General Areas identified as potential areas for management of interactions between seabird colonies and recreationists.

General Area	Percent of study area
06DU000605	0.34
06DU000606	0.15
AA07 Perry Island	0.01
AA11 Blackstone Bay	0.01
AA18 Passage Canal	0.01
Agayuut Bay	0.00
Agayuut Island	0.00
Barry Arm	0.31
Billings Point Perry Island	0.00
Blackstone Bay	0.56
Block Island Eleanor Island	0.00
Brave Harbor	0.00
Cabin Bay	0.07
Cat Head	0.00
Chamberlain Bay	0.03
Cow Pens	0.01
Crafton Island	0.00
Day Care Cove	0.00
DECISION POINT SMP	0.00

Table 13. General Areas identified as potential areas for management of interactions between seabird colonies and recreationists.

General Area	Percent of study area
Disk Island	0.00
Disk Island Anchorage	0.00
Dual Head	0.01
Eagle Bay	0.02
East Flank Island	0.00
East Twin Bay	0.03
Elder Bay	0.01
Ellamar	0.00
Emerald Bay	0.00
Esther Bay	0.03
Esther Bight	0.01
Esther Passage S CS #1	0.00
Finski Bay	0.01
Fool Island	0.00
Foul Pass	0.01
Glacier Island	0.02
Gold Creek/Camp Bowie	0.01
Granite Point	0.00
Growler Bay	0.04
Gull Island	0.00
Harriman Fjord	0.36

Table 13. General Areas identified as potential areas for management of interactions between seabird colonies and recreationists.

General Area	Percent of study area
Harriman south shore complex	0.01
Head of Barry Arm	0.04
Hinge Beach (Doran Straight)	0.00
Ingot Cove	0.00
Ingot Island	0.01
Irish Cove Glacier Island	0.01
Jack Bay	0.15
Jack Bay SMP	0.00
Jackson Cove	0.00
Jackson Hole	0.01
Little Smith Island	0.00
Lone Island	0.01
Louis Bay	0.02
Lower Passage	0.11
McPherson Bay	0.07
McPherson Passage	0.06
Meares Point	0.00
Miners Bay	0.03
Mueller Cove	0.01
Naked Island	0.02
NE Galena Coves (Lethcoe)	0.01
Nellie Juan Glacier and spit	0.01
Nellie Juan Lagoon	0.02
Olsen Cove	0.00
Olsen Island	0.00
Outside Bay	0.05
Passage Anchorage	0.01

Table 13. General Areas identified as potential areas for management of interactions between seabird colonies and recreationists.

General Area	Percent of study area
Passage Canal	0.50
Perry Island Rest	0.00
Port Valdez	0.82
Rocky Point (Lethcoe)	0.01
Serpentine Cove	0.02
Sheep Point	0.00
Shotgun Cove	0.02
Shoup Bay	0.05
Shoup Bay SMP	0.13
Smith Island	0.01
South Bay Perry Island	0.05
South Olsen Island	0.00
Squaw Bay	0.03
Squirrel Cove	0.00
Surprise Inlet	0.07
Tatitlek	0.00
Tatitlek Narrows	0.09
Three Fingers Cove	0.02
Unnamed north of Galena	0.01
Valdez	0.16
Valdez Arm	1.16
Virgin Bay	0.01
Waterfall Cove	0.01
West Flank Island	0.00
West Twin Bay	0.06
Whittier	0.05
Willard Island	0.01
Total percent	6.04
Number of General Areas	94

Sea Otter.–When the estimated mean density index class for sea otter was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for sea otter were compared with General Areas with mean recreation density classes estimated to be high, 15 were identified as potential areas for management of interactions between sea otter and recreationists (Table 14, Fig. 33). Scattered areas were in northeastern and northwestern Prince William Sound and made up 0.19 percent of the study area.

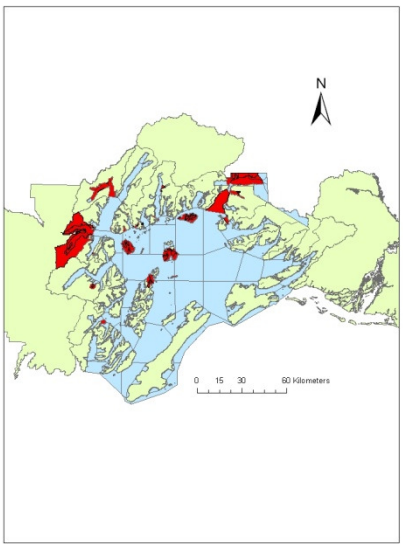


Figure 32. General Areas identified as potential areas for management of interactions between seabird colonies and recreationists.

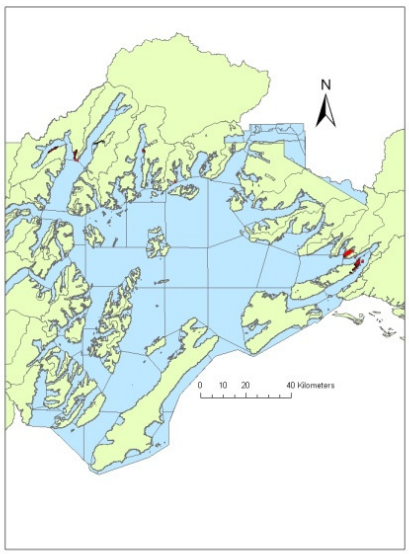


Figure 33. General Areas identified as potential areas for management of interactions between sea otters and recreationists

Steller Sea Lion.–When the estimated mean density index class for Steller sea lion was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for Steller sea lion were compared with General Areas with mean recreation density classes estimated to be high, 17 were identified as potential areas for management of interactions between Steller sea lion and recreationists (Table 15, Fig. 34). Concentrations of areas were in central Prince William Sound and made up 0.30 percent of the study area.

Table 14. General Areas identified as potential areas for management of interactions between sea otters and recreationists.

General Area	Percent of study area
Buyers Cove	0.01
Channel Islands The Narrows	0.00
Coghill Lake Tr	0.00
Cow Pens	0.01
Deep Bay	0.03
Harriman south shore complex	0.01
Hole-in-the-wall	0.00
Kelly's Cove	0.02
Mud Bay	0.00
North Island	0.00

Table 14. General Areas identified as potential areas for management of interactions between sea otters and recreationists.

General Area	Percent of study area
Observation Island	0.00
Pakenham Point	0.01
Shipyard Bay	0.01
Simpson Bay southeast arm	0.06
Three Mile Bay	0.01
Total percent	0.19
Number of General Areas	15

Table 15. General Areas identified as potential areas for management of interactions between Steller sea lions and recreationists.

General Area	Percent of study area
AA07 Perry Island	0.01
Billings Point Perry Island	0.00
Bush Point	0.00
Chamberlain Bay	0.03
Day Care Cove	0.00
East Twin Bay	0.03
Eleanor Island	0.01
Fool Island	0.00
Growler Bay	0.04
Jackson Cove	0.00

Table 15. General Areas identified as potential areas for management of interactions between Steller sea lions and recreationists.

General Area	Percent of study area
Meares Point	0.00
Northwest Bay	0.04
Perry Island Rest	0.00
South Bay Perry Island	0.05
Squire Island	0.01
Squire Island Anchorage	0.00
West Twin Bay	0.06
Total percent	0.30
Number of General Areas	17

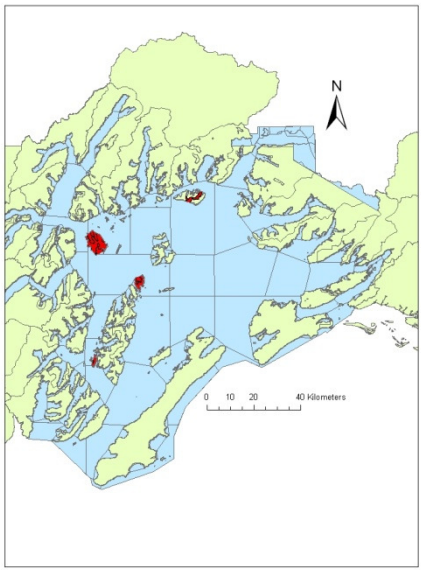


Figure 34. General Areas identified as potential areas for management of interactions between Steller sea lions and recreationists.

Harbor Seal.–When the estimated mean density index class for harbor seal was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for harbor seal were compared with General Areas with mean recreation density classes estimated to be high, 39 were identified as potential areas for management of interactions between harbor seal and recreationists (Table 16, Fig. 35). Concentrations of areas were in eastern, northern, and central Prince William Sound and made up 0.74 percent of the study area.

Table 16. General Areas identified as potential areas for management of interactions between harbor seals and recreationists.

General Area	Percent of study area
Agayuut Bay	0.00
Agayuut Island	0.00
Applegate Island	0.00
Bear Cove	0.01

Table 16. General Areas identified as potential areas for management of interactions between harbor seals and recreationists.

General Area	Percent of study area
Billings Point Perry Island	0.00
Block Island Eleanor Island	0.00
Crafton Island	0.00

Table 16. General Areas identified as potential areas for management of interactions between harbor seals and recreationists.

General Area	Percent of study area
Disk Island	0.00
Disk Island Anchorage	0.00
Eleanor Island	0.01
Foul Pass	0.01
Gull Island	0.00
Head of Barry Arm	0.04
Ingot Cove	0.00
Ingot Island	0.01
Italian Bay	0.00
Jack Bay	0.15
Jack Bay SMP	0.00
Jackpot Bay	0.09
Junction Island	0.00
Little Smith Island	0.00
Lone Island	0.01
Louis Bay	0.02
Lower Passage	0.11
Meares Point	0.00
Mueller Cove	0.01
Nellie Juan Glacier and spit	0.01
Nellie Juan Lagoon	0.02
Northwest Bay	0.04
Olsen Cove	0.00
Olsen Island	0.00
Picturesque Cove	0.01
Sheep Point	0.00
Smith Island	0.01

Table 16. General Areas identified as potential areas for management of interactions between harbor seals and recreationists.

General Area	Percent of study area
Snug Corner Cove	0.10
South Bay Perry Island	0.05
South Olsen Island	0.00
Squire Island	0.01
Squire Island Anchorage	0.00
Total percent	0.74
Number of General Areas	39

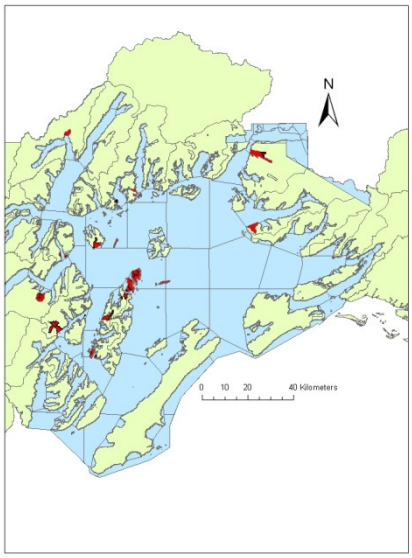


Figure 35. General Areas identified as potential areas for management of interactions between harbor seals and recreationists.

Dolly Varden.–When the estimated mean density index class for Dolly Varden was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for Dolly Varden were compared with General Areas with mean recreation density classes estimated to be high, 13 were identified as potential areas for management of interactions between Dolly Varden and recreationists (Table 17, Fig. 36). Concentrations of areas were in eastern Prince William Sound with scattered areas across northern Prince William Sound and made up 0.33 percent of the study area.

Table 17. General Areas identified as potential areas for management of interactions between Dolly Varden and recreationists.

General Area	Percent of study area
AA09 Culross Island/Passage	0.00
Billy's Hole	0.00
Cow Pens	0.01
Eshamy Bay	0.12
Grommet Cove	0.00
Head of Pigot Bay	0.03
Jackpot Bay	0.09
Knowles Head	0.00
Logging Camp Bay	0.00
Miners Bay	0.03
Schrader Island	0.00
Three Fingers Cove	0.02
Three Mile Bay	0.01
Total percent	0.33
Number of General Areas	13

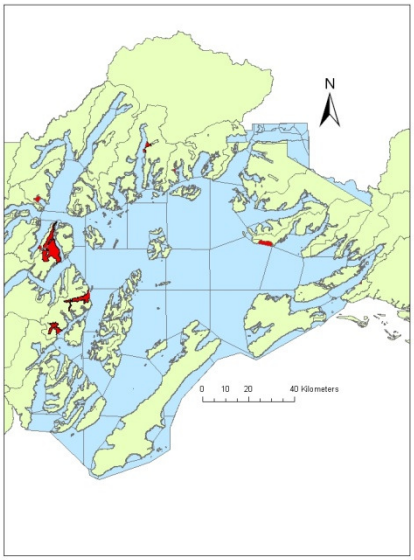


Figure 36. General Areas identified as potential areas for management of interactions between Dolly Varden and recreationists.

Cutthroat Trout.–When the estimated mean density index class for cutthroat trout was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for cutthroat trout were compared with General Areas with mean recreation density classes estimated to be high, 11 were identified as potential areas for management of interactions

between cutthroat trout and recreationists (Table 18, Fig. 37). Scattered areas were located in eastern and northern Prince William Sound and made up 0.28 percent of the study area.

Table 18. General Areas identified as potential areas for management of interactions between cutthroat trout and recreationists.

General Area	Percent of study area
Billy's Hole	0.00
Cow Pens	0.01
Eshamy Bay	0.12
Grommet Cove	0.00
Gull Island	0.00
Knowles Head	0.00
Miners Bay	0.03
Mud Bay	0.00
Schrader Island	0.00
Snug Corner Cove	0.10
Three Mile Bay	0.01
Total percent	0.28
Number of General Areas	11

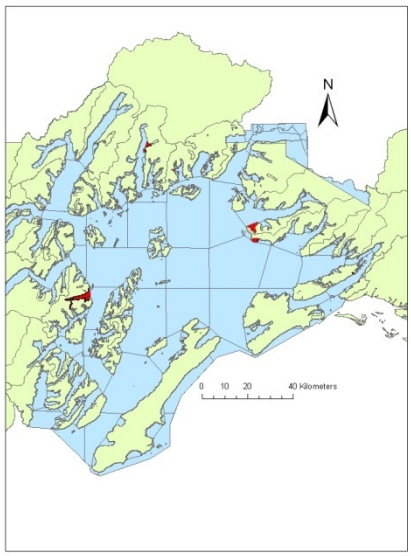


Figure 37. General Areas identified as potential areas for management of interactions between Dolly Varden and recreationists.

Pacific Herring (spawn).–When the estimated mean density index class for Pacific herring spawning sites was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for Pacific herring spawning sites were compared with General Areas with mean recreation density classes estimated to be high, 56 were identified as potential areas for management of interactions between Pacific herring and recreationists (Table 19, Fig. 38). Concentrations were located in northcentral Prince William Sound and made up 2.45 percent of the study area.

Table 19. General Areas identified as potential areas for management of interactions between Pacific herring spawning sites and recreationists.

General Area	Percent of study area
Agayuut Bay	0.00
Agayuut Island	0.00
Billy's Hole	0.00
Brave Harbor	0.00
Busby Island	0.00
Buyers Cove	0.01
Cabin Bay	0.07
Campbell Bay	0.02
Chamberlain Bay	0.03
Dalli Bay	0.00
Eagle Bay	0.02
East Flank Island	0.00
Elder Bay	0.01
Ellamar	0.00
Emerald Cove (Heather Bay)	0.01
Esther Passage S CS #1	0.00
Galena Bay	0.10
Glacier Island	0.02
Gold Creek/Camp Bowie	0.01
Granite Point	0.00
Growler Bay	0.04
Growler Island	0.00
Gull Island	0.00
Irish Cove Glacier Island	0.01
Jack Bay	0.15
Jack Bay SMP	0.00
Jackson Cove	0.00
Jackson Hole	0.01
Knowles Head	0.00
Landlocked Bay	0.13

Table 19. General Areas identified as potential areas for management of interactions between Pacific herring spawning sites and recreationists.

General Area	Percent of study area
McPherson Bay	0.07
McPherson Passage	0.06
Mueller Cove	0.01
Naked Island	0.02
NE Galena Coves (Lethcoe)	0.01
Olsen Cove	0.00
Olsen Island	0.00
Outside Bay	0.05
Papoose Cove	0.00
Passage Anchorage	0.01
Rocky Point (Lethcoe)	0.01
Sawmill Bay SMP	0.00
Sawmill Bay Valdez Arm	0.04
Schrader Island	0.00
Sheep Point	0.00
Snug Corner Cove	0.10
South Olsen Island	0.00
Squaw Bay	0.03
Tatitlek	0.00
Tatitlek Narrows	0.09
Unnamed north of Galena	0.01
Useless Cove	0.01
Valdez Arm	1.16
Valdez Narrows	0.10
Virgin Bay	0.01
West Flank Island	0.00
Total percent	2.45
Number of General Areas	56

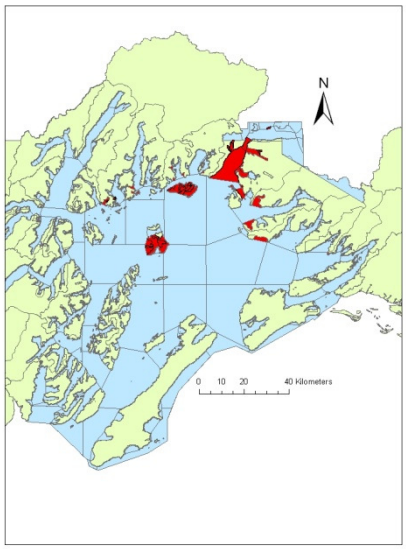


Figure 38. General Areas identified as potential areas for management of interactions between Pacific herring spawning sites and recreationists.

Salmon Streams.–When the estimated mean density index class for salmon streams was ranked by General Area and compared to the estimated mean recreation density class for the same General Area a weak, though non-statistically significant, relationship was shown between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for salmon streams were compared with General Areas with mean recreation density classes estimated to be high, 102 were identified as potential areas for management of interactions between salmon and recreationists (Table 20, Fig. 39). Concentrations were located in western Prince William Sound with scattered areas across northern Prince William Sound and made up 4.99 percent of the study area.

Table 20. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists.

General Area	Percent of study area
06DU000606	0.15
AA01 West Port Wells	0.00
AA09 Culross Island/Passage	0.00
AA10 Cochrane Bay	0.01

Table 20. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists.

General Area	Percent of study area
AA13 West Knight Island Passage	0.02
Anderson Bay Valdez	0.02
Applegate Island	0.00
Bettles Bay	0.09

Table 20. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists.

General Area	Percent of study area
Bettles Bay SMP	0.00
Bettles Island	0.00
Billy's Hole	0.00
Bomb Point	0.00
Busby Island	0.00
Buyers Cove	0.01
Cascade Bay	0.02
Cat Head	0.00
Channel Islands The Narrows	0.00
Cochrane Bay	0.52
Coghill	0.07
Coghill Lake Tr	0.00
Cordova	0.01
Cow Pens	0.01
Crab Bay	0.00
Crafton Island	0.00
Culross Cove	0.01
Culross Island	0.01
Culross Passage	0.23
Dalli Bay	0.00
DECISION POINT SMP	0.00
Deep Bay	0.03
East Finger Inlet	0.01
Ellamar	0.00
Entry Cove	0.00
Eshamy Bay	0.12
Esther Passage	0.17
Falls Bay	0.02
Fisherman's Anchorage	0.00
Foul Bay	0.01
Galena Bay	0.10
Gold Creek/Camp Bowie	0.01
Goose Bay	0.01
Granite Bay (Dangerous Passage)	0.02
Granite Point	0.00
Grommet Cove	0.00
Harrison Lagoon	0.02
Head of Pigot Bay	0.03
Herring Point	0.00
Hobo Bay	0.02
Hole-in-the-wall	0.00
Hummer Bay	0.03
Humpback/Shepard	0.01
Irish Cove Glacier Island	0.01
Jack Bay	0.15
Jack Bay SMP	0.00
Jackpot Bay	0.09
Junction Island	0.00
Logging Camp Bay	0.00
Long Bay Culross	0.01
Main Bay	0.07
Miners Bay	0.03
Mink Island	0.01
Mud Bay	0.00
Mueller Cove	0.01
NE Galena Coves (Lethcoe)	0.01
North Island	0.00
Observation Island	0.00
Paddy Bay	0.04
Papoose Cove	0.00
Paulson Bay	0.00
Picturesque Cove	0.01
Pigot Bay	0.07
Pirate Cove	0.01
Poe Bay	0.01
Port Nellie Juan	0.92
Port Valdez	0.82

Table 20. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists.

General Area	Percent of study area
Rocky Point (Lethcoe)	0.01
Sawmill Bay Evans Island	0.04
Sawmill Bay SMP	0.00
Sawmill Bay Valdez Arm	0.04
Schrader Island	0.00
Shady Cove	0.00
Shallow Cove	0.00
Shipyard Bay	0.01
Shoestring Cove	0.01
Simpson Bay southeast arm	0.06
Squirrel Cove	0.00
Surprise Cove	0.02
Surprise Cove SMP	0.01
Tatitlek	0.00
Tatitlek Narrows	0.09
The Narrows	0.25
Three Fingers Cove	0.02
Three Mile Bay	0.01
Unnamed north of Galena	0.01
Useless Cove	0.01
Valdez	0.16
Valdez Narrows	0.10
Virgin Bay	0.01
Waterfall Cove	0.01
West Culross Anchorage	0.00
Ziegler Cove	0.00

Table 20. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists.

General Area	Percent of study area
Ziegler Cove SMP	0.00
Total percent	4.99
Number of General Areas	102

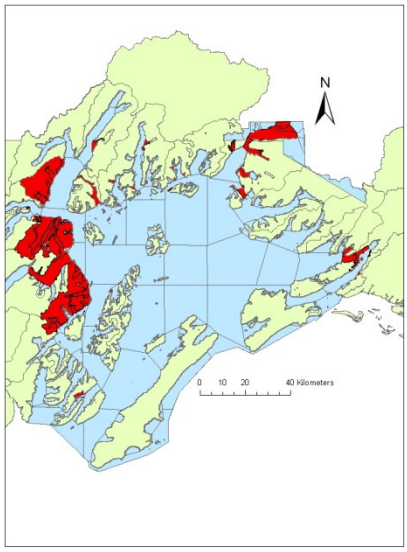


Figure 39. General Areas identified as potential areas for management of interactions between salmon index streams and recreationists.

Sockeye Salmon.–When the estimated mean density index class for sockeye salmon was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for sockeye salmon were compared with General Areas with mean recreation density classes

estimated to be high, 35 were identified as potential areas for management of interactions between sockeye salmon and recreationists (Table 21, Fig. 40). Concentrations were located in western Prince William Sound with scattered areas across northern Prince William Sound and made up 1.10 percent of the study area.

Table 21. General Areas identified as potential areas for management of interactions between sockeye salmon and recreationists.

General Area	Percent of study area
06DU000606	0.15
AA09 Culross Island/Passage	0.00
AA10 Cochrane Bay	0.01
AA13 West Knight Island Passage	0.02
Bear Cove	0.01
Bettles Island	0.00
Billy's Hole	0.00
Coghill	0.07
Coghill Lake Tr	0.00
Cow Pens	0.01
Crab Bay	0.00
Crafton Island	0.00
Dalli Bay	0.00
Deep Water Bay	0.03
East Flank Island	0.00
Eshamy Bay	0.12
Esther Passage	0.17
Esther Passage S CS #1	0.00
Falls Bay	0.02

Table 21. General Areas identified as potential areas for management of interactions between sockeye salmon and recreationists.

General Area	Percent of study area
Gold Creek/Camp Bowie	0.01
Granite Bay (Dangerous Passage)	0.02
Greystone Bay	0.02
Grommet Cove	0.00
Jackpot Bay	0.09
Junction Island	0.00
Long Bay Culross	0.01
Miners Bay	0.03
Paddy Bay	0.04
Papoose Cove	0.00
Sawmill Bay Evans Island	0.04
Schrader Island	0.00
Shoestring Cove	0.01
Three Fingers Cove	0.02
Valdez	0.16
Waterfall Cove	0.01
Total percent	1.10
Number of General Areas	35

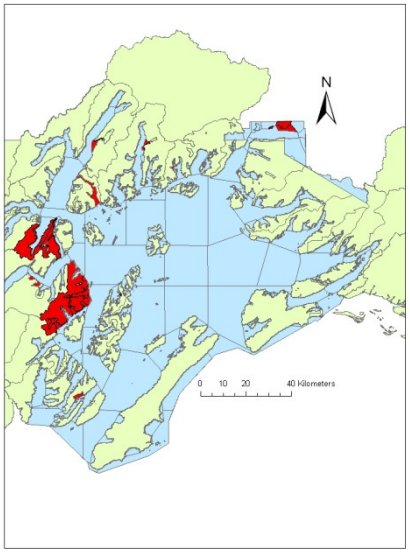


Figure 40. General Areas identified as potential areas for management of interactions between sockeye salmon and recreationists.

Blue Mussel.–When the estimated mean density index class for blue mussel was ranked by General Area and compared to the estimated mean recreation density class for the same General Area a strong, though non-statistically significant, relationship was shown between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for blue mussel were compared with General Areas with mean recreation density classes estimated to be high, 181 were identified as potential areas for management of interactions between blue mussel and recreationists (Table 22, Fig. 41). Large concentrations were located in western Prince William Sound with scattered areas across central and northern Prince William Sound and made up 13.18 percent of the study area.

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
06DU000605	0.34
06DU000606	0.15
AA01 West Port Wells	0.00

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
AA04 Esther Island/Passage	0.03
AA07 Perry Island	0.01
AA09 Culross Island/Passage	0.00

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
AA10 Cochrane Bay	0.01
AA11 Blackstone Bay	0.01
AA13 West Knight Island Passage	0.02
AA18 Passage Canal	0.01
Agayuut Bay	0.00
Agayuut Island	0.00
Anderson Bay Valdez	0.02
Applegate Island	0.00
Barry Arm	0.31
Bear Cove	0.01
Bettles Bay	0.09
Bettles Bay SMP	0.00
Bettles Island	0.00
Billings Point Perry Island	0.00
Billy's Hole	0.00
Blackstone Bay	0.56
Block Island Eleanor Island	0.00
Bomb Point	0.00
Brave Harbor	0.00
Busby Island	0.00
Bush Point	0.00
Buyers Cove	0.01
Campbell Bay	0.02
Cascade Bay	0.02
Cat Head	0.00
Chamberlain Bay	0.03
Channel Islands The Narrows	0.00
Cochrane Bay	0.52
Coghill	0.07
Coghill Lake Tr	0.00
Cow Pens	0.01
Crab Bay	0.00
Crafton Island	0.00
Culross Bay	0.02

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
Culross Cove	0.01
Culross Island	0.01
Culross Passage	0.23
Dalli Bay	0.00
Day Care Cove	0.00
DECISION POINT SMP	0.00
Deep Bay	0.03
Deep Water Bay	0.03
Deer Cove Knight	0.01
Derickson Bay Nellie Juan	0.07
Disk Island	0.00
Disk Island Anchorage	0.00
Dual Head	0.01
Eagle Bay	0.02
East Finger Inlet	0.01
East Flank Island	0.00
East Twin Bay	0.03
Elder Bay	0.01
Eleanor Island	0.01
Emerald Bay	0.00
Emerald Cove (Heather Bay)	0.01
Entry Cove	0.00
ENTRY COVE SMP	0.00
Eshamy Bay	0.12
Esther Bay	0.03
Esther Bight	0.01
Esther Passage	0.17
Esther Passage S CS #1	0.00
Falls Bay	0.02
Finski Bay	0.01
Fisherman's Anchorage	0.00
Fool Island	0.00
Foul Bay	0.01
Foul Pass	0.01

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
Glacier Island	0.02
Gold Creek/Camp Bowie	0.01
Goose Bay	0.01
Granite Bay Esther Island	0.04
Granite Bay SMP	0.00
Granite Point	0.00
Greystone Bay	0.02
Grommet Cove	0.00
Growler Bay	0.04
Growler Island	0.00
Gull Island	0.00
Harriman Fjord	0.36
Harriman south shore complex	0.01
Head of Barry Arm	0.04
Head of Pigot Bay	0.03
Heather Island	0.01
Herring Point	0.00
Hidden Bay	0.03
Hinge Beach (Doran Straight)	0.00
Hole-in-the-wall	0.00
Hummer Bay	0.03
Humpback/Shepard	0.01
Ingot Cove	0.00
Ingot Island	0.01
Irish Cove Glacier Island	0.01
Italian Bay	0.00
Jack Bay	0.15
Jack Bay SMP	0.00
Jackson Cove	0.00
Jackson Hole	0.01
Kelly's Cove	0.02
Knowles Head	0.00
Lake Bay	0.01
Lighthouse Reserve	0.00

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
Logging Camp Bay	0.00
Lone Island	0.01
Long Bay Culross	0.01
Louis Bay	0.02
Lower Passage	0.11
Lucky Bay	0.01
Main Bay	0.07
Meares Point	0.00
Mink Island	0.01
Mueller Cove	0.01
NE Galena Coves (Lethcoe)	0.01
Nellie Juan Glacier and spit	0.01
Nellie Juan Lagoon	0.02
North Island	0.00
Northwest Bay	0.04
Observation Island	0.00
Olsen Cove	0.00
Olsen Island	0.00
Pakenham Point	0.01
Papoose Cove	0.00
Passage Anchorage	0.01
Passage Canal	0.50
Paulson Bay	0.00
Perry Island Rest	0.00
Picturesque Cove	0.01
Pigot Bay	0.07
Pirate Cove	0.01
Poe Bay	0.01
Port Nellie Juan	0.92
Port Valdez	0.82
Pt Nowell	0.00
Quillian Bay	0.01
Rocky Point (Lethcoe)	0.01
Sawmill Bay SMP	0.00

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
Sawmill Bay Valdez Arm	0.04
Schrader Island	0.00
Serpentine Cove	0.02
Shady Cove	0.00
Shallow Cove	0.00
Sheep Point	0.00
Shipyard Bay	0.01
Shoestring Cove	0.01
Shotgun Cove	0.02
Shoup Bay	0.05
Shoup Bay SMP	0.13
Simpson Bay southeast arm	0.06
South Bay Perry Island	0.05
South Esther SMP	0.01
South Olsen Island	0.00
Squaw Bay	0.03
Squire Island	0.01
Squire Island Anchorage	0.00
Squirrel Cove	0.00
Surprise Cove	0.02
Surprise Cove SMP	0.01
The Narrows	0.25
Three Fingers Cove	0.02
Unnamed north of Galena	0.01
UnNamed486031	0.71
UnNamed486033	1.28
UnNamed486034	2.07
Useless Cove	0.01
Valdez	0.16
Valdez Arm	1.16
Valdez Narrows	0.10

Table 22. General Areas identified as potential areas for management of interactions between blue mussels and recreationists.

General Area	Percent of study area
Waterfall Cove	0.01
West Culross Anchorage	0.00
West Flank Island	0.00
West Twin Bay	0.06
Whittier	0.05
Willard Island	0.01
Ziegler Cove	0.00
Ziegler Cove SMP	0.00
Total percent	13.18
Number of General Areas	181

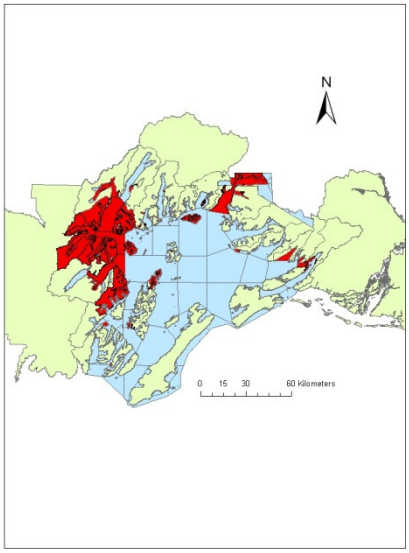


Figure 41. General Areas identified as potential areas for management of interactions between blue mussel and recreationists.

Eel Grass.–When the estimated mean density index class for eel grass was ranked by General Area and compared to the estimated mean recreation density class for the same General Area there was not any apparent relationship indicated between the two variables (Table 4).

When General Areas with moderate to high estimated mean density index classes for eel grass were compared with General Areas with mean recreation density classes estimated to be high, 22 were identified as potential areas for management of interactions between eel grass and recreationists (Table 23, Fig. 42). Scattered areas were located across western and northern Prince William Sound and made up 0.41 percent of the study area.

Table 23. General Areas identified as potential areas for management of interactions between eel grass and recreationists.

General Area	Percent of study area
Paddy Bay	0.04
Goose Bay	0.01
Junction Island	0.00
Tatitlek	0.00
Tatitlek Narrows	0.09
Granite Bay (Dangerous Passage)	0.02
Eshamy Bay	0.12
Mueller Cove	0.01
Simpson Bay southeast arm	0.06
Culross Cove	0.01
Ellamar	0.00
Picturesque Cove	0.01
Virgin Bay	0.01
West Culross Anchorage	0.00
Deer Cove Knight	0.01
Agayuut Bay	0.00
Agayuut Island	0.00
Bear Cove	0.01
Brave Harbor	0.00
Cat Head	0.00
Olsen Cove	0.00
Papoose Cove	0.00
Total percent	0.41
Number of General Areas	22

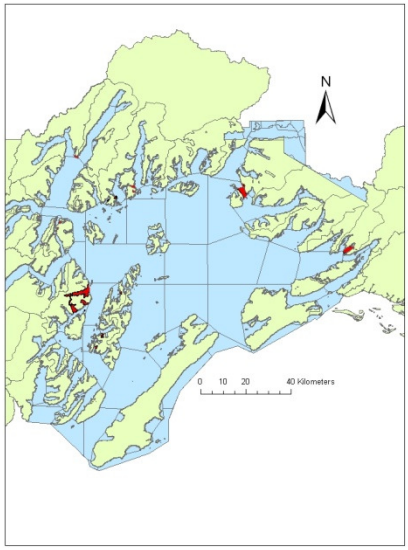


Figure 42. General Areas identified as potential areas for management of interactions between eel grass and recreationists.

All Sensitive Resources – Primary Hot Spots.–When General Areas with cumulative high estimated mean density index for all resources combines were compared with General Areas with mean recreation density classes estimated to be high, 19 were identified as potential Primary Hot Spots for management of interactions between sensitive resources and recreationists (Table 24, Fig. 43). They were generally distributed across eastern and northern Prince William Sound and made up 0.49 percent of the study area.

Table 24. General Areas identified as potential Primary Hot Spots for management of interactions between all sensitive resources and recreationists.

General Area	Percent of study area
Bear Cove	0.01
Billy's Hole	0.00
Bomb Point	0.00
Cow Pens	0.01
Crafton Island	0.00
Deer Cove Knight	0.01
Ellamar	0.00
Eshamy Bay	0.12
Hole-in-the-wall	0.00
Mueller Cove	0.01
Paddy Bay	0.04
Schrader Island	0.00
Sheep Point	0.00
Simpson Bay southeast arm	0.06
Snug Corner Cove	0.10
Squire Island	0.01
Squire Island Anchorage	0.00
Tatitlek Narrows	0.09
Virgin Bay	0.01
Total percent	0.49
Number of General Areas	19

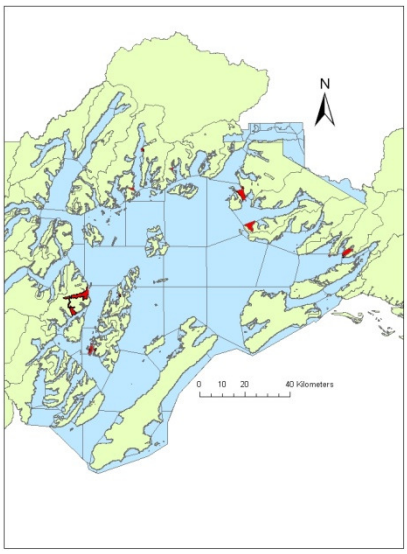


Figure 43. General Areas identified as potential Primary Hot Spots for management of interactions between all sensitive resources and recreationists.

All Sensitive Resources – Secondary Hot Spots.–When General Areas with cumulative moderate estimated mean density index for all resources combines were compared with General Areas with mean recreation density classes estimated to be high, 182 were identified as potential

Secondary Hot Spots for management of interactions between sensitive resources and recreationists (Table 25, Fig. 44). They were concentrated across northwestern and northeastern Prince William Sound in the vicinities of Whittier and Valdez with scattered areas elsewhere and made up 13.63 percent of the study area.

Table 25. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists.

General Area	Percent of study area
06DU000605	0.34
06DU000606	0.15
AA01 West Port Wells	0.00
AA04 Esther Island/Passage	0.03
AA07 Perry Island	0.01
AA09 Culross Island/Passage	0.00
AA10 Cochrane Bay	0.01
AA11 Blackstone Bay	0.01
AA13 West Knight Island Passage	0.02
AA18 Passage Canal	0.01
Agayuut Bay	0.00
Agayuut Island	0.00
Anderson Bay Valdez	0.02
Applegate Island	0.00
Barry Arm	0.31
Bettles Bay	0.09
Bettles Bay SMP	0.00
Bettles Island	0.00
Billings Point Perry Island	0.00
Blackstone Bay	0.56
Block Island Eleanor Island	0.00
Brave Harbor	0.00
Busby Island	0.00
Bush Point	0.00
Buyers Cove	0.01
Cabin Bay	0.07
Campbell Bay	0.02

Table 25. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists.

General Area	Percent of study area
Cascade Bay	0.02
Cat Head	0.00
Chamberlain Bay	0.03
Channel Islands The Narrows	0.00
Cochrane Bay	0.52
Coghill	0.07
Coghill Lake Tr	0.00
Cordova	0.01
Crab Bay	0.00
Culross Bay	0.02
Culross Cove	0.01
Culross Island	0.01
Culross Passage	0.23
Dalli Bay	0.00
Day Care Cove	0.00
DECISION POINT SMP	0.00
Deep Bay	0.03
Deep Water Bay	0.03
Derickson Bay Nellie Juan	0.07
Disk Island	0.00
Disk Island Anchorage	0.00
Dual Head	0.01
Eagle Bay	0.02
East Finger Inlet	0.01
East Flank Island	0.00
East Twin Bay	0.03
Elder Bay	0.01
Eleanor Island	0.01

Table 25. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists.

General Area	Percent of study area
Emerald Cove (Heather Bay)	0.01
Entry Cove	0.00
ENTRY COVE SMP	0.00
Esther Bay	0.03
Esther Bight	0.01
Esther Passage	0.17
Esther Passage S CS #1	0.00
Falls Bay	0.02
Finski Bay	0.01
Fisherman's Anchorage	0.00
Fool Island	0.00
Foul Bay	0.01
Foul Pass	0.01
Galena Bay	0.10
Glacier Island	0.02
Gold Creek/Camp Bowie	0.01
Goose Bay	0.01
Granite Bay (Dangerous Passage)	0.02
Granite Point	0.00
Greystone Bay	0.02
Grommet Cove	0.00
Growler Bay	0.04
Growler Island	0.00
Gull Island	0.00
Harriman Fjord	0.36
Harriman south shore complex	0.01
Harrison Lagoon	0.02
Head of Barry Arm	0.04
Head of Pigot Bay	0.03
Heather Island	0.01
Herring Point	0.00
Hinge Beach (Doran Straight)	0.00
Hobo Bay	0.02
Hummer Bay	0.03
Humpback/Shepard	0.01
Ingot Cove	0.00
Ingot Island	0.01
Irish Cove Glacier Island	0.01
Italian Bay	0.00
Jack Bay	0.15
Jack Bay SMP	0.00
Jackpot Bay	0.09
Jackson Cove	0.00
Jackson Hole	0.01
Junction Island	0.00
Kelly's Cove	0.02
Knowles Head	0.00
Lake Bay	0.01
Landlocked Bay	0.13
Lighthouse Reserve	0.00
Logging Camp Bay	0.00
Lone Island	0.01
Long Bay Culross	0.01
Louis Bay	0.02
Lower Passage	0.11
Lucky Bay	0.01
Main Bay	0.07
McPherson Bay	0.07
McPherson Passage	0.06
Meares Point	0.00
Miners Bay	0.03
Mink Island	0.01
Mud Bay	0.00
Naked Island	0.02

Table 25. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists.

General Area	Percent of study area
NE Galena Coves (Lethcoe)	0.01
Nellie Juan Glacier and spit	0.01
Nellie Juan Lagoon	0.02
North Island	0.00
Northwest Bay	0.04
Observation Island	0.00
Olsen Cove	0.00
Olsen Island	0.00
Outside Bay	0.05
Pakenham Point	0.01
Papoose Cove	0.00
Passage Anchorage	0.01
Passage Canal	0.50
Paulson Bay	0.00
Perry Island Rest	0.00
Picturesque Cove	0.01
Pigot Bay	0.07
Pirate Cove	0.01
Poe Bay	0.01
Port Nellie Juan	0.92
Port Valdez	0.82
Pt Nowell	0.00
Quillian Bay	0.01
Rocky Point (Lethcoe)	0.01
Sawmill Bay Evans Island	0.04
Sawmill Bay SMP	0.00
Sawmill Bay Valdez Arm	0.04
Serpentine Cove	0.02
Shady Cove	0.00
Shallow Cove	0.00
Shipyard Bay	0.01
Shoestring Cove	0.01
Shotgun Cove	0.02

Table 25. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists.

General Area	Percent of study area
Shoup Bay	0.05
Shoup Bay SMP	0.13
Smith Island	0.01
South Bay Perry Island	0.05
South Esther SMP	0.01
South Olsen Island	0.00
Squaw Bay	0.03
Squirrel Cove	0.00
Surprise Cove	0.02
Surprise Cove SMP	0.01
Surprise Inlet	0.07
Tatitlek	0.00
The Narrows	0.25
Three Fingers Cove	0.02
Three Mile Bay	0.01
Unnamed north of Galena	0.01
UnNamed486031	0.71
UnNamed486033	1.28
UnNamed486034	2.07
Useless Cove	0.01
Valdez	0.16
Valdez Arm	1.16
Valdez Narrows	0.10
Waterfall Cove	0.01
West Culross Anchorage	0.00
West Flank Island	0.00
West Twin Bay	0.06
Willard Island	0.01
Ziegler Cove	0.00
Ziegler Cove SMP	0.00
Total percent	13.63
Number of General Areas	182

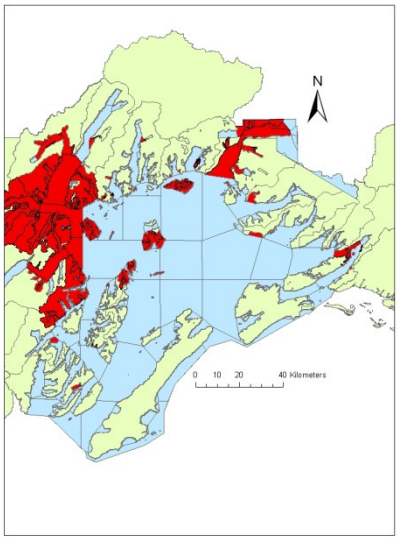


Figure 44. General Areas identified as potential Secondary Hot Spots for management of interactions between all sensitive resources and recreationists.

DISCUSSION

Common Loon

Common loons are often associated with freshwater lakes of Canada and Alaska, and are a common resident of the Prince William Sound Region (Isleib and Kessel 1973). Spring migrants are common throughout inshore waters and larger lakes from mid-April to mid-May. These waters likely function as a migration route for birds moving to and from inland breeding areas. Breeders occur on most of the larger upland lakes within the forests of the region. They are also fairly common in winter in sheltered bays and inlets. Most use of Prince William Sound by common loons is by wintering and non-breeding birds on marine waters. Common loons during winter generally selected waters 0-19 m deep but avoided highly turbid waters (Haney 1990). Wintering common loons have also been reported to defended individual feeding territories of 4-8 ha during the day but rafted together in larger groups at night (McIntyre 1978).

Although 11 General Areas have been identified as sites for potential human interaction with common loons in Prince William Sound (Table 5), such interaction is expected to be infrequent and limited in duration since most human activity on the water takes place during summer months when few common loons occur on marine waters. We recommend limited monitoring of disturbance events in these General Areas (Management Category 2).

Other Considerations.–Common loons are also at risk to bycatch during commercial fisheries, particularly gillnets (Soczek 2006, Zollett 2009). While they are occasionally caught during the summer gillnet fishery in Prince William Sound, losses are generally limited (Wynne at al. 1991,

Wynne at al. 1992). Subsistence harvest of loons occurs in parts of Alaska and more commonly in Canada; subsistence harvest of loons has not been documented specifically in Prince William Sound (Evers 2004).

Cormorant

The greatest risk that humans pose to cormorants in Prince William Sound is disturbance of nest sites within seabird colonies (Ellison and Cleary 1978). However, when General Areas with moderate to high estimated mean density index classes for cormorant were compared with General Areas with mean recreation density classes estimated to be high, none were identified as potential areas for management of interactions between cormorants and recreationists. We recommend limited monitoring of disturbance events in association with cormorants (Management Category 2).

Other Considerations.–Cormorants are also vulnerable to entrapment during implementation of commercial fisheries. Pelagic and red-faced cormorants made up 9% of bycatch in a Kodiak gillnet fishery, even though they only comprised 1% of the local breeding bird population (Manly et al. 2003). However, data from Prince William Sound fisheries in 1990 and 1991 indicate that the bycatch of cormorants is low with none observed captured in 1990 and 2 captured (out of 595 sets) in 1991 (Wynne at al. 1991, Wynne at al. 1992).

Harlequin Duck

Large numbers of harlequin ducks inhabit Alaska's coastal regions for most of the year. During the spring or early summer, harlequins usually fly inland to breed along fast flowing rivers (Crowley and Patten 1996). Shortly after fledging, adults and young (at the age of ~50 days) return to near-shore marine waters (Rehehr et al. 2001, Iverson and Esler 2010) and remain there through the winter where they generally occupy rocky, near-shore habitats (Goudie and Ankney 1988, Esler et al. 2002). Since foraging accounts for >70% of harlequin duck diurnal activity, they face a stringent constraint on time spent foraging (Goudie and Ankney 1986, Fischer and Griffin 2000). Any human-generated disturbance that precludes foraging likely results in decreased fitness and survival. Goudie (1991) and Montevecchi et al. (1995) indicated that the quality of winter habitat in other portions of its range has been reduced due to increased human disturbance at formerly inaccessible, remote sites.

Thomas and Robert (2001) summarized potential limiting factors and threats to harlequin duck recovery and health. They suggested that potential threats to birds on wintering grounds include illegal hunting, environmental contamination through oil spills and other contaminants, habitat degradation from near-shore commercial fishing, aquaculture, and seaweed harvest, human disturbance, and coastal development. These threats are intensified by the strong commitment of harlequin ducks to traditional wintering sites (Iverson et al. 2004). Management of the 22 General Areas that were identified as potential areas for interactions between harlequin ducks and recreationists (Table 6, Fig. 25) may be critical to the continued well being of

harlequin ducks in Prince William Sound. We recommend development, implementation, and monitoring of restrictions on use by recreationists in General Areas identified as potential areas of concern (Management Category 4).

Bald Eagle

During the breeding season, bald eagles are sensitive to a variety of human activities (Anthony and Isaacs 1989). Disruption, destruction, or obstruction of roosting and foraging areas can also negatively affect bald eagles. Disruptive activities in or near bald eagle foraging areas can interfere with feeding, reducing chances of survival (Steidl and Anthony 1996, Stalmaster and Kaiser 1998). Interference with feeding can also result in reduced productivity (number of young successfully fledged) (Steidl and Anthony 2000). Migrating and wintering bald eagles often congregate at specific sites for purposes of feeding and sheltering (Craig et al. 1988). Bald eagles rely on established roost sites because of their proximity to sufficient food sources.

To ensure that bald eagles are not negatively affected by increasing human use in Prince William Sound consideration should be given to establishing and enforcing restrictions on human use in the 22 General Areas that were identified as potential areas for management of interactions between bald eagles and recreationists (Table 7, Fig. 26). Recommendations from the National Bald Eagle Management Guidelines (USDI Fish and Wildlife Service 2007) call for restricting use of motorized watercraft (including jet skis/personal watercraft) ≤100 m of bald eagle nests. Aircraft should remain >300 m from bald eagle nests.

Recommendations for managing foraging areas and communal roost sites include:

- Minimize potentially disruptive activities and development in the bald eagles' direct flight path between their nest and roost sites and foraging areas.
- Locate long-term and permanent water-dependent facilities, such as anchorages and camp grounds, away from bald eagle foraging areas.
- Avoid recreational and commercial boating and fishing near bald eagle foraging areas during peak feeding times (usually early to mid-morning and late afternoon).
- Locate aircraft corridors >300 m vertical or horizontal distance from communal roost sites.

We recommend evaluating the response of bald eagles to recreationists in General Areas identified as potential areas of concern prior to development and implementation of additional restrictions on use (Management Category 3).

Black Oystercatcher

Because of their dependence on intertidal areas, black oystercatchers can be particularly susceptible to oil spills, coastal development, and recreational activities (Andres and Falxa 1995). There is a growing concern that pressure from recreational activities in and around

breeding areas could have deleterious effects on oystercatchers in Prince William Sound (Tessler et al. 2007, Poe et al. 2009). Increasing pressure from the tourist industry in the form of growing visitation by cruise ships, sightseeing vessels, water taxis, and private boats raises the likelihood that nests may be flooded by large wakes, especially during periods of very high tides (Peters and Otis 2005). Increased human presence by campers, kayakers, and fishermen in remote coastal areas could interfere with parental care and foraging, may result in nest abandonment, and increases the likelihood that nests and eggs will be inadvertently trampled (Spiegel 2008).

Therefore, it may be important to implement management actions on the 24 General Areas that were identified as potential areas for interactions between black oystercatcher and recreationists (Table 8, Fig. 27). Preventative management actions should be taken to minimize disturbance during critical breeding stages (Morse et al. 2006). Examples given by Morse et al (2006) included moving established campsites away from known nesting areas, given the strong site fidelity observed in black oystercatchers. We recommend dissemination to recreationists of information on effects of disturbance to black oystercatchers in these areas. We also recommend development, implementation, and monitoring of restrictions on use by recreationists in known concentrated nesting areas in General Areas identified as potential areas of concern (Management Categories 1 and 4).

Kittlitz's Murrelet

Throughout Alaska, Kittlitz's murrelet populations declined as much as 18% annually from 1989–2000 (Kuletz et al. 2003a, McKnight et al. 2003). In Prince William Sound, Kittlitz's murrelet populations declined 84% over the same time period and extirpation is predicted by 2035 (Kuletz 2005). Kittlitz's murrelets may be negatively affected by marine vessel traffic; its preferred tidewater, glacier habitat is often a target destination (Day et al. 1999, Murphy et al. 2004). Associated disturbance precludes feeding and increases flushing and diving behaviors. Near-shore densities of Kittlitz's murrelets decreased, while observed diving behavior increased 3-fold and time spent flying increased 30-fold on days with vessel activity (Kuletz et al. 2003b, Agness et al. 2008).

This analysis identified 11 General Areas as potential areas for management of interactions between Kittlitz's murrelets and recreationists (Table 9, Fig. 28). Kuletz et al. (2003b) reported that nearly 76 % of the Prince William Sound population was found in Harriman and College fiords and another 22 % in three other fiords. We recommend that managers develop, implement and monitor restrictions on tour boats and recreational boaters, to minimize disturbance of murrelets and regulate vessel traffic in these areas (Management Category 4).

Other Considerations.–Kittlitz's murrelets are also vulnerable to entrapment in commercial fisheries. *Brachyramphus* murrelets were reported to comprise 11–70% of seabird mortality during gillnet fisheries (Wynne et al. 1992, Carter et al. 1995, Manly et al. 2003). Though very

uncommon, Kittlitz's murrelets represented 5% during 1990 and 30% during 1991 of murrelet by-catch in Prince William Sound gillnets (Wynne et al. 1991, 1992).

Marbled Murrelet

Although marbled murrelets are relatively abundant in Alaska, populations there have undergone a 71% decline since the early 1990's, dropping from nearly a million birds to about 271,000 (Piatt et al. 2007).

Several studies indicated that *Brachyramphus* murrelets were disturbed and displaced by vessel and aircraft traffic, and possibly impacted energetically (Kuletz 1996, Hamer and Thompson 1997, Kuletz et al. 2003b, Speckman et al. 2004, Bellefleur et al. 2005, Agness et al. 2008, Hentze 2006). Although the long-term, population-level, or regional implications of this immediate impact remain unknown, indications are that this impact may be significant. In light of these threats to marbled murrelets, consideration should be given to implementing management actions in the 65 General Areas that were identified as potential areas of interactions between marbled murrelets and recreationists (Table 10, Fig. 29). We recommend evaluating marbled murrelet response to disturbance by recreationists to determine if additional management actions are necessary (Management Category 3).

Other Considerations.–At-sea mortality from gillnets has been identified as a significant conservation issue for marbled murrelets (Carter and Morrison 1992, Carter et al. 1995). Incidental capture of marbled murrelets in gillnets is the best-documented effect of fisheries on marbled murrelets and has been documented widely in Alaska, British Columbia, Washington, and California (Carter and Sealy 1984, Carter et al. 1995, Melvin and Parrish 2001). A 1990–91 study in Prince William Sound estimated that between 450 and 1,470 murrelets were killed in drift gillnets per year (Wynne et al. 1991, 1992). In British Columbia, an estimated 6% of the breeding population of marbled murrelets in Barkley Sound was taken annually in gillnets in 1980, although mortality was likely lower in preceding years (Carter and Sealy 1984).

Hentze (2006) suggested that 150 m buffer zones might be sufficient to reduce boat disturbance effects on marbled murrelets. Also, Bellefleur et al. (2005) reported that boat speed had a significant effect on reactions to vessels by marbled murrelets. Carter and Sealy (1984) pointed out two main methods of reducing gillnet mortality:

- Exclude fishing from areas with high murrelet densities at sea.
- Allow daylight fishing only, since most murrelets are caught in nets at night.

Pigeon Guillemot

There has been a 67% decline in the pigeon guillemot population in Prince William Sound since the 1970s (Laing and Klosiewski 1993, Agler et al. 1994). Although the declines appear to have begun before the EVOS, this incident also negatively affected the population (Oakley and Kuletz

1996). Human disturbance as a result of recreational use or other water vessel traffic has not been identified as a major conservation concern for pigeon guillemots. However, pigeon guillemots will readily abandon their nests if disturbed during incubation or brooding (Sowls et al. 1980). While pigeon guillemots typically have high fidelity to their breeding site, disturbance and lack of breeding success can increase the rate and distance of breeding dispersal (Roby and Divoky 2000). Populations suffering high levels of disturbance will decline due to a lack of production of new recruits, dispersal of breeding birds, and/or decreased immigration.

The 30 General Areas identified as potential areas for interactions between pigeon guillemot and recreationists (Table 11, Fig. 30) should be considered as focal areas for management of recreationists to facilitate recovery of populations of pigeon guillemots in Prince William Sound. We recommend evaluating pigeon guillemot response to disturbance by recreationists to determine if additional management actions are necessary (Management Category 3).

Other Considerations.–Pigeon guillemots in Prince William Sound may also be susceptible to mortality from incidental capture in drift and gillnet commercial fisheries (King 1984, Wynne et al. 1992). Inshore gillnet fisheries can cause local mortality particularly because pigeon guillemots tend to forage near their colonies.

Common Murre

Common murres have high energetic (and thus, food) requirements. An adult murre eats 10-30% of its body mass daily and they continue to feed chicks for up to 1 to 2 months after they leave the nesting area (Ainley 2002). As a result they are sensitive to disruption caused by disturbance. Panic flights from colonies have been generated by low-flying aircraft, especially helicopters (<1,000 m) and close approach (<200 m) by humans on land or in boats including kayaks (Blanchard 1994, Chardine and Mendenhall 1998, Rojek et al 2007). Total collapse of colonies was reported in Norway as a result of disturbance by pleasure boats (Barrett and Vader 1984). Although population impacts are difficult to measure, disturbance effects are probably additive to impacts from continued mortality attributable to gillnet fishing and other factors that have led to slow recovery of the Prince William Sound population (Rojek et al 2007).

As a result, the 23 General Areas that were identified as potential areas for interactions between common murre and recreationists (Table 12, Fig. 31) should be considered as areas for focus of management actions designed to conserve populations. Published management actions include the following (USDI Fish and Wildlife Service 2006, Rojek et al 2007):

- Better understand and minimize the negative impacts of fisheries interactions.
- Reduce human disturbance at colonies.
- Reduce the level of aerial activity near colonies (e.g., 305-m NOAA National Marine Sanctuaries, or greater, overflight restriction zones).

- Creation of buffer zones against boat traffic around sensitive colonies.
- Outreach to aircraft pilots, fishermen, and other boat users regarding the effects of disturbance and what they can do to avoid it.

We recommend dissemination to recreationists of information on effects of disturbance to common murres in these General Areas. We also recommend determining the degree of management of recreationists that will be needed in Prince William Sound to minimize disturbance of common murres (Management Categories 1 and 3).

Other Considerations.–Commercial fisheries in Prince William Sound may also negatively affect common murres through disturbance, bycatch, and net entanglement. Murres comprised <1% of all colonial birds on Kodiak Island but they comprised 34% of the total bycatch (Wynne et al. 1992). Experiments in Puget Sound, Washington State, with the salmon gillnet fishery indicated that murre by-catch could be reduced 40–45% if visual panels and/or acoustic pingers were incorporated into all nets (Melven et al. 2001).

Seabird Colonies

In Prince William Sound, some of the more important and most studied seabird colonies support common murre, pigeon guillemot, marble murrelet, Kittlitz's murrelet, black-legged kittiwake, and arctic tern. These species are identified as seabird indicator species in Alaska's Comprehensive Wildlife Conservation Strategy (Alaska Department of Fish and Game 2006).

Human activity such as boat and pedestrian traffic can disturb seabird colonies, especially during nesting. The dense clustering of individuals during breeding makes these species particularly vulnerable to human disturbance (Rodgers and Smith 1995). Rodgers and Smith (1995) recommend a 100–180 m setback from colonies for pedestrians and motorboats. However, other studies suggest that setbacks should be commensurate with the number of people in a party (Beale and Monaghan 2004). Larger parties and/or types of disturbances might require a greater setback distance in order to prevent harm to seabird colonies. Effects may also depend on species and on predators that are near the colonies (Sandvik and Barrett 2001, Bolduc and Guillemette 2003).

Consideration should be given to managing the 94 General Areas that were identified as potential areas for interactions between seabird colonies and recreationists (Table 13, Fig. 32) so that colonies in these areas may be conserved. We recommend evaluating seabird use of these colonies and their response to human access to the colonies and providing information to recreationists on the potential effects of disturbance on seabirds in nesting colonies (Management Categories 1 and 3).

Sea Otter

Curland (1997) reported that human activities on the water (especially kayaking) caused sea otters to spend more time moving in response to disturbance than sea otters not exposed to human activities. This supported Garshelis and Garshelis (1984) findings that seasonal changes in disturbances from boats were largely responsible for seasonal movements by male sea otters, and that boat traffic also deterred sea otters from using some regions. The extent of disturbance of resting and foraging otters from boat traffic is largely unknown, but may become a more significant local effect in the future as public awareness and interest in watching the sea otters grows (Sea Otter Recovery Team 2007).

The 15 General Areas that were identified as potential areas for management of interactions between sea otter and recreationists (Table 14, Fig. 33) are recommended locations for the development and implementation of practices designed to conserve sea otter populations. We recommend monitoring sea otter response to disturbance by recreationists to determine if additional management actions are necessary (Management Category 3). This may include development of sea otter watching guidelines for eco-tour operators and the general public (Sea Otter Recovery Team 2007).

Other Considerations.–Drowning of sea otters can occur when they are incidentally entangled in gill or trammel nets (Riedman and Estes 1990); entanglement associated with the gillnet salmon fishery has been identified as a potential risk for sea otters in Prince William Sound (DeGange and Vacca 1989). Documented instances of entanglement in gillnets are few and it may be unlikely to have impacts on sea otters population (Funk 2003, Angliss and Outlaw 2008). However, where sea otter distribution overlaps gillnet fisheries, there may be local effects and entanglement may emerge as a threat of concern in the future (Watson et al. 1997). Sea otters also died from drowning in various crab and fish trap fisheries in California and Alaska (reviewed in Lance et al. 2004). Crab traps may present a threat to sea otters, particularly since they are set in shallow waters within the species' diving depth range. However, the risk is extremely slight of that kind of encounter in Prince William Sound (personal communication with T. Joyce, USDA Forest Service).

Steller Sea Lion

Steller sea lions are sensitive to human encroachment at haulout and rookery sites (Kucey 2005). They tend to avoid people, and generally appear to be skittish while on shore. Disruptions often affect entire haulouts and rookeries and often result in significantly fewer sea lions using haulouts during the post-disturbance period (Lewis 1987, Loughlin 2002). The apparent susceptibility of Steller sea lions to disturbance raises behavioral and physiological concerns for populations that experience high levels of intrusion (Kucey and Trites 2006).

Although low levels of occasional disturbance may have little long-term effect, areas subjected to repeated disturbance may be permanently abandoned (Kenyon 1962). Incidental

disturbance is not believed to be harmless (Peterson and Bartholomew 1967); the effects of repeated disturbances over a short period of time may be cumulative (Lewis 1987). When humans set foot on a rookery or haulout, the response by sea lions is typically much greater than from people remaining offshore, often resulting in stampedes that may cause trampling or abandonment of pups (Calkins and Pitcher 1982, Lewis 1987, Kucey 2005). Intuitively, preventing human disturbance of land-based sea lion activities such as breeding, nursing, resting, and maintenance of a cohesive social structure should enhance reproductive success and species perpetuation (Kruse et al. 2001). Therefore, a precautionary approach is needed to ensure disturbances are limited and cumulative effects are minimized.

Guidelines have been developed in order to limit the potential threat associated with viewing marine mammals (http://www.fakr.noaa.gov/protectedresources/mmv/guide.htm):

- View marine mammals from >90 m distance.
- Approach and depart from marine mammals slowly.
- Determine behavioral state from a distance > 90 m before approaching marine mammals for viewing. Be responsive to the specific situation.
- Terminate viewing if behavioral changes are seen.
- Keep noise levels down around marine mammals. Do not use horns or whistles. Do not shout or race motors.
- Communicate with other ship's captains to coordinate timing and behavior of vessels around marine mammals. Allow no more than 15 minutes observation time for each vessel when there are multiple vessel and no more than 20 minutes when alone.
- All vessels observing marine mammals should remain near each other on the same side of the animal(s). Do not box in animals against shorelines or corral animals between boats. Avoid rapid changes in speed or direction. Avoid shifting gears unnecessarily.

Potential for disturbance should be addressed in the 17 General Areas that were identified as potential areas for management of interactions between Steller sea lion and recreationists (Table 15, Fig. 34). Since disturbances of sea lions by water vessels were reported to occur at distances of 40–315 m, consideration should be given to reducing disturbances in these General Areas by increasing the 90-m standard distance and improving compliance with regulations through visitor education and increased enforcement (Mathews 2000a). Also, compared to tour boats and private boats, kayaks were reported to be significantly more likely to approach haulouts closer than 90 m and more likely to cause disturbances (Mathews 2000a) so particular attention should be given to that form of recreation. Consideration should be given to increasing targeted outreach to inform recreationists in these areas of the threats to Steller sea lions,

enforcement of regulations, and mechanisms for reporting violations (Management Categories 1, 3, and 4).

Harbor Seal

Harbor seals regularly use intertidal ledges, rocky islets, reefs, mud flats, remote sand or cobble beaches, and glacial ice as haulout sites. Harbor seals are wary when hauled out and usually flee into the water when approached by boats or humans. Disturbance resulting from human activities can cause changes in seal abundance, distribution, and behavior, and can even cause abandonment (Allen et al. 1984, Suryan and Harvey 1999, Grigg et al. 2002, Seuront and Prinzivalli 2005, Johnson and Acevedo-Gutierrez 2007). In Glacier Bay, 59% of recreation groups (i.e., small motor boats, kayaks, hikers) violated 90-m buffer zones around harbor seal haulouts and disturbed seals (Lewis and Mathews 2000). Prolonged disturbance also resulted from camping right on seal haulouts in Glacier Bay (Mathews 2000b). Johnson and Acevedo-Gutiérrez (2007) also reported that 85.7% of kayaks, 57.1% of stopped powerboats, and 4.6% of passing powerboats violating 90-m buffer zones around harbor seal haulouts in their study. They also reported that seals were disturbed by kayaks and stopped powerboats at 138 and 371 m, respectively, from haulouts. Jansen et al. (2010) reported that when cruise ships followed guidelines for approaching seals in Alaska (i.e., 90 m) 90% of seals were still disturbed and flushed into the water.

These findings indicate a need to develop and enforce regulations that result in more effective separation between sources of disturbance and harbor seals (Management Category 4). Following the findings noted above, we suggest that a that a 500-m buffer zone for vessels around haul-out sites be implemented and enforced in the 39 General Areas that were identified as potential areas for management of interactions between harbor seals and recreationists (Table 16, Fig. 35). However, to effectively implement this restriction of recreation use, harbor seal haul-out sites need to be specifically defined (e.g., does a harbor seal sitting on an ice floe constitute a haul-out site?).

Dolly Varden

Dolly Varden occur in both resident and anadromous forms in Prince William Sound (Schelske et al. 1998). They are widespread and are likely to be found in most streams, although documentation is limited (Helle et al. 1964, Schelske et al. 1998, Lang and Jurica 2007). In some stream systems Dolly Varden appear to spend winters in the ocean rather than in streams (Bernard et al. 1995).

Thirteen General Areas were identified as potential areas for management of interactions between Dolly Varden and recreationists (Table 17, Fig. 36). As recreation pressure increases in Prince William Sound and anglers begin utilizing Dolly Varden more there is potential for local steams to become over fished and for disturbance to habitats. However, regulation of harvest for Dolly Varden does not have to be extensive because the high migration rate among aggregations

and large population sizes will tend to buffer the effects of harvest (Currens et al. 2003). We recommend limited monitoring of disturbance events in association with Dolly Varden (Management Category 2).

Cutthroat Trout

Cutthroat trout occur in both resident and anadromous forms (Schelske et al. 1998). These fish occur in relatively small populations that exhibit complex life history strategies (McCarron and Hoffmann 1993). Many populations appear to be genetically isolated due to the distance of open water separating them (Currens et al. 2003).

Harvest of cutthroat trout in Prince William Sound has a direct impact on population abundance, population growth, and dispersal (Currens et al. 2003). As recreation pressure increases in Prince William Sound and anglers begin utilizing cutthroat trout more there is potential for local populations to become over fished (Gresswell and Harding 1997). Consideration should be given to restricting the harvest of cutthroat trout in the 11 General Areas that were identified as potential areas for management of interactions between cutthroat trout and recreationists (Table 18, Fig. 37). We recommend implementation of monitoring to determine response of cutthroat trout to disturbance by recreationists with consideration given to restricting the harvest of cutthroat trout in these areas (Management Category 2).

Pacific Herring (spawn)

Spawning of Pacific herring in Prince William Sound is a substantial ecological event attracting large aggregations of gulls, shorebirds, humpback whales, and Steller sea lions (Bishop and Green 2001). During the spring, adult spawning herring and their offspring are vulnerable to predation, weather patterns, ocean conditions, and human activities. Strong avoidance reactions to vessels and fishing gear are typically observed in herring prior to spawning (Olsen et al. 1983, Vabø et al. 2002). This is consistent with herring adopting a low-risk behavior in order to maximize the probability of successful reproduction.

Olsen (1979) found that, at a distance of 40–50 m, vessel reaction in herring was only weakly detectable, whereas significant avoidance reactions occurred at all passing distances <30 m. Misund et al. (1996) reported the distance at which herring schools reacted to vessel noise varied from 25–1,000 m in front of the vessel. As a result of these findings, precautions may be necessary in the 56 General Areas identified as potential areas for management of interactions between Pacific herring and recreationists (Table 19, Fig. 38) to ensure that vessels do not disrupt spawning activity in Pacific herring. Consideration should be given to evaluating the temporal and spatial aspects of the potential disturbance caused by vessels in proximity to spawning Pacific herring in Prince William Sound (Management Category 3).

Salmon Streams

Sport fishing activity is popular in Prince William Sound and increased recreation activity on accessible salmon spawning streams could lead to de-vegetation and bank erosion (e.g., King and Hansen 2002). Trampling of eggs in gravel is also possible but not a likely threat and would require very heavy and concentrated use to affect salmon reproduction. Studies of jet boat impacts to spawning salmon indicated that eggs could be affected in waters less than 23 cm deep (Reynolds and Horton 1994). Sutherland and Ogle (1975) described significant mortality (i.e., 20–40%) of salmon eggs resulting from pressure fluctuations created by passing jet boats in shallow water. Use of Personal Water Craft on spawning sites could potentially have similar effects.

Considering these potential impacts, the use of salmon index streams in the 102 General Areas that were identified as potential areas for management of interactions with recreationists (Table 20, Fig. 39) should be monitored to ensure that detrimental effects do not occur (Management Category 2). This may be particularly important in that there appears to be a relationship between where salmon index streams are located and the areas selected by recreationists (Table 4). Salmon harvest in streams within these General Areas with small stocks of salmon should have additional population monitoring to ensure they are not over harvested as human use increases.

Sockeye Salmon

The increasing sport fishing activity associated with sockeye salmon and increased recreation activity in general on accessible salmon spawning streams could lead to de-vegetation and bank erosion (e.g., King and Hansen 2002). Trampling of eggs in gravel is also possible but not a likely threat and would require very heavy and concentrated use to affect salmon reproduction. Studies of jet boat impacts to spawning salmon indicated that eggs could be affected in waters less than 23 cm deep (Reynolds and Horton 1994). Sutherland and Ogle (1975) described significant mortality (i.e., 20–40%) of salmon eggs resulting from pressure fluctuations created by passing jet boats in shallow water. Use of Personal Water Craft on spawning sites could potentially have similar effects.

The larger sockeye salmon fisheries (e.g., Coghill Lake, Eshamy Lake, Copper River) are managed by ADF&G to ensure adequate escapement occurs (Ashe et al. 2005). Whereas, many of the smaller sockeye salmon fisheries (e.g., Halferty Creek, Gumboot Creek) are not managed to ensure adequate escapement occurs. Intensive sport fisheries have also developed in the marine waters off the stream mouths and in some cases in lake systems (e.g., Lake Shroad) that are not specifically managed. Those systems may be at risk of over exploitation, especially as recreational fishing use increases (personal communication with T. Joyce, USDA Forest Service).

Considering these potential impacts, the use of sockeye salmon streams in the 35 General Areas that were identified as potential areas for management of interactions between sockeye salmon and recreationists (Table 21, Fig. 40) should be monitored to ensure that detrimental effects do not occur (Management Category 2).

Blue Mussel

Pacific blue mussels are an important part of marine food web in Prince William Sound. Common predators include seastars, anemones, crabs, surf scoters (*Melanitta perspicillata*), black oystercatchers, sea and diving ducks (harlequin ducks, Barrow's goldeneyes [*Bucephala islandica*]), gulls, crows, sea otters, river otters (*Lontra canadensis*), and mink (*Neovison vison*), (e.g., Newell 1989, Hilgerloh 1997, Lee 2006) as well as humans (including sport and subsistence harvests). They are also raised commercially in aquatic farms (RaLonde 1995). Potential human-related impacts to Pacific blue mussels include the spread of parasites, viruses, and diseases associated with aquaculture (aquatic farming) (RaLonde 1995), the introduction of the invasive Mediterranean blue mussel (*Mytilus galloprovincialis*) (Ray 2005, Cordell et al. 2009), and physical disruption of mussel beds by recreational users (Dolmer et al. 2001). Consideration should be given to implementing targeted outreach efforts to inform recreational users of these threats to blue mussels (Management Category 1).

Because of the significance of blue mussels to the ecological structure of Prince William Sound and the diverse threats to their survival, consideration should also be given to developing and implementing conservation practices on the 181 General Areas that were identified as potential areas for interactions between blue mussels and recreationists (Table 22, Fig. 41). Since recreation activities and/or associated infrastructure may exacerbate the risk to these identified threats consideration should be given to evaluating the temporal and spatial aspects of the potential disturbance caused by recreation activities in proximity to blue mussels in Prince William Sound (Management Category 3). Conservation of this resource in light of increasing recreation pressure may be particularly important in that there appears to be a relationship between the distribution of blue mussels and the areas selected by recreationists (Table 4).

Eel Grass

Many species that support commercial and subsistence harvests depend on eel grass habitats in coastal Alaska. Eel grass provides a nursery rearing area for most commercially important fish species in Prince William Sound, including Pacific herring and juvenile pink and chum salmon (Johnson et al. 2003). Small crustaceans (zooplankton) that thrive in eel grass provide food for these fish species. Dungeness crab (*Metacarcinus magister*), clams, octopus, scallops, sea urchins, shrimp, flounder, and sole are other important marine species that use eel grass beds (Mumford 2007).

Threats to eel grass include disturbance to facilitate oyster culture (Tallis et al. 2009), disturbance associated with anchorage and mooring (Hastings et al. 1995, Francour et al. 1999),

damage from propellers (Short and Wyllie-Echeverria 1996, Uhrin and Holmquist 2003), damage from high-energy boat wakes (Koch 2002, Bishop 2008), and invasive species (e.g., dwarf eelgrass [*Zostera japonica*]) (Harrison and Bigley 1982). Large scale modification of eel grass by these and similar agents in Prince William Sound may lead to dramatic changes in eel grass beds and associated fauna (Bell et al. 2001). Such modifications may not only remove eel grass but also cause the landscape to lose integrity as fragmentation increases (Fonseca and Bell 1998). As eel grass fragmentation increases, sediments may also become more easily suspended (Walker et al. 1989).

Because of the significant ecological role eel grass plays in the Prince William Sound ecosystem and the nature of the threats it faces, we propose that the 22 General Areas that were identified as potential areas for management of interactions between eel grass and recreationists (Table 23, Fig. 42) be candidates for conservation and management of this community (Kenworthy et al. 2006, Orth et al. 2006). This would include targeted outreach efforts to inform recreational users of the threats to eel grass (Management Category 1) and evaluating the temporal and spatial aspects of the potential disturbance caused by recreation activities in proximity to eel grass beds (Management Category 3) and the need for restoration (Fonseca et al. (1998).

All Sensitive Resources

The 19 General Areas that were identified as potential Primary Hot Spots for management of interactions between sensitive resources and recreationists (Table 24, Fig. 43) represent the most essential areas for development and implementation of innovative approaches to conserve sensitive resources. These are the areas with the most critical needs for on-site management of recreation uses and should be a priority for funding and staffing. These Primary Hot Spots make up <1% of the area of Prince William Sound but offer the greatest opportunity to ensure that increasing recreation use does not further impact these resources. Consideration should be given to redirecting recreation activities away from these areas to ensure that sensitive resources are maintained (Management Category 4).

The 182 General Areas that were identified as potential Secondary Hot Spots for management of interactions between sensitive resources and recreationists (Table 25, Fig. 44) provide opportunities for identifying where on-going management activities (e.g., education, enforcement) should be focused (Management Categories 1 and 2). When appropriate, these sites may also offer opportunities for interpretation of the sensitive resources present and their role in the Prince William Sound ecosystem.

This analysis provided insights to where the increasing human use of Prince William Sound may potentially impact sensitive resources. The projected interactions may either put these resources at risk to current threats to their well being or may impeded their recovery from previous perturbations (e.g., *Exxon Valdez* oil spill). These results offer an opportunity to focus

development and implementation management actions on resources and in areas where interactions may occur to minimize or eliminate negative effects.

LITERATURE REFERENCES

Agler, B. A., P. E. Seiser, S. J. Kendall, and D. B. Irons. 1994. Marine bird and sea otter populations of Prince William Sound, Alaska: population trends following the T/V/ *Exxon Valdez* oil spill. *Exxon Valdez* Oil Spill Restoration Project Final Report, USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

Agler, B. E., S. J. Kendall, D. B. Irons, and S. P. Klosiewski. 1999. Declines in marine bird populations in Prince William Sound, Alaska coincident with a climatic regime shift. Waterbirds 22:98–103.

Agness, A. M. 2006. Effects and impacts of vessel activity on the Kittlitz's murrelet in Glacier Bay, Alaska. Thesis, University of Washington, Seattle, USA.

Agness, A. M., J. F. Piatt, J. C. Ha, and G. R. VanBlaricom. 2008. Effects of vessel activity on the near-shore ecology of Kittlitz's murrelets (*Brachyramphus brevirostris*) in Glacier Bay, Alaska. Auk 125:346–353.

Ainley, D. G., D. N. Nettleship, H. R. Carter, and A. E. Storey. 2002. Common murre (*Uria aalge*) Number 666 *in* A. Poole and F. Gill, editors. The birds of North America, The Academy of Natural Sciences, Philadelphia, Pennsylvania, USA, and The American Ornithologists' Union, Washington, D. C., USA.

Alaska Department of Fish and Game. 1985a. Pacific herring – *Clupea pallasi*. Pages 333–344 *in* Alaska Department of Fish and Game. Alaska habitat management guide, southcentral region, volume 1: life histories and habitat requirements of fish and wildlife. Division of Habitat, Alaska Department of Fish and Game, Juneau, Alaska, USA.

Alaska Department of Fish and Game. 1985b. Alaska habitat management guide, southcentral region, volume 1: life histories and habitat requirements of fish and wildlife. Division of Habitat, Alaska Department of Fish and Game, Juneau, Alaska, USA.

Alaska Department of Fish and Game. 1991. Prince William Sound area finfish management report, 1989. Alaska Department of Fish and Game Regional Information Report 2C90-07.

Alaska Department of Fish and Game. 1993/1994. Prince William Sound harbor seal sites and sea lion sites (table and map). Map dated December 1993, table dated August 1994. Alaska Department of Fish and Game, Anchorage, Alaska, USA.

Alaska Department of Fish and Game. 2006. Seabirds. Pages 180–240 *in* Alaska Department of Fish and Game. Our wealth maintained: a strategy for conserving Alaska's diverse wildlife and fish resources. Alaska Department of Fish and Game, Juneau, Alaska, USA.

Alaska Shorebird Working Group. 2000. A conservation plan for Alaska shorebirds. USDI Fish and Wildlife Service, Migratory Bird Management Office, Anchorage, Alaska, USA.

Allen, S. G., D. G. Ainley, and G. W. Page. 1984. The effect of disturbance on harbor seal haul out patterns at Bolinas Lagoon, California. Fisheries Bulletin 82:493–500.

Alyeska Pipeline and Service Company. 2004. Graphical resource database (GRD). A geographic information system environmental database for oil spill contingency planning and response on CD-ROM. Alyeska Pipeline and Service Company, Valdez, Alaska, USA.

Andres, B. A. 1999. Effects of persistent shoreline oil on breeding success and chick growth in black oystercatchers. Auk 116:640–650.

Andres, B. A., and G. A. Falxa. 1995. Black oystercatcher (*Haematopus bachmani*). Number 155 *in* A. Poole and F. Gill, editors. The birds of North America, The Academy of Natural Sciences, Philadelphia, Pennsylvania, USA, and The American Ornithologists' Union, Washington, D. C., USA.

Angliss, R. P., and R. B. Outlaw. 2008. Alaska marine mammal stock assessments, 2007. NOAA Technical Memorandum NMFSAFSC-180.

Anthony, R. G., and F. B. Isaacs. 1989. Characteristics of bald eagle nest sites in Oregon. Journal Wildlife Management 53:148–159.

Arimitsu, M. L., J. F. Piatt, and M. D. Romano. 2007. Distribution of ground-nesting marine birds along shorelines in Glacier Bay, southeastern Alaska: an assessment related to potential disturbance by back-country users: USDI Geological Survey Scientific Investigations Report 2007–5278.

Arimitsu, M. L., M. D. Romano, J. F. Piatt, and D. F. Tessler. 2005. Ground-nesting marine bird distribution and potential for human disturbance in Glacier Bay National Park and Preserve, Alaska. USDI Geological Survey, Anchorage, Alaska, USA.

Ashe, D., D. Gray, B. Lewis, S. Moffitt, and R. Merizon. 2005. Prince William Sound management area 2004 annual finfish management report. Alaska Department of Fish and Game Fishery Management Report 05-65.

Atkinson, S., D. P. Demaster, and D. G. Calkins. 2008. Anthropogenic causes of the western Steller sea lion *Eumetopias jubatus* population decline and their threat to recovery. Mammal Review 38:1–18.

Barrett, R. T., and W. Vader. 1984. The status and conservation of breeding seabirds in Norway. Pages 323–333 *in* J. P. Croxall, P. G. H. Evans, and R. W. Schreiber, editors. Status and conservation of the world's seabirds. International Council for Bird Preservation Technical Publication 2. International Council for Bird Preservation, Cambridge, England.

Beale, C. M., and P. Monaghan. 2004. Human disturbance: people as predation-free predators? Journal of Applied Ecology 41:335–343.

Becker, J. M. 2002. Response of wintering bald eagles to industrial construction in southeastern Washington. Wildlife Society Bulletin 30:875–878.

Bell, S. S., R. A. Brooks, B. D. Robbins, M. S. Fonseca, and M. O. Hall. 2001. Faunal response to fragmentation in seagrass habitats: implications for seagrass conservation. Biological Conservation 100:115–123.

Bellefleur, D., D. Edwards, B. Hansen, and A. E. Burger. 2005. Marine distribution and abundance of marbled murrelets in Pacific Rim National Park Reserve of Canada, 1995-2004. Pacific Rim National Park Reserve, Ucluelet, British Columbia, Canada.

Bellefleur, D., L. Philip, and R. A. Ronconi. 2009. The impact of recreational boat traffic on marbled murrelets (*Brachyramphus marmoratus*). Journal of Environmental Management 90:531–538.

Bernard, D. R., K. H. Hepler, J. D. Jones, M. E. Whalen, and D. N. McBride. 1995. Some tests of the "migration hypothesis" for anadromous Dolly Varden (southern form). Transactions of the American Fisheries Society 124:297–307.

Biggs, E. D., and F. Funk. 1988. Pacific herring spawning ground surveys for Prince William Sound, 1988, with historic overview. Alaska Department of Fish and Game Regional Information Report 2C88-07.

Bishop, M. A., and P. G. Green. 2001. Predation on Pacific herring (*Clupea pallasi*) spawn by birds in Prince William Sound, Alaska. Fisheries and Oceanography 10:149–158.

Bishop, M. J. 2008. Displacement of epifauna from seagrass blades by boat wake. Journal of Experimental Marine Biology and Ecology 354:111–118.

Blaber, S. J., D. P. Cyrus, J. Albaret, C. Ching, J. W. Day, M. Elliott, M. S. Fonseca, D. E. Hoss, J. Orensanz, I. C. Potter, and W. Silvert. 2000. Effects of fishing on the structure and functioning of estuarine and nearshore ecosystems. ICES Journal of Marine Science 57:590–602.

Blanchard, K. A. 1994. Culture and seabird conservation: the north shore of the Gulf of St. Lawrence, Canada. Pages 294–310 *in* D. N. Nettleship, J. Burger, and M. Gochfeld,

editors. Seabirds on islands: threats, case studies and action plans. Birdlife Conservation Series 1.

Bochenek, R. 2009. Herring data and information portal. *Exxon Valdez* Oil Spill Trustee Council project 090822 annual report. Anchorage, Alaska, USA.

Bodkin, J. L., and M. S. Udevitz. 1999. An aerial survey method to estimate sea otter abundance. Pages 13–26 *in* G. W. Garner, S. C. Amstrup, J. L. Laake, B. F. J. Manly, L. L. McDonald, and D. G. Robertson, editors. Marine mammal survey and assessment methods. Balkema, Rotterdam, The Netherlands.

Bodkin, J. L., B. E. Ballachey, T. A. Dean, A. K. Fukuyama, S. C. Jewett, L. McDonald, D. H. Monson, C. E. O'Clair, and G. R. VanBlaricom. 2002. Sea otter population status and the process of recovery from the 1989 '*Exxon Valdez*' oil spill. Marine Ecology-Progress Series 241:237–253.

Bolduc, F., and M. Guillemette. 2003. Human disturbance and nesting success of common eiders: interaction between visitors and gulls. Biological Conservation 110:77–83.

Bowman, T. D., P. F. Schempf, and J. A. Bernatowicz. 1993. Effects of the *Exxon Valdez* oil spill on bald eagles. *Exxon Valdez* Oil Spill State and Federal Natural Resource Damage Assessment Final Report, Bird Study 4.

Bowman, T. D., P. F. Schempf, and J. A. Bernatowicz. 1995. Bald eagle survival and population dynamics in Alaska after the *Exxon Valdez* oil spill. Journal Wildlife Management 59:317–324.

Bowman, T. D., P. F. Schempf, and J. I. Hodges. 1997. Bald eagle population in Prince William Sound after the *Exxon Valdez* oil spill. Journal of Wildlife Management 61:962–967.

Boyle, S. A., and F. B. Samson. 1985. Effects of nonconsumptive recreation on wildlife: a review. Wildlife Society Bulletin 13:110–116.

Brown, B. T., and L. E. Stevens. 1997. Winter bald eagle distribution is inversely correlated with human activity along the Colorado River, Arizona. Journal of Raptor Research 3l:7–10.

Brown, B., and W. H. Wilson, Jr. 1997. The role of commercial digging of mudflats as an agent for change on infaunal intertidal populations. Journal of Experimental Marine Biology and Ecology 218:46–61.

Buehler, D. A., T. J. Mersmann, J. D Fraser, and J. K. D. Seegar. 1991a. Nonbreeding bald eagle communal and solitary roosting behavior and roost habitat on the Northern Chesapeake Bay. Journal of Wildlife Management 55:273–281.

Buehler, D. A., T. J. Mersmann, J. D Fraser, and J. K. D. Seegar. 1991b. Effects of human activity on bald eagle distribution on the Northern Chesapeake Bay. Journal of Wildlife Management 55:282–290.

Bullock, J. P., and M. G. Miller. 2005. Stock assessment of sockeye and coho salmon from Billy's Hole, Prince William Sound, Alaska, 2003-2004. Alaska Department of Fish and Game Fishery Data Series 05-60.

Burger, A. E. 1995. Distribution and abundance of marbled murrelets and other seabirds off the West Coast Trail and in the Broken Group Islands, Pacific Rim National Park. Pacific Rim National Park, Ucluelet, British Columbia, Canada.

Burger, A. E. 2002. Conservation assessment of marbled murrelets in British Columbia: a review of the biology, populations, habitat associations and conservation. Environment Canada Technical Report Series 387.

Burke, L., Y. Kura, K. Kassem, C. Revenga, M. Spalding, and D. McAllister. 2001. Pilot analysis of global ecosystems (PAGE): coastal ecosystems. World Resources Institute, Washington, D.C., USA.

Burn, D. M. 1994. Boat-based population surveys of sea otters in Prince William Sound. Pages 61–80 *in* T. R. Loughlin, editor. Marine mammals and the *Exxon Valdez*. Academic Press, San Diego, California, USA.

Calkins, D. G., and K. W. Pitcher. 1982. Population assessment, ecology and trophic relationships of Steller sea lions in the Gulf of Alaska. Pages 447–546 *in* US Department of Commerce and US Department of Interior. Environmental assessment of the Alaskan continental shelf. US Department of Commerce and US Department of Interior, Washington, D.C., USA.

Campton, D.E., and F.M. Utter. 1985. Natural hybridization between steelhead trout (Salmo gairdneri) and coastal cutthroat trout (*Salmo clarki clarki*) in two Puget Sound streams. Canadian Journal of Fisheries and Aquatic Sciences 42:110–119.

Carney, K. M., and W. J. Sydeman. 1999. A review of human disturbance effects on nesting colonial waterbirds. Waterbirds 22:68–79.

Caron, J. A., and W. L. Robinson. 1994. Responses of breeding loons to human activity in Upper Michigan. Hydrobiologia 279/280:431–438.

Carter, H. R., and M. L. Morrison, editors. 1992. Status and conservation of the marbled murrelet in North America. Western Foundation of Vertebrate Zoology Proceedings 5:1–134.

Carter, H. R., and S. G. Sealy. 1984. Marbled murrelet (*Brachyramphus marmoratus*) mortality due to gill-net fishing in Barkley Sound, British Columbia. Pages 212–220 *in* D. N. Nettleship, G. A. Sanger, and P. F. Springer, editors. Marine birds: their feeding ecology and commercial fisheries relationships. Canadian Wildlife Service Special Publication, Ottawa, Ontario, Canada.

Carter, H. R., M. L. C. McAllister, and M. E. P. Isleib. 1995. Mortality of marbled murrelets in gill nets in North America. Pages 271–284 *in* C. J. Ralph, G. L. Hunt, Jr., M. G. Raphael, and J. F. Piatt, editors. Ecology and conservation of the marbled murrelet. USDA Forest Service General Technical Report PSW-GTR-152.

Carter, H. R., U. W. Wilson, R. W. Lowe, D. A. Manuwal, M. S. Rodway, J. E. Takekawa, and J. L. Yee. 2001. Population trends of the common murre (*Uria aalge californica*). Pages 33–132 *in* D. A. Manuwal, H. R. Carter, T. S. Zimmerman, and D. L. Orthmeyer, editors. Biology and conservation of the common murre in California, Oregon, Washington, and British Columbia. Vol. 1: Natural history and population trends. Washington, D.C..

Chardine, J., and V. Mendenhall. 1998. Human disturbance at arctic seabird colonies. Conservation of Arctic Flora and Fauna, Circumpolar Seabird Working Group, CAFF Technical Report 2.

Cole, D. N. 2004. Monitoring and management of recreation in protected areas: the contributions and limitations of science. Pages 9–16 *in* T. Sievanen, J. Erkkonen, J. Jokimaki, J. Saarinen, S. Tuulentie, and E. Virtanen, editors. Proceedings of the second international conference on monitoring and management of visitor flows in recreational and protected areas. Working Papers of the Finnish Forest Research Institute 2.

Cooke, S. J., and I. G. Cowx. 2006. Contrasting recreational and commercial fishing: searching for common issues to promote unified conservation of fisheries resources and aquatic environments. Biological Conservation 128:93–108.

Cordell, H. K., C. Betz, and G. Green. 2008. Nature-based outdoor recreation trends and wilderness. International Journal of Wilderness 14: 7–13.

Cordell, J., E. Sosik, M. Faulkner, and C. Scianni. 2009. Characterizing risk associated with vessel fouling and nonindigenous species in Prince William Sound. Prince William Sound Regional Citizens Advisory Council, Valdez, Alaska, USA.

Craig, R. J., E. S. Mitchell, and J. E. Mitchell. 1988. Time and energy budgets of bald eagles wintering along the Connecticut River. Journal of Field Ornithology 59:22–32.

Crawford, H. M., D. A. Jensen, B. Peichel, P. M. Charlebois, B. A. Doll, S. H. Kay, V. A. Ramey, and M. B. O'Leary. 2001. Sea Grant and invasive aquatic plants: a national outreach initiative. Journal of Aquatic Plant Management 39:8–11.

Crowley, D. W., and S. M. Patten, Jr. 1996. Breeding ecology of harlequin ducks in Prince William Sound, Damage Assessment Final Report (Restoration Study Number 71). Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, Alaska, USA.

Curland, J. M. 1997. Effects of disturbance on sea otters (*Enhydra lutris*) near Monterey, California. Thesis, San José State University, San José, California, USA.

Currens, K. P., K. E. Griswold, and G. R. Reeves. 2003. Relations between Dolly Varden populations and between coastal cutthroat trout populations in Prince William Sound. *Exxon Valdez* Restoration project final report (Restoration Project 98145), USDA Forest Service, Pacific Northwest Research Station, Corvallis, Oregon, USA.

Czech, B., P. R. Krausman, and P. K. Devers. 2000. Economic associations among causes of species endangerment in the United States. BioScience 50:593–601.

Day, R. H., A. K. Prichard, and D. A. Nigro. 2003. Ecological specialization and overlap of *Brachyramphus* murrelets in Prince William Sound, Alaska. Auk 120:680–699.

Day, R. H., K. J. Kuletz, and D. A. Nigro. 1999. Kittlitz's murrelet (*Brachyramphus brevirostris*). Number 435 *in* A. Poole and F. Gill, editors. The birds of North America, The Academy of Natural Sciences, Philadelphia, Pennsylvania, USA, and The American Ornithologists' Union, Washington, D. C., USA.

Dean, T. A., L. Haldorson, D. R. Laur, S. C. Jewett, and A. Blanchard. 2000. The distribution of nearshore fishes in kelp and eelgrass communities in Prince William Sound, Alaska: associations with vegetation and physical habitat characteristics. Environmental Biology and Fisheries 57:271–287.

DeGange, A. R., and M. M. Vacca. 1989. Sea otter mortality at Kodiak Island, Alaska, during summer 1987. Journal of Mammalogy 70:836–838.

DesGranges, J., and A. Reed. 1981. Disturbance and control of selected colonies of double-crested cormorants in Quebec. Colonial Waterbirds 4:12–19.

Dolmer, P., T. Kristensen, M. L. Christiansen, M. F. Petersen, P. F. Kristensen, and E. Hoffman. 2001. Short-term impact of blue mussel dredging (*Mytilus edulis* L.) on a benthic community. Hydrobiologica 465:115–127.

Duffus, D. A., and P. Dearden. 1993. Recreational use, valuation, and management, of killer whales (*Orcinus orca*) on Canada's Pacific coast. Environmental Conservation 20:149–156.

Ellison, L. N., and L. Cleary. 1978. Effects of human disturbance on breeding of double-crested cormorants. Auk 95:510–517.

Environmental Systems Research Institute (ESRI). 2008. ArcMap version 9.3. Environmental Systems Research Institute Inc., Redlands, California, USA.

Erwin, M. R. 1989. Responses to human intruders by birds nesting in colonies: experimental results and management guidelines. Colonial Waterbirds 12:104–108.

Esler, D., J. A. Schmutz, R. L. Jarvis, and D. M. Mulcahy. 2000. Winter survival of adult female harlequin ducks in relation to history of contamination by the *Exxon Valdez* oil spill. Journal of Wildlife Management 64:839–847.

Esler, D., T. D. Bowman, K. Trust, B. E. Ballachey, T. A. Dean, S. C. Jewett, and C. E. O'Clair. 2002. Harlequin duck population recovery following the *Exxon Valdez* oil spill: progress, process, and constraints. Marine Ecology Progress Series 241:271–286.

Evers, D. C. 2004. Status assessment and conservation plan for the common loon (*Gavia immer*) in North America. USDI Fish and Wildlife Service, Hadley, Massachusetts, USA.

Ewins, P. J. 1993. Pigeon guillemot (*Cepphus columba*). Number 49 *in* A. Poole and F. Gill, editors. The birds of North America, The Academy of Natural Sciences, Philadelphia, Pennsylvania, USA, and The American Ornithologists' Union, Washington, D. C., USA.

Exxon Valdez Oil Spill Trustee Council. 2010. *Exxon Valdez* oil spill restoration plan. 2010 update injured resources and services. *Exxon Valdez* Oil Spill Trustee Council, Anchorage, Alaska, USA.

Fischer, J. B., and C. R. Griffin. 2000. Feeding behavior and food habits of wintering harlequin ducks at Shemya Island, Alaska. Wilson Bulletin 112:318–325.

Fletcher, R. J., S. T. McKinney, and C. E. Bock. 1999. Effects of recreational trails on wintering diurnal raptors along riparian corridors in a Colorado grassland. Journal of Raptor Research 33:233–239.

Fonseca, M. S., and S. S. Bell. 1998. Influence of physical setting on seagrass landscapes near Beaufort, North Carolina, USA, Marine Ecology Progress Series 171:109–121.

Fonseca, M. S., G. W. Thayer, A. J. Chester, and C. Foltz. 1984. Impact of scallop harvesting on eelgrass (*Zostera marina*) meadows: implications for management. North American Journal of Fisheries Management 4:286–293.

Fonseca, M. S., W. J. Kenworthy, and G. W. Thayer. 1998. Guidelines for the conservation and restoration of seagrasses in the United States and adjacent waters. NOAA Coastal Ocean Program Decision Analysis Series 12.

Francour, P., A. Ganteaume, and M. Poulain. 1999. Effects of boat anchoring in *Posidonia oceanica* seagrass beds in the Port-Cros national park (north-western Mediterranean sea). Aquatic Conservation: Marine and Freshwater Ecosystems 9:391–400.

Fraser, J. D., L. D. Frenzel, and J. E. Mathisen. 1985. The impact of human activities on breeding bald eagles in north-central Minnesota. Journal of Wildlife Management 49:585–592.

Frost, K. J., L. F. Lowry, J. M. Ver Hoef, S. J. Iverson, and M. A. Simpkins. 2005. Monitoring, habitat use, and trophic interactions of harbor seals in Prince William Sound, Alaska. *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 01064), Alaska Department of Fish and Game, Habitat and Restoration Division, Anchorage, Alaska, USA.

Fry, D. M. 1995. Pollution and fishing threats to marbled murrelets. Pages 257–260 *in* C. J. Ralph, G. L. Hunt, Jr., M. G. Raphael and J. F. Piatt, editors. Ecology and conservation of the marbled murrelet. USDA Forest Service General Technical Report PSW-GTR-152.

Funk, F. 2003. Overview of state-managed marine fisheries in southwest Alaska, with reference to northern sea otters. Alaska Department of Fish and Game Regional Information Report 5J03-02.

Garshelis, D. L., and J. A. Garshelis. 1984. Movements and management of sea otters in Alaska. Journal of Wildlife Management 48:665–678.

Gilliland, S., G. J. Robertson, M. Robert, J-P. L. Savard, D. Amirault, P. Laporte, and P. Lamothe. 2002. Abundance and distribution of harlequin ducks molting in eastern Canada. Waterbirds 25:333–339.

Golumbia, T. E., D. R. Nysewander, R. W. Butler, R. L. Milner, T. A. CYRA, and J. R. Evenson. 2009. Status of breeding black oystercatchers *Haematopus bachmani* in the Salish Sea. Marine Ornithology 37:29–32.

Goudie, R. I. 1991. The status of the harlequin duck (*Histrionicus histrionicus*) in eastern North America. Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Ottawa, Ontario, Canada.

Goudie, R. I. 2006. Multivariate behavioral response of harlequin ducks to aircraft disturbance in Labrador. Environmental Conservation 33:28–35.

Goudie, R. I. and I. L. Jones. 2004. Dose–response relationships of harlequin duck behaviour to noise from low-level military jet over-flights in central Labrador. Environmental Conservation 31: 289–298.

Goudie, R. I., and C. D. Ankney. 1986. Body size, activity budgets, and diets of sea ducks wintering in Newfoundland. Ecology 67:1475–1482.

Goudie, R. I., and C. D. Ankney. 1988. Patterns of habitat use by sea ducks wintering in southeastern Newfoundland. Ornis Scandinavica 19:249–256.

Gresswell, R. E., and R. D. Harding. 1997. The role of special angling regulations in management of coastal cutthroat trout. Pages 151–156 *in* J. D. Hall, P. A. Bisson, and R. E. Gresswell, editors. Sea-run cutthroat trout: biology, management, and future conservation, American Fisheries Society, Corvallis, Oregon, USA.

Grigg, E. K., S. G. Allen, D. E. Green, and H. Markowitz. 2002. Diurnal and nocturnal haul out patterns of harbor seals (*Phoca vitulina richardsi*) at Castro Rocks, San Francisco Bay, California. California Fish and Game 88:15–27.

Groves, D. J., B. Conant, R. J. King, J. I. Hodges, and J. G. King. 1996. Status and trends of loon populations summering in Alaska, 1971-1993. Condor 98:189–195.

Grubb, T. G., and R. M. King. 1991. Assessing human disturbance of breeding bald eagles with classification tree models. Journal of Wildlife Management 55:500–511.

Grubb, T. G., W. W. Bowerman, J. P. Geisy, and G. A. Dawson. 1992. Responses of breeding bald eagles, *Haliaeetus leucephalus*, to human activities in northcentral Michigan. Canadian Field Naturalist. 106:443–453.

Haegele C. W., R. D. Humphreys, and A. S. Hourston. 1981. Distribution of eggs by depth and vegetation type in Pacific herring (*Clupea harengus pallasi*) spawnings in southern British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 38:381–386.

Haegele, C. W., and J. F. Schweigert. 1985. Estimation of egg numbers in Pacific herring spawns on giant kelp. North American Journal of Fisheries Management 5:65–71.

Haines, A. M., M. Leu, L. K. Svancara, G. Wilson, and J. M. Scott. 2010. Using a distribution and conservation status weighted hotspot approach to identify areas in need of conservation action to benefit Idaho bird species. Northwest Science 84:170–182.

Hamer, T. E., and C. Thompson, C. 1997. Avoidance of boats by marbled murrelets during marine surveys. USDI Fish and Wildlife Service, Olympia, Washington, USA.

Hamilton, D. J. 2000. Direct and indirect effects of predation by common eiders and abiotic disturbance in an intertidal community. Ecological Monographs 70: 21–43.

Haney, J. C. 1990. Winter habitat of common loons on the continental shelf of the southeastern United States. Wilson Bulletin 102:253–263.

Harney, J. N., M. Morris, and J. R. Harper. 2008. ShoreZone coastal habitat mapping protocol for the Gulf of Alaska. The Nature Conservancy, NOAA National Marine Fisheries Service, and the Alaska State Department of Natural Resources. Juneau, Alaska, USA.

Harrison, P. G., and R. E. Bigley. 1982. The recent introduction of the seagrass *Zostera japonica* Aschers. & Graebn. to the Pacific Coast of North America. Canadian Journal of Fisheries and Aquatic Science 39:1642–1648.

Hastings, K., P. Hesp, and G. A. Kendrick. 1995. Seagrass loss associated with boat moorings at Rottnest Island, Western Australia. Ocean and Coastal Management 26:225–246.

Hébert, P. N., and R. T. Golightly. 2006. Movements, nesting, and response to anthropogenic disturbance of marbled murrelets (*Brachyramphus marmoratus*) in Redwood National and State Parks, California. Department of Wildlife, Humboldt State University, and California Department of Fish and Game Report 2006-02.

Heimberger, M., D. Euler, and J. Barr. 1983. The impact of cottage development on common loon reproductive success in central Ontario. Wilson Bulletin 95:431–439.

Helle, J., R. Williamson, and J. Bailey. 1964. Intertidal ecology and life history of pink salmon at Olsen Creek, Prince William Sound, Alaska. USDI Fish and Wildlife Service Special Scientific Report – Fisheries 483.

Henny, C. J., L. J. Blus, S. P. Thompson, and U. W. Wilson. 1989. Environmental contaminants, human disturbance and nesting of double-crested cormorants in northwestern Washington. Colonial Waterbirds 12:198–206.

Henry, E., and M. O. Hammill. 2001. Impact of small boats on the haulout activity of harbour seals (*Phoca vitulina*) in Métis Bay, Saint Lawrence Estuary, Québec, Canada. Aquatic Mammalogy 27:140–148.

Hentze, N. T. 2006. Effects of boat disturbance on seabirds off southwestern Vancouver Island, British Columbia. Thesis, University of Victoria, Victoria, British Columbia, Canada.

Hilgerloh, G. 1997. Predation by birds on blue mussel *Mytilus edulis* beds of the tidal flats of Spiekeroog (southern North Sea). Marine Ecology Progress Series 146:61–72.

Hodges, K., and K. Buckley. 1995. Rocky Creek cutthroat trout habitat enhancement. *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 94043B2). USDA Forest Service, Chugach National Forest, Cordova, Alaska, USA.

Hodges, J. I., Jr., and F. C. Robards. 1982. Observations of 3,850 bald eagle nests in southeast Alaska. Pages 37–46 *in* W. N. Ladd and P. F. Schempf, editors. Raptor management and biology in Alaska and western Canada. USDI Fish and Wildlife Service FWS/AK/PROC-82.

Holtby, L. B. 1987. The effects of logging on the coho salmon of Carnation Creek, British Columbia. Pages 159–174 *in* T. W. Chamberlin, editor. Proceedings of the workshop: applying 15 years of Carnation Creek results, Pacific Biological Station, Nanaimo, British Columbia, Canada.

Irons, D. B., S. J. Kendall, W. P. Erickson, L. L. McDonald and B. K. Lance. 2000. Chronic effects of the *Exxon Valdez* oil spill on summer marine birds in Prince William Sound, Alaska. Condor 102:723–737.

Isleib, M. E. and B. Kessel. 1973. Birds of the north gulf coast—Prince William Sound Region, Alaska. Biological Papers of the University of Alaska 14.

Iverson, S. A., and D. Esler. 2010. Harlequin duck population injury and recovery dynamics following the 1989 *Exxon Valdez* oil spill. Ecological Applications 20:1993–2006.

Iverson, S. A., D. Esler, and D. J. Rizzolo. 2004. Winter philopatry of harlequin ducks in Prince William Sound, Alaska. Condor 106:711–715.

Jansen, J. K., P. L. Boveng, S. P. Dahlec, and J. L. Bengtson. 2010. Reaction of harbor seals to cruise ships. Journal of Wildlife Management 74:1186–1194.

Johnson, A., and A. Acevedo-Gutierrez. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). Canadian Journal of Zoology 85:290–294.

Johnson, J., and M. Daigneault. 2008. Catalog of waters important for spawning, rearing, or migration of anadromous fishes – Southcentral Region, Effective June 2, 2008. Alaska Department of Fish and Game Special Publication 08-05.

Johnson, S. W., M. L. Murphy, D. J. Csepp, P. M. Harris, and J. F. Thedinga. 2003. A survey of fish assemblages in eelgrass and kelp habitats of southeastern Alaska. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-139.

Jørgensen, R., K. K. Olsen, I. B. Falk-Petersen, and P. Kanapthippilai. 2005. Investigations of potential effects of low frequency sonar signals on survival, development and behaviour of fish larvae and juveniles. Norwegian College of Fishery Science, University of Tromsø, Tromsø, Norway.

Kaplan, J. D. 2003. Human recreation and loon productivity in a protected area, Isle Royale National Park. Thesis, Michigan Technological University, Houghton, Michigan, USA.

Kenworthy, W. J., S. Wyllie-Echeverria, R. G. Coles, G. Pergent, and C. Pergent-Martini. 2006. Seagrass conservation biology: an interdisciplinary science for protection of the seagrass biome. Pages 595–623 *in* A. W. D. Larkum, R. J. Orth, and C. M. Duarte, editors. Seagrasses: biology, ecology and conservation. Springer, Dordrecht, The Netherlands.

Kenyon, K. W. 1962. History of the Steller sea lion at the Pribilof Islands, Alaska. Journal of Mammalogy 43:68–75.

King, M. A., and P. A. Hansen. 2002. Assessment of shore angling impacts to Kenai River riparian habitats, 1999. Alaska Department of Fish and Game Fishery Data Series 02-19.

King, W. B. 1984. Incidental mortality of seabirds in gillnets in the North Pacific. Pages 709–721 *in* J. P. Croxall, P. G. H. Evans, and R. W. Schreiber, editors. Status and conservation of the world's seabirds. International Council for Bird Preservation Technical Publication 2. International Council for Bird Preservation, Cambridge, England.

Klosiewski, S. P., and K. K. Laing. 1994. Marine bird populations of Prince William Sound, Alaska, before and after the *Exxon Valdez* oil spill. USDI Fish and Wildlife Service NRDA Bird Study 2.

Knight, R. L., and D. N. Cole. 1995. Wildlife responses to recreation. Pages 51–69 *in* R. L. Knight and K. J. Gutzwiller, editors. Wildlife and recreationists: coexistence through management and research. Island Press, Washington, D.C., USA.

Knight, R. L., and K. J. Gutzwiller, editors. 1995. Wildlife and recreationists: coexistence through management and research. Island Press, Washington, D.C., USA.

Koch, E. W. 2002. Impact of boat-generated waves on seagrass habitat, Journal of Coastal Research 37:66–74.

Kruse, G. H., M. Crow, E. E. Krygier, D. S. Lloyd, K. W. Pitcher, L. D. Rea, M. Ridgway, R. J. Small, J. Stinson, and K. M. Wynne. 2001. A review of proposed fishery management actions and the decline of Steller sea lions *Eumetopias jubatus* in Alaska: a report by the Alaska Steller sea lion restoration team. Alaska Department of Fish and Game Regional Information Report 5J01-04.

Kucey, L. 2005. Human disturbance and the hauling out behavior of Steller sea lions (*Eumetopias jubatus*). Thesis, University of British Columbia, Vancouver, British Columbia, Canada.

Kucey, L., and A. W. Trites. 2006. A review of the potential effects of disturbance on sea lions: assessing response and recovery. Pages 581–589 *in* A. W. Trites, S. Atkinson, D. P. DeMaster, L. W. Fritz, T. S. Gelatt, L. D. Rea, and K. Wynne, editors. Sea lions of the world. Alaska Sea Grant Program AK-SG-06-01.

Kuletz, K. J. 1994. Marbled murrelet abundance and breeding activity at Naked Island, Prince William Sound, and Kachemak Bay, Alaska, before and after the *Exxon Valdez* Oil Spill.

USDI Fish and Wildlife Service *Exxon Valdez* Oil Spill Damage Assessment Report, Bird Study 6.

Kuletz, K. J. 1996. Marbled murrelet abundance and breeding activity at Naked Island, Prince William Sound, and Kachemak Bay, Alaska, before and after the *Exxon Valdez* oil spill. Pages 770–784 *in* S. D. Rice, R. B. Spies, D. A. Wolfe, and B. A. Wright, editors. *Exxon Valdez* oil spill symposium, American Fisheries Society Symposium 18.

Kuletz, K. J. 2005. Foraging behavior and productivity of a non-colonial seabird, the marbled murrelet (*Brachyramphus marmoratus*) relative to prey and habitat. Dissertation, University of Victoria, Victoria, British Columbia, Canada.

Kuletz, K. J., S. W. Stephensen, D. B. Irons, E. A. Labunski, and K. M. Brenneman. 2003a. Changes in distribution and abundance of Kittlitz's murrelets *Brachyramphus brevirostris* relative to glacial recession in Prince William Sound, Alaska. Marine Ornithology 31:133-140.

Kuletz, K. J., E. A. Labunski, and K. M. Brenneman. 2003b. Distribution and abundance of Kittlitz's murrelets in Prince William Sound, Alaska, summer 2001. Final Report for Western Alaska Ecological Service, USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

Kury, C. R., and M. Gochfield. 1975. Human interference and gull predation in cormorant colonies. Biological Conservation 8:23–34.

Kvadsheim, P. H., and E. M. Sevaldsen. 2005. The potential impact of 1–8 kHz active sonar on stocks of juvenile fish during sonar exercises. Norwegian Defence Research Establishment FFI/Report-2005/01027.

Laing, K. K., and S. P. Klosiewski. 1993. Marine bird populations of Prince William Sound, Alaska, before and after the *Exxon Valdez* oil spill. Bird Study 2. Final Report. USDI Fish and Wildlife Service, Migratory Bird Management, Anchorage, Alaska.

Lance, B. K., D. B. Irons, S. J. Kendall, and L. L. McDonald. 2001. An evaluation of marine bird population trends following the *Exxon Valdez* Oil Spill, Prince William Sound, Alaska. Marine Pollution Bulletin 42: 298–309.

Lance, M. M., S. Richardson, and H. Allen. 2004. Washington state recovery plan for the sea otter. Washington Department of Fish and Wildlife, Olympia, Washington, USA.

Lang, D., and K. Jurica. 2007. Knowles Head watershed restoration plan, FY 2007. Fisheries report. USDA Forest Service, Chugach National Forest, Cordova Ranger District, Cordova, Alaska, USA.

Lee, D. C. 2006. Guide to intertidal bivalves in southwest Alaska national parks. National Park Service, Southwest Alaska Network, Inventory and Monitoring Program Report NPS/AKRSWAN/NRTR-2006/02.

Lewin, W. C., R. Arlinghaus, and T. Mehner. 2006. Documented and potential biological impacts of recreational fishing: insights for management and conservation. Reviews in Fisheries Science 14:305–367.

Lewis, B., J. Botz, R. Brenner, G. Hollowell, and S. Moffitt. 2008. 2007 Prince William Sound area finfish management report. Alaska Department of Fish and Game Fishery Management Report 08-53.

Lewis, J. P. 1987. An evaluation of a census-related disturbance of Steller sea lions. Thesis, University of Alaska Fairbanks, Fairbanks, Alaska, USA.

Lewis, T. M., and E. A. Mathews. 2000. Effects of human visitors on the behavior of harbor seals (*Phoca vitulina richardsi*) at McBride Glacier Fjord, Glacier Bay National Park. USDI Park Service, Glacier Bay National Park and Reserve, Gustavus, Alaska, USA.

Lindberg, D. R., J. A. Estes, and K. I. Warheit. 1998. Human influences on trophic cascades along rocky shores. Ecological Applications 8:880–890.

Lindeberg, M., J. N. Harney, J. R. Harper, and M. C. Morris. 2009. ShoreZone coastal habitat mapping data summary report – Prince William Sound.. *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 070805), NOAA National Marine Fisheries Service, Juneau, Alaska, USA.

Long, L. L., and C. J. Ralph. 1998. Regulation and observations of human disturbance near nesting marbled murrelets. USDA Forest Service Pacific Southwest Research Station, Redwood Science Laboratory, Arcata, California, USA

Losos, E., J. Hayes, A. Phillips, D. Wilcove, and C. Alkire. 1995. Taxpayer-subsidized resource extraction harms species. BioScience 45:446–455.

Loughlin, T. 1993. Abundance and distribution of harbor seals (*Phoca vitulina richardsi*) in the Gulf of Alaska and Prince William Sound during 1992. National Marine Fisheries Service, Seattle, Washington, USA.

Loughlin, T. R. 2002. Steller sea lion. Page 1414 *in* W. F. Perrin, B. Wursig, and J. G. M. Thewissen, editors. Encyclopedia of marine mammals. Academic Press, San Diego, California, USA.

Loughlin, T. R., A. S. Perlov, and V. A. Vladimirov. 1992. Range-wide survey and estimation of total number of Steller sea lions in 1989. Marine Mammal Science 8:220–239.

Loughlin, T. R., and J. V. Tagart 2006. Compendium of Steller sea lion related research, 2000–2006. North Pacific Fishery Management Council, Anchorage, Alaska, USA.

Lubchenco, J., S. A. Navarrete, B. N. Tissot, and J. C. Castilla. 1993. Possible ecological responses to global climate change: nearshore benthic biota of northeastern Pacific coastal ecosystems. Pages 147–166 *in* H. A. Mooney, E. R. Fuentes, and B. I. Kronberg, editors, Earth system responses to global change. Academic Press, San Diego, California, USA.

MacCallum, B. 2001. Status of the harlequin duck (*Histrionicus histrionicus*) in Alberta. Alberta Wildlife Status Report 36.

Manly, B. F. J., A. S. Van Atten, K. J. Kuletz, and C. Nations. 2003. Incidental catch of marine mammals and birds in the Kodiak Island set gillnet fishery in 2002. National Marine Fisheries Service, Juneau, Alaska, USA.

Marston, B. E., and C. E. Brazil. 2008. Area management report for the recreational fisheries of Prince William Sound, 2005-2007. Alaska Department of Fish and Game Fishery Management Report 08-55.

Mathews, E. A. 2000a. Reactions of Steller sea lions (*Eumetopias jubatus*) to vessels at a haulout in Glacier Bay. USDI Park Service, Glacier Bay National Park and Reserve, Gustavus, Alaska, USA.

Mathews, E. A. 2000b. Measuring the effects of vessels on harbor seals (*Phoca vitulina richardsi*) at North Marble Island, a terrestrial haulout in Glacier Bay National Park. USDI Park Service, Glacier Bay National Park and Reserve, Gustavus, Alaska, USA.

Mathisen, J. E. 1968. Effects of human disturbance on nesting of bald eagles. Journal of Wildlife Management 32:1–6.

McCarron, S., and A. Hoffmann. 1993. Technical support study for the restoration of Dolly Varden and cutthroat trout in Prince William Sound. *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 106), Alaska Department of Fish and Game, Anchorage, Alaska, USA.

McChesney, G. J., L. E. Eigner, T. B. Poitras, P. J. Kappes, N. M. Jones, D. N. Lontoh, P. J. Capitolo, R. T. Golightly, D. Le Fer, H. R. Carter, S. W. Kress, and M. W. Parker. 2007. Restoration of common murre colonies in central California: annual report 2006. USDI Fish and Wildlife Service, San Francisco Bay National Wildlife, Refuge Complex, Newark, California, USA.

McGarigal, K., R. G. Anthony, and F. B. Isaacs. 1991. Interactions of humans and bald eagles on the Columbia River estuary. Wildlife Monograph 115.

McGurk, M. D., and E. D. Brown. 1996. Egg-larval mortality of Pacific herring in Prince William Sound, Alaska, after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences 53:2343–2354.

McIntyre, J. W. 1978. Wintering behavior of common loons. Auk 95:396–403.

McKnight A. E., K. M. Sullivan, S. W. Stephensen, D. B. Irons, K. J. Kuletz, and E. A. Labunski. 2003. Distribution, abundance, and foraging behavior of Kittlitz's (*Brachyramphus brevirostris*) and marbled murrelets (*Brachyramphus marmoratus*) in College and Harriman fjords, Prince William Sound, Alaska, in summer 2003. Migratory Bird Management, USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

McKnight, A., K. M. Sullivan, D. B. Irons, S. W. Stephensen, and S. Howlin. 2006. Marine bird and sea otter population abundance of Prince William Sound, Alaska: trends following the T/V *Exxon Valdez* oil spill, 1989-2005. *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Projects 040159/050751), USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

McShane, C., T. Hamer, H. Carter, G. Swartzman, V. Friesen, D. Ainley, R. Tressler, K. Nelson, A. Burger, L. Spear, T. Mohagen, R. Martin, L. Henkel, K. Prindle, C. Strong, and J. Keany. 2004. Evaluation report for the 5-year status review of the marbled murrelet in Washington, Oregon, and California. USDI Fish and Wildlife Service, Portland, Oregon, USA.

Melven, E. G., J. K. Parrish, and L. L. Conquest. 2001. Novel tools to reduce seabird bycatch in coastal gillnet fisheries. Pages 161–184 *in* E. F. Melvin, and J. K. Parrish, editors. Seabird bycatch: trends, roadblocks and solutions. University of Alaska Sea Grant AK-SG-01-01, Fairbanks, Alaska, USA.

Melvin, E. F., and J. K. Parrish, editors. 2001. Seabird bycatch: trends, roadblocks and solutions. University of Alaska Sea Grant AK-SG-01-01, Fairbanks, Alaska, USA.

Misund, O. A., J. T. Øvredal, and M. T. Hafsteinsson. 1996. Reactions of herring schools to the sound field of a survey vessel. Aquatic Living Resources 9:5–11.

Montevecchi, W. A., A. Bourget, J. Brazil, R. I. Goudie, A. E. Hutchinson, B. C. Johnson, P. Kehoe, P. Laporte, M. A. McCollough, R. Milton, and N. Seymour. 1995. National recovery plan for the harlequin duck in eastern North America. Recovery of Nationally Endangered Wildlife Committee Report 12.

Montopoli, G. J., and D.A. Anderson. 1991. A logistic model for the cumulative effects of human intervention on bald eagle habitat. Journal of Wildlife Management 55:290–293.

Morse, J. A., A. N. Powell, and M. D. Tetreau. 2006. Productivity of black oystercatchers: effects of recreational disturbance in a national park. Condor 108:623–633.

Mumford, T. F. 2007. Kelp and eelgrass in Puget Sound. Washington Department of Natural Resources Report 2007-05.

Murphy, K. A., L. H. Suring, and A. Iliff. 2004. Western Prince William Sound human use and wildlife disturbance model, *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 99339). USDA Forest Service, Chugach National Forest, Anchorage, Alaska, USA.

Murphy, S. M., and T. J. Mabee. 2000. Status of black oystercatchers in Prince William Sound, Alaska, nine years after the *Exxon Valdez* Oil Spill. Waterbirds 23:204–213.

Myers, N. 1988. Threatened biotas: "hot spots" in tropical forests. The Environmentalist 8:187–208.

National Marine Fisheries Service (NMFS). 2008. Recovery plan for the Steller sea lion (*Eumetopias jubatus*). Revision. National Marine Fisheries Service, Silver Spring, Maryland, USA.

Nelson, D. A. 1987. Factors influencing colony attendance by pigeon guillemots on Southeast Farallon Island, California. Condor 93:340–348.

Newbrey, J. L, M. A. Bozek, and N. D. Niemuth. 2005. Effects of lake characteristics and human disturbance on the presence of piscivorous birds in northern Wisconsin, USA. Waterbirds 28:478–486.

Newell, R. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North and Mid-Atlantic)-blue mussel. USDI Fish and Wildlife Service Biological Report 82(11.102).

NOAA Fisheries Service. 2010. Endangered, threatened, proposed, candidate, and delisted species in Alaska. National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Anchorage, Alaska, USA. (http://www.fakr.noaa.gov/protectedresources/esa/ak_specieslst051110.pdf - accessed 20 October 2010)

Norcross, B. L., E. D. Brown, R. J. Foy, M. Frandsen, S. M. Gay, T. C. Kline, Jr., D. M. Mason, E. V. Patrick, A. J. Paul, and K. D. E. Stokesbury. 2001. A synthesis of the life history and ecology of juvenile Pacific herring in Prince William Sound, Alaska. Fisheries Oceanography 10(Issue Supplement 1):42–57.

Norcross, B. L., J. E. Hose, M. Frandsen, and E. D. Brown. 1996. Distribution, abundance, morphological condition, and cytogenetic abnormalities of larval herring in Prince

William Sound, Alaska, following the *Exxon Valdez* oil spill, Canadian Journal of Fisheries and Aquatic Sciences 53:2376–2387.

North Pacific Fishery Management Council. 2002. Fishery management plan for groundfish of the Gulf of Alaska. North Pacific Fishery Management Council, Anchorage, Alaska, USA.

Oakley, K. L., and K. J. Kuletz. 1996. Population, reproduction, and foraging of pigeon guillemots at Naked Island, Alaska, before and after the *Exxon Valdez* oil spill. Pages 759–769 *in* S. D. Rice, R. B. Spies, D. A. Wolfe and B. A. Wright, editors. *Exxon Valdez* oil spill symposium proceedings, American Fisheries Society Symposium 18.

Olsen, K. 1979. Observed avoidance behaviour in herring in relation to passage of an echo-survey vessel. International Council for the Exploration of the Sea Fishing Technical Committee CM 1979/B.

Olsen, K., J. Angell, F. Petterson, and A. Løvik. 1983. Observed fish reactions to a surveying vessel with special reference to herring, cod, capelin and polar cod. FAO Fisheries Reports 300:131–138.

Orth, R. J., T. J. B. Carruthers, W. C. Dennison, C. M. Duarte, J. W. Fourqurean, K. L. Heck, A. R. Hughes, G. A. Kendricks, W. J. Kenworthy, S. Olyarnik, F. T. Short, M. Waycott, and S. L. Williams. 2006. A global crisis for seagrass ecosystems. Bioscience 56:987–996.

Parrish, J. K. 1997. Attendance and reproductive success of Tatoosh Island common murres. Final report 1996. Zoology Department, University of Washington, Seattle, Washington, USA.

Peters, K. A., and D. L. Otis. 2005. Using the risk-disturbance hypothesis to assess the relative effects of human disturbance and predation risk on foraging American oystercatchers. Condor 107:716–725.

Peterson C. H., S. D. Rice, J. W. Short, D. Esler J. L. Bodkin, B. E. Ballachey, and D. B. Irons. 2003. Long term ecosystem response to the *Exxon Valdez* oil spill. Science 302:2082–2086.

Peterson, C. H., H. C. Summerson, and S. R. Fegley. 1987. Ecological consequences of mechanical harvesting of clams. Fisheries Bulletin 85:281–298.

Peterson, R. S., and G. A. Bartholomew. 1967. The natural history and behavior of the California sea lion. The American Society of Mammalogists Special Publication 1.

Piatt, J. F., and N. L. Naslund. 1995. Abundance, distribution, and population status of marbled murrelets in Alaska. Pages 285–294 *in* C. J. Ralph, G. Hunt, M. Raphael, and J. F. Piatt,

editors. Ecology and conservation of the marbled murrelet. USDA Forest Service General Technical Report PSW-GTR-152.

Piatt, J. F., and P. Anderson. 1995. Response of common murres to the *Exxon Valdez* oil spill and long-term changes in the Gulf of Alaska marine ecosystem. Pages 720–737 *in* S. D. Rice, R. B. Spies, D. A. Wolfe and B. A. Wright, editors. *Exxon Valdez* oil spill symposium proceedings, American Fisheries Society Symposium 18.

Piatt, J. F., K. J. Kuletz, A. E. Burger, S. A. Hatch, V. L. Friesen, T. P. Birt, M. L. Arimitsu, G. S. Drew, A. M. A. Harding, and K. S. Bixler. 2007. Status review of the marbled murrelet (*Brachyramphus marmoratus*) in Alaska and British Columbia: USDI Geological Survey Open-File Report 2006-1387.

Poe, A. J., M. I. Goldstein, B. A. Brown, and B. A. Andres. 2009. Black oystercatchers and campsites in western Prince William Sound, Alaska. Waterbirds 32:423–429.

Poe, A., H. R. Gimblett, and R.M. Itami. 2010. Evaluating the recreation service recovery: evaluation of Prince William Sound user experience. Exxon Valdez Oil Spill Restoration Project Final Report, USDA Forest Service, Chugach National Forest, Anchorage, Alaska, USA.

Poe, C. B., and S. Greenwood. 2010. Prince William Sound human use hot spots GIS database and spatial analysis. *Exxon Valdez* Oil Spill Criminal Restitution Project Final Report. USDA Forest Service, Chugach National Forest, Anchorage, Alaska, USA.

RaLonde, R. 1995. Shellfish aquaculture in Alaska and the potential of interaction with wild species. *in* M. R. Collie and J. P. McVey, editors. Interactions between cultured species and naturally occurring species in the environment. Alaska Sea Grant Report AK-SG-95-03.

Ray, G. L. 2005. Invasive marine and estuarine animals of the Pacific Northwest and Alaska. U.S. Army Engineer Research and Development Center ERDC/TN ANSRP-05-6.

Ream, C. H. 1976. Loon productivity, human disturbance, and pesticide residues in northern Minnesota. Wilson Bulletin 88:427–432.

Rehehr, H. M., C. M. Smith, B. Arquilla, and F. Cooke. 2001. Post-fledging broods of migratory harlequin ducks accompany females to wintering areas. Condor 103:408–412.

Reynolds, J. B. and Horton, G. E. 1994. Effects of jet-driven and propeller-driven boat turbulence on salmonid reproduction in Alaskan streams. Alaska Cooperative Fish and Wildlife Research Unit, University of Alaska Fairbanks, Fairbanks, Alaska, USA.

Riedman, M. L., and J. A. Estes. 1990. The sea otter (*Enhydra lutris*): behavior, ecology, and natural history. USDI Fish and Wildlife Service Biological Report 90(14).

Rizzolo, D. J., D. Esler, D. D. Roby, R. L. Jarvis. 2005. Do wintering harlequin ducks forage nocturnally at high latitudes? Condor 107:173–177.

Roby, D. D., and G J. Divoky. 2000. Pigeon guillemot restoration research at the Alaska SeaLife Center. *Exxon Valdez* Oil Spill Restoration Project Proposal (Restoration Project 01327), Oregon State University, Corvallis, Oregon, USA.

Rodgers, J. A. and H. T. Smith. 1995. Set-back distances to protect nesting bird colonies from human disturbance in Florida. Conservation Biology 9:89–99.

Rodgers, J. A. Jr., and S. T. Schwikert. 2003. Buffer distances to protect foraging and loafing waterbirds from disturbance by airboats in Florida. Waterbirds 26:437–443.

Rojek, N. A., M. W. Parker, H. R. Carter, and G. J. McChesney. 2007. Aircraft and vessel disturbances to common murres *Uria aalge* at breeding colonies in central California, 1997–1999. Marine Ornithology 35:61–69.

Ruggles, A. K. 1994. Habitat selection by loons in southcentral Alaska. Hydrobiologia 279/280:421–430.

Sandvik, H., and R. T. Barrett. 2001. Effect of investigator disturbance on the breeding success of the black-legged kittiwake. Journal of Field Ornithology 72:30–42.

Sargent, F. J., T. J., Leary, D. W. Crewz, and C. R. Kruer. 1994. Scarring of Florida's seagrasses: assessment and management. Florida Marine Research Institute Technical Report FMRI 1h/94.

Schelske, M., K. Hodges, and D. E. Schmid. 1998. Prince William Sound cutthroat trout, Dolly Varden inventory. *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 97302), USDA Forest Service, Cordova, Alaska, USA.

Schirato, G., and W. Parson. 2006. Bald eagle management in urbanizing habitat of Puget Sound, Washington. Northwestern Naturalist 87:138–142.

Schwarz, A. L., and G. L. Greer. 1984. Responses of Pacific herring, *Clupea harengus pallasi*, to some underwater sounds. Canadian Journal of Fisheries and Aquatic Science 41:1183–1192.

Sea Otter Recovery Team. 2007. Recovery strategy for the sea otter (*Enhydra lutris*) in Canada. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Vancouver, British Columbia, Canada.

Sease, J. L., and T .R. Loughlin. 1999. Aerial and land-based surveys of Steller sea lions (*Eumetopias jubatus*) in Alaska, June and July 1997 and 1998. NOAA Technical Memorandum NMFS-AFSC-100.

Seuront, L., and P. Prinzivalli. 2005. Vulnerability of harbour seals, *Phoca vitulina*, to transient industrial activities in the Strait of Dover. Journal of the Marine Biological Association of the United Kingdom 85:1015–1016.

Short, F. T., and S. Wyllie-Echeverria. 1996. Natural and human-induced disturbance of seagrasses. Environmental Conservation 23:17–27.

Skaret, G., B. E. Axelsen, L. Nøttestad, A. Fernö, and A. Johannessen. 2005. The behaviour of spawning herring in relation to a survey vessel. ICES Journal of Marine Science 62:1061–1064.

Soczek, M. L. 2006. An analysis of seabird bycatch in New England commercial fisheries. Thesis, Antioch University of New England, Keene, New Hampshire, USA.

Sowls, A. L., A. R. DeGange, J. W. Nelson, and G. S. Lester. 1980. Catalog of California seabird colonies. USDI Fish and Wildlife Service Biological Services Program FWS/OBS-80/37.

Speckman, S. G., J. F. Piatt, and A. M. Springer. 2004. Small boats disturb fish-holding marbled murrelets: Northwestern Naturalist 85:32–34.

Spiegel, C. S. 2008. Incubation patterns, parental roles, and nest survival of black oystercatchers (*Haematopus bachmani*): influences of environmental processes and nest-area stimuli. Thesis, Oregon State University, Corvallis, Oregon, USA.

Stalmaster, M. V., and J. L. Kaiser. 1998. Effects of recreational activity on wintering bald eagles. Wildlife Monograph 137.

Stalmaster, M. V., and J. R. Newman. 1978. Behavioral responses of wintering bald eagles to human activity. Journal of Wildlife Management 42:506–513.

Steidl, R. J., and R. G. Anthony. 1996. Responses of bald eagles to human activity during the summer in interior Alaska. Ecological Applications 6:482–491.

Steidl, R. J., and R. G. Anthony. 2000. Experimental effects of human activity on breeding bald eagles. Ecological Applications 10:258–268.

Steidl, R. J., and B. F. Powell. 2006. Assessing the effects of human activities on wildlife. George Wright Forum 23:50–58.

Stephensen, S. W., and D. B. Irons. 2003. A comparison of colonial breeding seabirds in the eastern Bering Sea and Gulf of Alaska. Marine Ornithology 31:167–173.

Stephensen, S. W., and V. M. Mendenhall. 1998. Alaska seabird recensus plan. USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

Stephensen, S.W., D. B. Irons, S. J. Kendall, B. K. Lance, and L. L. McDonald. 2001. Marine bird and sea otter population abundance of Prince William Sound, Alaska: trends following the T/V *Exxon Valdez* Oil Spill, 1989-2000. *Exxon Valdez* Oil Spill Restoration Project Annual Report (Restoration Project 00159), USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

Strong, P. I. V., and J. A. Bissonette. 1989. Feeding and chick-rearing areas of common loons. Journal of Wildlife Management 51:72–76.

Suryan, R. M., and J. T. Harvey. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. Fisheries Bulletin 97:332–339.

Sutherland, A. J., and D. G. Ogle. 1975. Effect of jet boats on salmon eggs. New Zealand Journal of Marine and Freshwater Research 9:273–282.

Szaniszlo, W. R. 2005. California sea lion (*Zalophus californianus*) and Steller sea lion (*Eumetopias jubatus*) interactions with vessels in Pacific Rim National Park Reserve: implications for marine mammal viewing management. Thesis, University of Victoria, Victoria, British Columbia, Canada.

Tallis, H. M., J. L. Ruesink, B. R. Dumbauld, S. Hacker, and L. M. Wisehart. 2009. Oysters and aquaculture practices affect eelgrass density and productivity in a Pacific Northwest estuary. Journal of Shellfish Research 28:251–261.

Tessler, D. F., J. A. Johnson, B. A. Andres, S. Thomas, and R. B. Lanctot. 2007. Black oystercatcher (*Haematopus bachmani*) conservation action plan. International Black Oystercatcher Working Group, Alaska Department of Fish and Game, Anchorage, Alaska, USA, USDI Fish and Wildlife Service, Anchorage, Alaska, USA, and Manomet Center for Conservation Sciences, Manomet, Massachusetts, USA.

Thayer, J. A., W. J. Sydeman, N. P. Fairman, and S. G. Allen. 1999. Attendance and effects of disturbance on coastal common murre colonies on Point Reyes, California. Waterbirds 22:130–139.

Thomas, P., and M. Robert. 2001. Updated COSEWIC status report of the eastern Canada harlequin duck (*Histrionicus histrionicus*). Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Ottawa, Ontario, Canada.

Titus, J. R., and L.W. VanDruff. 1981. Response of the common loon to recreational pressure in the Boundary Waters Canoe Area, northeastern Minnesota. Wildlife Monograph 79.

Uhrin, A. V., and J. G. Holmquist. 2003. Effects of propeller scarring on macrofaunal use of the seagrass *Thalassia testudinum*. Marine Ecology Progress Series 250:61–70.

USDI Fish and Wildlife Service. 1999. Beringian seabird colony catalog manual for censusing seabird colonies. Migratory Bird Management, USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

USDI Fish and Wildlife Service. 2003. Candidate and listing priority assignment for Kittlitz's Murrelet. Migratory Bird Management, USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

USDI Fish and Wildlife Service. 2004. Beringian seabird colony catalog–computer database and colony status record archives. Migratory Bird Management, USDI Fish and Wildlife Service, Anchorage, Alaska, USA.

USDI Fish and Wildlife Service. 2006. Common murre. USDI Fish and Wildlife Service Alaska Seabird Information Series, Anchorage, Alaska, USA.

USDI Fish and Wildlife Service. 2007. US Fish and Wildlife Service national bald eagle management guidelines. USDI Fish and Wildlife Service, Washington, D.C., USA. Available online at: http://alaska.fws.gov/birds/eagle/NationalBaldEagleManagementGuidelines.pdf [accessed 30 October 2010].

Vabø, R., K. Olsen, and I. Huse. 2002. The effect of vessel avoidance of wintering, Norwegian spring-spawning herring. Fisheries Research 58:59–77.

Vermeer, K. 1973. Some aspects of the nesting requirements of common loons in Alberta. Wilson Bulletin 85:429–435.

Walker, D. I., R. J. Lukatelich, G. Bastyna, and A. J. McComb. 1989. Effect of boat moorings on seagrass beds near Perth, western Australia. Aquatic Botany 36:69–77.

Watson, J. C., G. M. Ellis, T. G. Smith, and J. K. B. Ford. 1997. Updated status of the sea otter, *Enhydra lutris*, Canada. Canadian Field-Naturalist 111:277–286.

Watson, J. W. 1993. Responses of nesting bald eagles to helicopter surveys. Wildlife Society Bulletin 21:171–178.

Whitmore, C., D. Vincent-Lang, and K. Hepler. 1991. Annual management report for the Prince William Sound area. Alaska Department of Fish and Game, Sport Fish Division, Juneau, Alaska, USA.

Wilson, B., and L. M. Dill. 2002. Pacific herring respond to simulated odontocete echolocation sounds. Canadian Journal of Fisheries and Aquatic Science 59:542–553.

Wood, P. H, T. C. Edwards, Jr., and M. W. Collopy. 1989. Characteristics of bald eagle nesting habitat in Florida. Journal of Wildlife Management 53:441–449.

Wood, P. H., M. W. Collopy, and C. M. Sekerak. 1998. Postfledging nest dependence period for bald eagles in Florida. Journal of Wildlife Management 62:333–339.

Wynne, K. M., D. Hicks, and N. Munro. 1991. 1990 Salmon gillnet fisheries observer programs in Prince William Sound and South Unimak Alaska. Office of Marine Mammals, National Marine Fisheries Service, NMFS/NOAA Contract 50ABNF000036, Juneau, Alaska, USA.

Wynne, K. M., D. Hicks, and N. Munro. 1992. 1991 Marine mammal observer program for the salmon driftnet fishery of Prince William Sound Alaska. Office of Marine Mammals, National Marine Fisheries Service, NMFS/NOAA Contract 50ABNF000036, Juneau, Alaska, USA.

Zieman, J. C., and R. T., Zieman. 1989. The ecology of the seagrass meadows of the west coast of Florida: a community profile. USDI Fish Wildlife Service Biological Report 86 (7.25).

Zollett, E. A. 2009. Bycatch of protected species and other species of concern in US east coast commercial fisheries. Endangered Species Research 9:49–59.

APPENDIX A

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	0	0	0.0	0.0
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	1	1	0.1	0.3
06-03C Sheep Bay	0.01	0	1	1	0.7	0.5
06-03D Gravina Bay	0.07	0	2	2	0.8	0.6
06-03E Fidalgo Bay	0.84	0	1	1	0.0	0.2
06-03F Valdez Arm	0.06	0	4	4	0.4	0.9
06DU000605	0.33	0	1	1	0.5	0.5
06DU000606	0.15	0	1	1	0.9	0.2
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	1	1	0.1	0.3
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	0	0	0	0.0	0.0
AA01 West Port Wells	tr	0	1	1	0.0	0.2
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.3	0.9
AA03 College Fjord	0.05	0	2	2	0.4	0.7
AA04 Esther Island/Passage	0.04	0	3	3	0.9	0.7
AA05 Eaglek/Unakwik Bay	0.07	0	2	2	0.7	0.7
AA06 Columbia Bay	0.04	0	1	1	0.6	0.5
AA07 Perry Island	0.02	0	1	1	0.3	0.5
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	0	0	0.0	0.0
AA11 Blackstone Bay	0.02	0	2	2	1.0	0.6
AA12 Kings Bay/Nellie Juan	0.06	0	1	1	0.5	0.5
AA13 West Knight Island Passage	0.03	0	1	1	0.1	0.3
AA14 West Knight Island	0.10	0	1	1	0.4	0.5
AA15 East Knight Island	0.03	0	1	1	0.8	0.4
AA16 Icy/Whale Bay	0.03	0	0	0	0.0	0.0
AA17 Port Bainbridge	0.02	0	0	0	0.0	0.0
AA18 Passage Canal	0.01	0	1	1	0.2	0.4

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Agayuut Bay	tr	0	0	0	0.0	0.0
Agayuut Island	tr	0	0	0	0.0	0.0
Aguliak Island	tr	0	0	0	0.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Anderson Bay Valdez	0.02	0	1	1	0.3	0.5
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	tr	0	0	0	0.0	0.0
Bainbridge Island	0.03	0	1	1	0.0	0.1
Bainbridge Passage	0.26	0	0	0	0.0	0.0
Bald Head Chris	tr	0	1	1	0.9	0.3
Barnes Cove	tr	0	0	0	0.0	0.0
Barry Arm	0.31	0	4	4	2.7	1.3
Bass Harbor	0.05	0	1	1	0.1	0.4
Bay of Isles	0.15	0	1	1	1.0	0.2
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	1	1	0	1.0	0.0
Beartrap Bay	0.03	0	1	1	0.4	0.5
Bettles Bay	0.08	0	0	0	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	1	1	0	1.0	0.0
Billings Point Perry Island	tr	0	0	0	0.0	0.0
Billy's Hole	tr	0	0	0	0.0	0.0
Blackstone Bay	0.54	0	2	2	1.0	0.7
Bligh Island	0.02	1	4	3	3.2	0.9
Block Island Cedar Bay	tr	0	0	0	0.0	0.0
Block Island Eleanor Island	tr	0	0	0	0.0	0.0
Blue Fjord	0.11	0	1	1	0.7	0.4
Bomb Point	tr	0	1	1	1.0	0.2
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	1	2	1	1.2	0.4
Brave Harbor	tr	1	1	0	1.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bull Head	0.01	0	0	0	0.0	0.0
Busby Island	0.01	3	4	1	3.9	0.3
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	0	0	0	0.0	0.0
Cabin Bay	0.07	0	1	1	1.0	0.1
Campbell Bay	0.02	0	0	0	0.0	0.0
Cannery Creek	0.04	2	2	0	2.0	0.0
Canoe Passage	0.04	2	3	1	2.8	0.4
Canoe Passage SMP	tr	1	3	2	2.7	0.6
Canoe Passage Trail	tr	2	2	0	2.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	0	0	0.0	0.0
Cedar Bay Hawkins Island	0.02	3	3	0	3.0	0.0
Cedar Bay Wells Bay	0.04	0	0	0	0.0	0.0
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	1	1	0	1.0	0.0
Channel Islands The Narrows	0.01	0	0	0	0.0	0.0
Chenega Island	0.02	0	0	0	0.0	0.0
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	2	3	1	2.5	0.5
Cochrane Bay	0.51	0	0	0	0.0	0.0
Coghill	0.07	1	2	1	1.1	0.3
Coghill Lake Tr	tr	1	1	0	1.0	0.0
College Fjord	1.09	0	4	4	1.1	1.3
Columbia Bay	0.46	0	1	1	0.8	0.4
Comfort Cove	0.01	1	1	0	1.0	0.0
Constantine Harbor	0.05	0	0	0	0.0	0.0
Copper Bay	0.02	0	0	0	0.0	0.0
Cordova	0.01	0	0	0	0.0	0.0
Cow Pens	0.01	1	1	0	1.0	0.0
Crab Bay	tr	1	1	0	1.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Crafton Island	tr	0	0	0	0.0	0.0
Culross Bay	0.02	0	1	1	1.0	0.1
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	1	1	0.3	0.5
Culross Passage	0.22	0	1	1	0.0	0.1
Dalli Bay	tr	1	1	0	1.0	0.0
Dan Bay	0.02	0	0	0	0.0	0.0
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	0	0	0	0.0	0.0
Day Care Cove	tr	0	0	0	0.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	0	0	0	0.0	0.0
Deep Water Bay	0.03	0	1	1	0.6	0.5
Deer Cove Hinchinbrook	0.01	0	0	0	0.0	0.0
Deer Cove Knight	0.01	0	1	1	0.0	0.1
Derickson Bay Eaglek	0.03	0	1	1	0.9	0.2
Derickson Bay Nellie Juan	0.07	0	1	1	0.5	0.5
Disk Island	tr	0	1	1	0.1	0.2
Disk Island Anchorage	tr	0	1	1	0.0	0.2
Double Bay	0.04	0	0	0	0.0	0.0
Drier Bay	0.11	0	0	0	0.0	0.0
Dual Head	tr	0	0	0	0.0	0.0
Dutch Group	tr	0	0	0	0.0	0.0
Eagle Bay	0.02	0	0	0	0.0	0.0
Eaglek Bay	0.38	0	1	1	0.0	0.2
Eaglek Island	tr	0	0	0	0.0	0.0
East Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
East Finger Inlet	0.01	1	1	0	1.0	0.0
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	0	0	0	0.0	0.0
Eickelberg Bay	0.02	0	0	0	0.0	0.0
Elder Bay	0.01	0	0	0	0.0	0.0
Eleanor Island	0.02	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Ellamar	tr	3	4	1	3.1	0.3
Elrington Island	0.04	0	1	1	0.2	0.4
Elrington Passage	0.24	0	1	1	0.4	0.5
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0
English Bay	tr	0	0	0	0.0	0.0
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	0	1	1	0.1	0.3
Esther Bay	0.03	1	2	1	1.9	0.3
Esther Bight	0.01	1	1	0	1.0	0.0
Esther Passage	0.17	0	1	1	0.9	0.2
Esther Passage S CS #1	tr	1	1	0	1.0	0.0
Evans Island	0.03	0	1	1	0.6	0.5
Ewan Bay	0.05	0	0	0	0.0	0.0
Fairmount Bay	0.02	0	0	0	0.0	0.0
Fairmount Island	tr	0	0	0	0.0	0.0
Falls Bay	0.02	0	0	0	0.0	0.0
Finski Bay	0.01	0	0	0	0.0	0.0
Fish Bay Hinchinbrook	0.01	0	0	0	0.0	0.0
Fish Bay Port Fidalgo	0.05	0	1	1	0.1	0.3
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	1	1	0	1.0	0.0
Flemming Island	0.01	0	0	0	0.0	0.0
Fool Island	tr	0	0	0	0.0	0.0
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	0	0	0	0.0	0.0
Fox Point	tr	1	1	0	1.0	0.0
Gaamaak Cove	0.01	0	0	0	0.0	0.0
Galena Bay	0.10	0	1	1	0.3	0.5
Garden Cove	0.01	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Garden Island	tr	0	0	0	0.0	0.0
Gibbon Anchorage	0.04	1	1	0	1.0	0.0
Gilmour Bight	0.01	0	0	0	0.0	0.0
Glacier Island	0.03	0	0	0	0.0	0.0
Glacier Water Cove	0.01	0	0	0	0.0	0.0
Gold Creek/Camp Bowie	0.01	1	1	0	1.0	0.0
Golden	0.03	2	2	0	2.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	0	0	0	0.0	0.0
Granite Bay (Dangerous Passage)	0.02	0	0	0	0.0	0.0
Granite Bay (Eaglek)	0.03	0	0	0	0.0	0.0
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	0	0	0	0.0	0.0
Granite Point	tr	0	0	0	0.0	0.0
Gravina Island	tr	0	0	0	0.0	0.0
Gravina Point	tr	0	0	0	0.0	0.0
Gravina Rocks	tr	0	0	0	0.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	0	1	1	0.2	0.4
Green Island	0.02	0	1	1	0.9	0.3
Greystone Bay	0.02	0	1	1	0.6	0.5
Grommet Cove	tr	1	1	0	1.0	0.0
Growler Bay	0.04	0	0	0	0.0	0.0
Growler Island	tr	0	0	0	0.0	0.0
Gulf of Alaska	0.74	0	0	0	0.0	0.0
Gull Island	tr	0	0	0	0.0	0.0
Hanning Bay	0.10	0	0	0	0.0	0.0
Harriman Fjord	0.36	0	1	1	0.4	0.5
Harriman south shore complex	0.01	0	1	1	0.7	0.5
Harrison Lagoon	0.02	1	1	0	1.0	0.0
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Hawkins Island	0.06	0	3	3	1.4	1.0
Hawkins Island Cutoff	0.70	0	1	1	0.0	0.2
Head of Barry Arm	0.04	0	0	0	0.0	0.0
Head of Cedar Bay	0.02	0	0	0	0.0	0.0
Head of Eaglek Bay	0.02	0	1	1	0.7	0.4
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	0	0	0	0.0	0.0
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	1	1	0.2	0.4
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	0	1	1	0.8	0.4
Heather Bay	0.17	0	1	1	1.0	0.1
Heather Island	0.01	1	1	0	1.0	0.0
Hells Hole	0.01	2	3	1	3.0	0.2
Herring Bay	0.21	0	1	1	0.9	0.2
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	0	1	1	0.2	0.4
Hidey Hole	tr	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	1	1	0.0	0.1
Hinge Beach (Doran Straight)	tr	1	1	0	1.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	1	1	0	1.0	0.0
Hogg Bay	0.13	0	0	0	0.0	0.0
Hole-in-the-wall	tr	0	1	1	0.1	0.2
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	1	1	0	1.0	0.0
Horseshoe Bay SMP	0.01	1	1	0	1.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	0	0	0	0.0	0.0
Humpback/Shepard	0.01	0	0	0	0.0	0.0
Icy Bay	0.25	0	0	0	0.0	0.0
Iktua Bay	0.03	1	1	0	1.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Ingot Cove	tr	0	0	0	0.0	0.0
Ingot Island	0.01	0	0	0	0.0	0.0
Irish Cove Glacier Island	0.01	0	0	0	0.0	0.0
Irish Cove Port Fidalgo	0.01	0	1	1	0.3	0.5
Italian Bay	tr	1	1	0	1.0	0.0
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	tr	0	0	0	0.0	0.0
Jackpot Bay	0.09	0	0	0	0.0	0.0
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	0	0	0.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	0	0	0	0.0	0.0
Johnson Bay	0.04	0	0	0	0.0	0.0
Jonah Bay	0.05	1	2	1	1.0	0.2
Junction Island	tr	0	0	0	0.0	0.0
Kake Cove	tr	0	0	0	0.0	0.0
Kelly's Cove	0.02	4	4	0	4.0	0.0
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	0	0	0.0	0.0
Kiniklik anchorage	tr	0	0	0	0.0	0.0
Kiniklik Island	tr	0	0	0	0.0	0.0
Knight Island Pass CS #1	tr	1	1	0	1.0	0.0
Knowles Bay	0.09	0	1	1	0.2	0.4
Knowles Head	tr	0	0	0	0.0	0.0
Lake Bay	0.01	2	2	0	2.0	0.0
Landlocked Bay	0.13	1	1	0	1.0	0.0
Latouche Island	0.04	0	1	1	0.4	0.5
LaTouche Passage	0.49	0	1	1	0.7	0.5
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	1	1	0	1.0	0.0
Little Axel Lind Island	tr	0	0	0	0.0	0.0
Little Bay	0.02	1	1	0	1.0	0.0
Little Fairmount Island	tr	0	0	0	0.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	1	1	0	1.0	0.0
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	0	0	0.0	0.0
Louis Bay	0.02	1	1	0	1.0	0.0
Lower Herring Bay	0.05	0	1	1	0.3	0.5
Lower Passage	0.11	0	1	1	0.2	0.4
Lucky Bay	0.01	1	1	0	1.0	0.0
MacLeod Harbor	0.13	0	0	0	0.0	0.0
Main Bay	0.07	0	1	1	0.4	0.5
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	0	0	0	0.0	0.0
Masked Bay	0.02	0	0	0	0.0	0.0
McClure Bay	0.09	0	1	1	0.8	0.4
McPherson Bay	0.07	1	1	0	1.0	0.0
McPherson Passage	0.06	1	1	0	1.0	0.0
Meares Point	tr	0	0	0	0.0	0.0
Middle Bight Lower Herring Bay	tr	0	0	0	0.0	0.0
Miners Bay	0.03	0	1	1	0.8	0.4
Mink Island	0.01	0	1	1	1.0	0.1
Minke Cove	tr	0	0	0	0.0	0.0
Montague Island	0.17	0	2	2	0.3	0.6
Mud Bay	tr	0	0	0	0.0	0.0
Mueller Cove	0.01	1	1	0	1.0	0.0
Mummy Bay	0.07	1	1	0	1.0	0.0
Mummy Island Cordova	0.01	0	0	0	0.0	0.0
Mummy Island Knight	0.01	0	0	0	0.0	0.0
Naked Island	0.02	0	1	1	0.7	0.4
Nassau Fjord	0.13	0	0	0	0.0	0.0
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0
Nelson Bay	0.10	0	0	0	0.0	0.0
New Year Islands	tr	0	0	0	0.0	0.0
North Island	tr	0	0	0	0.0	0.0
North Twin Bay	0.03	0	0	0	0.0	0.0
Northeast Arm Mummy Bay	0.01	1	1	0	1.0	0.0
Northeast Cove Drier Bay	0.01	0	0	0	0.0	0.0
Northwest Arm Lower Herring Bay	0.01	0	1	1	1.0	0.1
Northwest Bay	0.04	0	0	0	0.0	0.0
Nuchek	0.01	0	0	0	0.0	0.0
Observation Island	0.01	0	0	0	0.0	0.0
Old Chenega site	tr	0	0	0	0.0	0.0
Olsen Bay	0.07	1	1	0	1.0	0.0
Olsen Cove	tr	1	1	0	1.0	0.0
Olsen Island	tr	1	1	0	1.0	0.0
Orca Bay	1.73	0	3	3	1.3	0.9
Orca Cove	tr	0	0	0	0.0	0.0
Orca Creek	tr	1	1	0	1.0	0.0
Orca Inlet	0.91	0	1	1	0.1	0.3
Otter Cove	tr	0	0	0	0.0	0.0
Outpost Island	tr	0	0	0	0.0	0.0
Outside Bay	0.06	0	1	1	0.1	0.3
Paddy Bay	0.04	0	0	0	0.0	0.0
Pakenham Point	0.01	4	4	0	4.0	0.0
Papoose Cove	tr	1	1	0	1.0	0.0
Parshas Bay	0.02	1	1	0	1.0	0.0
Passage Anchorage	0.01	1	1	0	1.0	0.0
Passage Canal	0.50	0	1	1	0.0	0.0
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	0	0	0	0.0	0.0
Peak Island	0.01	1	1	0	1.0	0.0
Perry Island Rest	tr	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	0	0	0	0.0	0.0
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0
Pleiades Islands	tr	0	0	0	0.0	0.0
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	0	0	0	0.0	0.0
Porpoise Rocks	0.01	0	0	0	0.0	0.0
Port Audrey	0.01	0	0	0	0.0	0.0
Port Bainbridge	0.74	0	0	0	0.0	0.0
Port Chalmers	0.11	0	1	1	0.4	0.5
Port Etches	0.41	0	0	0	0.0	0.0
Port Fidalgo	1.51	0	2	2	0.7	0.5
Port Gravina	1.16	0	3	3	1.2	0.7
Port Nellie Juan	0.92	0	1	1	0.7	0.4
Port Valdez	0.82	0	1	1	0.7	0.5
Prince of Wales Passage	0.52	0	1	1	0.4	0.5
Pt Nowell	tr	0	0	0	0.0	0.0
Puffin Cove	0.02	0	0	0	0.0	0.0
Quayarnaq Cove	tr	0	0	0	0.0	0.0
Quillian Bay	0.01	2	3	1	2.8	0.4
Ragged Bay	0.02	0	0	0	0.0	0.0
Raging Creek	0.01	0	0	0	0.0	0.0
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	2	4	2	2.9	0.4
Rocky Bay	0.13	0	0	0	0.0	0.0
Rocky Point (Lethcoe)	0.01	0	1	1	0.0	0.1
Sahlin Lagoon	tr	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	1	3	2	1.7	0.6
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	1	1	0	1.0	0.0
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Schoppe Bay	0.06	0	1	1	0.7	0.5
Schrader Island	tr	0	0	0	0.0	0.0
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0
Shady Cove	tr	1	1	0	1.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	1	1	0.9	0.3
Sheep Point	tr	1	1	0	1.0	0.0
Shelter Bay Evans Island	0.02	0	1	1	0.4	0.5
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	0	0	0	0.0	0.0
Shoestring Cove	0.01	1	1	0	1.0	0.0
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	0	1	1	0.7	0.5
Simpson Bay southeast arm	0.06	0	1	1	0.2	0.4
Siwash Bay	0.03	1	2	1	1.5	0.5
Siwash Island	tr	2	2	0	2.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	0	1	1	0.1	0.3
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	1	1	0	1.0	0.0
South Bay Perry Island	0.05	0	0	0	0.0	0.0
South Esther SMP	0.01	2	3	1	2.2	0.4
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	0	0	0	0.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	1	1	0	1.0	0.0
Squire Island	0.01	0	0	0	0.0	0.0
Squire Island Anchorage	tr	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Bay	0.02	0	0	0	0.0	0.0
Squirrel Cove	tr	0	0	0	0.0	0.0
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	0	0	0	0.0	0.0
Storey Island	0.01	1	1	0	1.0	0.0
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	0	0	0	0.0	0.0
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	3	3	0	3.0	0.0
Tatitlek Narrows	0.09	2	4	2	3.6	0.6
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	0	1	1	0.0	0.2
The Nub	tr	0	0	0	0.0	0.0
Three Fingers Cove	0.02	0	0	0	0.0	0.0
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	1	1	0	1.0	0.0
Tiger Bight	0.01	0	0	0	0.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	0	0	0	0.0	0.0
Two Moon Bay	0.10	0	1	1	0.7	0.5
Unakwik Inlet	0.82	0	2	2	1.4	0.7
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	1	1	0.0	0.2
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	0	0	0.0	0.0
UnNamed466031	2.68	0	1	1	0.3	0.4
UnNamed466032	5.11	0	1	1	0.0	0.0
UnNamed466033	3.59	0	4	4	0.6	1.1
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	0	0	0.0	0.0
UnNamed475934	0.05	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476002	1.33	0	0	0	0.0	0.0
UnNamed476003	4.67	0	2	2	0.2	0.4
UnNamed476004	1.18	0	1	1	0.6	0.5
UnNamed476005	0.62	0	0	0	0.0	0.0
UnNamed476006	1.45	0	1	1	0.1	0.2
UnNamed476007	4.40	0	1	1	0.1	0.3
UnNamed476008	3.29	0	0	0	0.0	0.0
UnNamed476009	1.24	0	2	2	0.7	0.6
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	1	1	0.2	0.4
UnNamed476033	2.45	0	2	2	0.4	0.5
UnNamed476034	2.91	0	1	1	0.2	0.4
UnNamed476035	5.03	0	1	1	0.1	0.2
UnNamed476036	0.66	0	1	1	0.1	0.3
UnNamed485932	1.98	0	0	0	0.0	0.0
UnNamed486004	0.31	0	0	0	0.0	0.0
UnNamed486005	0.70	0	0	0	0.0	0.0
UnNamed486031	0.70	0	0	0	0.0	0.0
UnNamed486033	1.28	0	2	2	0.7	0.7
UnNamed486034	2.07	0	4	4	0.5	0.9
Upper Passage	0.05	0	0	0	0.0	0.0
Useless Cove	0.01	0	0	0	0.0	0.0
Valdez	0.16	0	1	1	0.8	0.4
Valdez Arm	1.15	0	3	3	0.3	0.7
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	0	0	0.0	0.0
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	3	4	1	4.0	0.2
Waterfall Cove	0.01	1	1	0	1.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	0	1	1	0.7	0.5
West Bay Bligh Island	0.03	4	4	0	4.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0

Table A1. Population density index (0 – 4) statistics for common loon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	1	1	0	1.0	0.0
West Twin Bay	0.06	0	1	1	0.4	0.5
Whale Bay	0.24	0	0	0	0.0	0.0
Whalen Bay	0.02	0	0	0	0.0	0.0
Whiskey Cove	0.01	3	3	0	3.0	0.0
Whittier	0.05	0	1	1	0.2	0.4
Willard Island	0.01	1	2	1	1.7	0.5
Windy Bay	0.03	1	3	2	2.0	0.3
Winter Anchorage Unakwik	tr	2	2	0	2.0	0.0
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	0	0	0	0.0	0.0
Yelper Cove	tr	0	1	1	0.4	0.5
Zaikof Bay	0.29	0	0	0	0.0	0.0
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100.0					

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	1	1	0.4	0.5
06-03A Nelson Bay	0.01	0	1	1	0.4	0.5
06-03B Simpson Bay	0.03	0	3	3	0.4	0.6
06-03C Sheep Bay	0.01	0	3	3	1.6	1.0
06-03D Gravina Bay	0.07	0	3	3	1.7	0.8
06-03E Fidalgo Bay	0.84	0	2	2	0.1	0.3
06-03F Valdez Arm	0.06	0	1	1	0.5	0.5
06DU000605	0.33	0	1	1	0.9	0.3
06DU000606	0.15	0	1	1	0.5	0.5
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	1	1	0.2	0.4
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	0.00	0	0	0	0.0	0.0
AA01 West Port Wells	0.00	1	2	1	1.7	0.4
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.6	1.0
AA03 College Fjord	0.05	0	3	3	1.1	0.7
AA04 Esther Island/Passage	0.04	0	1	1	0.9	0.3
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	1.5	1.1
AA06 Columbia Bay	0.04	0	2	2	1.0	0.4
AA07 Perry Island	0.02	0	1	1	0.8	0.4
AA09 Culross Island/Passage	0.00	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	1	1	0.5	0.5
AA11 Blackstone Bay	0.02	0	3	3	1.5	0.9
AA12 Kings Bay/Nellie Juan	0.06	0	1	1	0.2	0.4
AA13 West Knight Island Passage	0.03	0	3	3	0.9	0.6
AA14 West Knight Island	0.10	1	4	3	2.1	1.0
AA15 East Knight Island	0.03	1	3	2	1.8	0.8
AA16 Icy/Whale Bay	0.03	1	3	2	1.5	0.7
AA17 Port Bainbridge	0.02	0	2	2	0.6	0.7
AA18 Passage Canal	0.01	0	1	1	0.1	0.3
Agayuut Bay	0.00	3	3	0	3.0	0.0
Agayuut Island	0.00	2	3	1	2.6	0.5

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	0.00	4	4	0	4.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Anderson Bay Valdez	0.02	1	1	0	1.0	0.0
Applegate Island	0.00	1	2	1	1.8	0.4
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	0.00	3	3	0	3.0	0.0
Bainbridge Island	0.03	0	2	2	1.1	0.5
Bainbridge Passage	0.26	1	2	1	1.6	0.5
Bald Head Chris	0.00	1	1	0	1.0	0.0
Barnes Cove	0.00	1	2	1	1.8	0.4
Barry Arm	0.31	1	4	3	2.4	1.0
Bass Harbor	0.05	0	1	1	0.9	0.2
Bay of Isles	0.15	1	4	3	3.1	0.8
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	1	1	0	1.0	0.0
Beartrap Bay	0.03	0	1	1	0.8	0.4
Bettles Bay	0.08	1	2	1	2.0	0.1
Bettles Bay SMP	0.00	2	2	0	2.0	0.0
Bettles Island	0.00	1	1	0	1.0	0.0
Billings Point Perry Island	0.00	0	0	0	0.0	0.0
Billy's Hole	0.00	1	1	0	1.0	0.0
Blackstone Bay	0.54	0	3	3	1.2	0.9
Bligh Island	0.02	1	3	2	2.5	0.7
Block Island Cedar Bay	0.00	0	0	0	0.0	0.0
Block Island Eleanor Island	0.00	1	1	0	1.0	0.0
Blue Fjord	0.11	0	0	0	0.0	0.0
Bomb Point	0.00	1	1	0	1.0	0.0
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	0.00	0	0	0	0.0	0.0
Boulder Bay	0.07	0	1	1	1.0	0.1
Brave Harbor	0.00	1	2	1	1.2	0.4
Bull Head	0.01	1	1	0	1.0	0.0
Busby Island	0.01	1	1	0	1.0	0.0
Bush Point	0.00	1	1	0	1.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Buyers Cove	0.01	1	1	0	1.0	0.0
Cabin Bay	0.07	1	1	0	1.0	0.0
Campbell Bay	0.02	1	1	0	1.0	0.0
Cannery Creek	0.04	3	4	1	3.1	0.3
Canoe Passage	0.04	1	1	0	1.0	0.0
Canoe Passage SMP	0.00	1	1	0	1.0	0.0
Canoe Passage Trail	0.00	1	1	0	1.0	0.0
Cascade Bay	0.02	0	1	1	0.7	0.5
Cat Head	0.00	2	2	0	2.0	0.0
Cathead Bay	0.01	2	3	1	2.2	0.4
Cedar Bay Hawkins Island	0.02	1	1	0	1.0	0.0
Cedar Bay Wells Bay	0.04	0	1	1	0.4	0.5
Cedar Lake anchorage	0.00	0	0	0	0.0	0.0
Chamberlain Bay	0.03	1	1	0	1.0	0.0
Channel Island south of Green Island	0.00	1	1	0	1.0	0.0
Channel Islands The Narrows	0.01	1	1	0	1.0	0.0
Chenega Island	0.02	1	2	1	1.3	0.4
Clam Island	0.00	2	2	0	2.0	0.0
Cloudman Bay	0.01	1	1	0	1.0	0.0
Cochrane Bay	0.51	0	1	1	0.8	0.4
Coghill	0.07	1	4	3	2.7	0.6
Coghill Lake Tr	0.00	3	3	0	3.0	0.0
College Fjord	1.09	1	4	3	2.4	1.3
Columbia Bay	0.46	1	2	1	1.0	0.1
Comfort Cove	0.01	1	2	1	1.2	0.4
Constantine Harbor	0.05	1	1	0	1.0	0.0
Copper Bay	0.02	2	3	1	2.3	0.5
Cordova	0.01	0	1	1	0.6	0.5
Cow Pens	0.01	2	3	1	2.6	0.5
Crab Bay	0.00	1	1	0	1.0	0.0
Crafton Island	0.00	1	1	0	1.0	0.0
Culross Bay	0.02	1	1	0	1.0	0.0
Culross Cove	0.01	1	1	0	1.0	0.0
Culross Island	0.02	0	1	1	0.8	0.4

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Passage	0.22	0	2	2	0.6	0.6
Dalli Bay	0.00	1	1	0	1.0	0.0
Dan Bay	0.02	0	0	0	0.0	0.0
Danger Island	0.00	1	1	0	1.0	0.0
Dangerous Passage	0.34	1	3	2	1.5	0.6
Day Care Cove	0.00	0	1	1	0.7	0.5
DECISION POINT SMP	0.00	0	1	1	0.3	0.5
Deep Bay	0.03	1	1	0	1.0	0.0
Deep Water Bay	0.03	0	0	0	0.0	0.0
Deer Cove Hinchinbrook	0.01	0	1	1	0.8	0.4
Deer Cove Knight	0.01	1	2	1	1.1	0.3
Derickson Bay Eaglek	0.03	1	2	1	1.0	0.2
Derickson Bay Nellie Juan	0.07	0	0	0	0.0	0.0
Disk Island	0.00	1	1	0	1.0	0.0
Disk Island Anchorage	0.00	1	1	0	1.0	0.0
Double Bay	0.04	0	0	0	0.0	0.0
Drier Bay	0.11	1	2	1	1.8	0.4
Dual Head	0.00	1	3	2	1.1	0.4
Dutch Group	0.00	1	1	0	1.0	0.0
Eagle Bay	0.02	1	2	1	1.7	0.5
Eaglek Bay	0.38	0	4	4	1.8	0.9
Eaglek Island	0.00	4	4	0	4.0	0.0
East Bight Lower Herring Bay	0.00	3	3	0	3.0	0.0
East Finger Inlet	0.01	0	0	0	0.0	0.0
East Flank Island	0.00	1	1	0	1.0	0.0
East Twin Bay	0.03	1	1	0	1.0	0.0
Eickelberg Bay	0.02	0	1	1	0.7	0.5
Elder Bay	0.01	1	2	1	1.5	0.5
Eleanor Island	0.02	0	1	1	0.8	0.4
Ellamar	0.00	1	1	0	1.0	0.0
Elrington Island	0.04	1	1	0	1.0	0.0
Elrington Passage	0.24	1	1	0	1.0	0.0
Emerald Bay	0.00	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
English Bay	0.00	1	1	0	1.0	0.0
Entrance Island	0.00	1	1	0	1.0	0.0
Entry Cove	0.00	1	1	0	1.0	0.0
ENTRY COVE SMP	0.00	1	1	0	1.0	0.0
Eshamy Bay	0.12	1	1	0	1.0	0.0
Esther Bay	0.03	1	1	0	1.0	0.0
Esther Bight	0.01	0	1	1	1.0	0.1
Esther Passage	0.17	0	1	1	0.8	0.4
Esther Passage S CS #1	0.00	1	1	0	1.0	0.0
Evans Island	0.03	0	1	1	1.0	0.1
Ewan Bay	0.05	1	2	1	1.6	0.5
Fairmount Bay	0.02	1	2	1	2.0	0.1
Fairmount Island	0.00	2	3	1	2.3	0.5
Falls Bay	0.02	1	1	0	1.0	0.0
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	0	0	0	0.0	0.0
Fish Bay Port Fidalgo	0.05	0	1	1	0.5	0.5
Fish Hook Anchorage	0.00	1	1	0	1.0	0.0
Fish Island	0.00	0	0	0	0.0	0.0
Fisherman's Anchorage	0.00	1	1	0	1.0	0.0
Flemming Island	0.01	2	2	0	2.0	0.0
Fool Island	0.00	1	1	0	1.0	0.0
Foul Bay	0.01	0	1	1	0.5	0.5
Foul Pass	0.01	1	1	0	1.0	0.0
Fox Farm Bay	0.01	1	1	0	1.0	0.0
Fox Point	0.00	1	1	0	1.0	0.0
Gaamaak Cove	0.01	1	1	0	1.0	0.0
Galena Bay	0.10	1	1	0	1.0	0.0
Garden Cove	0.01	0	1	1	0.4	0.5
Garden Island	0.00	1	1	0	1.0	0.0
Gibbon Anchorage	0.04	1	2	1	1.1	0.3
Gilmour Bight	0.01	3	3	0	3.0	0.0
Glacier Island	0.03	1	2	1	1.2	0.4
Glacier Water Cove	0.01	1	1	0	1.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gold Creek/Camp Bowie	0.01	1	1	0	1.0	0.0
Golden	0.03	1	2	1	1.7	0.5
Goose Bay	0.01	0	1	1	0.8	0.4
Goose Island	0.00	1	1	0	1.0	0.0
Granite Bay (Dangerous Passage)	0.02	1	2	1	1.1	0.3
Granite Bay (Eaglek)	0.03	1	2	1	1.0	0.2
Granite Bay Esther Island	0.04	1	1	0	1.0	0.0
Granite Bay SMP	0.00	1	1	0	1.0	0.0
Granite Cove	0.02	1	1	0	1.0	0.0
Granite Point	0.00	2	3	1	2.2	0.4
Gravina Island	0.00	3	3	0	3.0	0.0
Gravina Point	0.00	2	2	0	2.0	0.0
Gravina Rocks	0.00	3	3	0	3.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	3	3	0	3.0	0.0
Green Island	0.02	1	3	2	1.5	0.5
Greystone Bay	0.02	0	0	0	0.0	0.0
Grommet Cove	0.00	1	1	0	1.0	0.0
Growler Bay	0.04	1	1	0	1.0	0.0
Growler Island	0.00	1	2	1	1.0	0.2
Gulf of Alaska	0.74	0	0	0	0.0	0.0
Gull Island	0.00	1	1	0	1.0	0.0
Hanning Bay	0.10	1	1	0	1.0	0.0
Harriman Fjord	0.36	1	3	2	2.1	0.7
Harriman south shore complex	0.01	2	3	1	2.6	0.5
Harrison Lagoon	0.02	1	2	1	1.0	0.1
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	1	1	0.6	0.5
Hawkins Island	0.06	0	1	1	0.9	0.3
Hawkins Island Cutoff	0.70	0	0	0	0.0	0.0
Head of Barry Arm	0.04	1	1	0	1.0	0.0
Head of Cedar Bay	0.02	0	0	0	0.0	0.0
Head of Eaglek Bay	0.02	0	2	2	0.8	0.5
Head of Galena Bay	0.09	0	1	1	0.7	0.5

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Harriman Fjord	0.05	1	1	0	1.0	0.0
Head of Pigot Bay	0.03	1	1	0	1.0	0.0
Head of Port Fidalgo	0.18	0	1	1	1.0	0.2
Head of Port Gravina;Gravina River	0.05	0	1	1	1.0	0.2
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	0	1	1	1.0	0.2
Heather Bay	0.17	1	1	0	1.0	0.0
Heather Island	0.01	1	1	0	1.0	0.0
Hells Hole	0.01	3	3	0	3.0	0.0
Herring Bay	0.21	1	3	2	1.5	0.5
Herring Point	0.00	1	1	0	1.0	0.0
Hidden Bay	0.02	1	1	0	1.0	0.0
Hidey Hole	0.00	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	1	1	0.3	0.4
Hinge Beach (Doran Straight)	0.00	1	1	0	1.0	0.0
Hobo Bay	0.01	1	1	0	1.0	0.0
Hogan Bay	0.01	1	2	1	1.0	0.1
Hogg Bay	0.13	1	1	0	1.0	0.0
Hole-in-the-wall	0.00	1	1	0	1.0	0.0
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	0.00	1	2	1	1.9	0.3
Horseshoe Bay SMP	0.01	2	2	0	2.0	0.0
Hummer Bay	0.03	2	2	0	2.0	0.0
Humpback Cove	0.01	1	1	0	1.0	0.0
Humpback/Shepard	0.01	1	1	0	1.0	0.0
Icy Bay	0.25	1	1	0	1.0	0.0
Iktua Bay	0.03	1	1	0	1.0	0.0
Ingot Cove	0.00	1	1	0	1.0	0.0
Ingot Island	0.01	1	1	0	1.0	0.0
Irish Cove Glacier Island	0.01	1	1	0	1.0	0.0
Irish Cove Port Fidalgo	0.01	0	1	1	0.4	0.5
Italian Bay	0.00	1	1	0	1.0	0.0
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	0.00	0	0	0	0.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Jackpot Bay	0.09	0	1	1	0.9	0.3
Jackson Cove	0.00	1	1	0	1.0	0.0
Jackson Hole	0.01	1	2	1	1.0	0.1
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	0.00	3	3	0	3.0	0.0
Johnson Bay	0.04	2	4	2	2.8	0.4
Jonah Bay	0.05	1	3	2	1.3	0.6
Junction Island	0.00	2	2	0	2.0	0.0
Kake Cove	0.00	1	1	0	1.0	0.0
Kelly's Cove	0.02	4	4	0	4.0	0.0
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	1	1	0.3	0.5
Kiniklik anchorage	0.00	1	1	0	1.0	0.0
Kiniklik Island	0.00	1	2	1	1.8	0.4
Knight Island Pass CS #1	0.00	2	2	0	2.0	0.0
Knowles Bay	0.09	1	1	0	1.0	0.0
Knowles Head	0.00	1	1	0	1.0	0.0
Lake Bay	0.01	0	1	1	1.0	0.1
Landlocked Bay	0.13	1	2	1	1.9	0.3
Latouche Island	0.04	1	2	1	1.2	0.4
LaTouche Passage	0.49	0	2	2	1.3	0.5
Lighthouse Reserve	0.00	1	1	0	1.0	0.0
Liljegren Passage	0.14	1	1	0	1.0	0.0
Little Axel Lind Island	0.00	3	3	0	3.0	0.0
Little Bay	0.02	1	1	0	1.0	0.0
Little Fairmount Island	0.00	2	2	0	2.0	0.0
Little Green Island	0.00	3	3	0	3.0	0.0
Little Smith Island	0.00	0	0	0	0.0	0.0
Logging Camp Bay	0.00	1	1	0	1.0	0.0
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	0	0	0	0.0	0.0
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	2	2	1.0	0.3
Louis Bay	0.02	1	1	0	1.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Lower Herring Bay	0.05	2	4	2	3.6	0.6
Lower Passage	0.11	1	1	0	1.0	0.0
Lucky Bay	0.01	2	2	0	2.0	0.0
MacLeod Harbor	0.13	1	1	0	1.0	0.0
Main Bay	0.07	0	1	1	0.1	0.3
Mallard Bay	0.02	2	3	1	2.6	0.5
Mallard Head	0.00	2	3	1	2.2	0.4
Marsha Bay	0.03	1	1	0	1.0	0.0
Masked Bay	0.02	1	2	1	1.6	0.5
McClure Bay	0.09	0	1	1	0.3	0.5
McPherson Bay	0.07	1	1	0	1.0	0.0
McPherson Passage	0.06	1	1	0	1.0	0.0
Meares Point	0.00	0	0	0	0.0	0.0
Middle Bight Lower Herring Bay	0.00	3	3	0	3.0	0.0
Miners Bay	0.03	1	2	1	1.0	0.2
Mink Island	0.01	1	1	0	1.0	0.0
Minke Cove	0.00	1	2	1	1.1	0.3
Montague Island	0.17	0	4	4	1.5	1.3
Mud Bay	0.00	0	0	0	0.0	0.0
Mueller Cove	0.01	1	2	1	1.7	0.4
Mummy Bay	0.07	2	3	1	2.5	0.5
Mummy Island Cordova	0.01	0	0	0	0.0	0.0
Mummy Island Knight	0.01	1	2	1	1.0	0.1
Naked Island	0.02	0	1	1	0.9	0.3
Nassau Fjord	0.13	1	1	0	1.0	0.0
NE Galena Coves (Lethcoe)	0.01	1	1	0	1.0	0.0
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0
Nelson Bay	0.10	0	1	1	0.4	0.5
New Year Islands	0.00	1	1	0	1.0	0.0
North Island	0.00	1	1	0	1.0	0.0
North Twin Bay	0.03	1	1	0	1.0	0.0
Northeast Arm Mummy Bay	0.01	2	3	1	2.9	0.3
Northeast Cove Drier Bay	0.01	1	1	0	1.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Northwest Arm Lower Herring Bay	0.01	3	4	1	3.2	0.4
Northwest Bay	0.04	1	1	0	1.0	0.0
Nuchek	0.01	1	1	0	1.0	0.0
Observation Island	0.01	1	1	0	1.0	0.0
Old Chenega site	0.00	0	1	1	0.6	0.5
Olsen Bay	0.07	1	2	1	1.9	0.3
Olsen Cove	0.00	1	1	0	1.0	0.0
Olsen Island	0.00	1	1	0	1.0	0.0
Orca Bay	1.73	0	3	3	1.1	0.4
Orca Cove	0.00	2	2	0	2.0	0.0
Orca Creek	0.00	1	1	0	1.0	0.0
Orca Inlet	0.91	0	1	1	0.4	0.5
Otter Cove	0.00	2	2	0	2.0	0.0
Outpost Island	0.00	2	2	0	2.0	0.0
Outside Bay	0.06	0	1	1	0.9	0.3
Paddy Bay	0.04	2	3	1	2.5	0.5
Pakenham Point	0.01	4	4	0	4.0	0.0
Papoose Cove	0.00	1	1	0	1.0	0.0
Parshas Bay	0.02	2	2	0	2.0	0.0
Passage Anchorage	0.01	1	1	0	1.0	0.0
Passage Canal	0.50	0	1	1	0.4	0.5
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	0.00	1	1	0	1.0	0.0
Peak Island	0.01	1	1	0	1.0	0.0
Perry Island Rest	0.00	0	1	1	0.2	0.4
Picturesque Cove	0.00	1	1	0	1.0	0.0
Pigot Bay	0.07	1	1	0	1.0	0.0
Pinnacle Rock	0.00	0	0	0	0.0	0.0
Pirate Cove	0.01	2	2	0	2.0	0.0
Pleiades Islands	0.00	1	1	0	1.0	0.0
Poe Bay	0.01	0	1	1	0.6	0.5
Point Helen	0.00	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	1	2	1	1.8	0.4
Porpoise Rocks	0.01	1	1	0	1.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Port Audrey	0.01	1	1	0	1.0	0.0
Port Bainbridge	0.74	0	2	2	1.0	0.7
Port Chalmers	0.11	1	3	2	1.9	0.5
Port Etches	0.41	0	1	1	0.9	0.2
Port Fidalgo	1.51	0	2	2	1.0	0.5
Port Gravina	1.16	1	3	2	2.1	0.7
Port Nellie Juan	0.92	0	2	2	0.3	0.5
Port Valdez	0.82	0	1	1	0.9	0.3
Prince of Wales Passage	0.52	1	2	1	1.2	0.4
Pt Nowell	0.00	1	1	0	1.0	0.0
Puffin Cove	0.02	1	1	0	1.0	0.0
Quayarnaq Cove	0.00	4	4	0	4.0	0.0
Quillian Bay	0.01	1	1	0	1.0	0.0
Ragged Bay	0.02	3	3	0	3.0	0.0
Raging Creek	0.01	0	0	0	0.0	0.0
Red Head	0.00	1	1	0	1.0	0.0
Reef Island	0.00	3	3	0	3.0	0.0
Rocky Bay	0.13	1	3	2	2.7	0.5
Rocky Point (Lethcoe)	0.01	1	1	0	1.0	0.0
Sahlin Lagoon	0.00	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	1	3	2	1.5	0.6
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	1	1	0	1.0	0.0
Sawmill Bay SMP	0.00	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	1	2	1	1.1	0.3
Schrader Island	0.00	1	1	0	1.0	0.0
Seal Island	0.00	0	0	0	0.0	0.0
Serpentine Cove	0.02	2	3	1	2.5	0.5
Shady Cove	0.00	0	0	0	0.0	0.0
Shallow Cove	0.00	1	1	0	1.0	0.0
Sheep Bay	0.36	0	3	3	1.7	0.7
Sheep Point	0.00	2	3	1	2.5	0.5
Shelter Bay Evans Island	0.02	1	1	0	1.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	1	1	0	1.0	0.0
Shoestring Cove	0.01	0	1	1	0.7	0.5
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	1	1	0	1.0	0.0
Shoup Bay SMP	0.13	1	1	0	1.0	0.0
Simpson Bay northwest arm	0.12	0	2	2	0.9	0.3
Simpson Bay southeast arm	0.06	0	1	1	0.7	0.5
Siwash Bay	0.03	2	4	2	3.5	0.7
Siwash Island	0.00	4	4	0	4.0	0.0
Sleepy Bay	0.01	1	1	0	1.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	1	2	1	2.0	0.1
Snug Harbor	0.05	1	3	2	2.1	0.5
Solf Cove	0.02	2	2	0	2.0	0.0
South Bay Perry Island	0.05	0	1	1	0.1	0.3
South Esther SMP	0.01	0	1	1	1.0	0.2
South Olsen Island	0.00	1	1	0	1.0	0.0
South Twin Bay	0.04	1	1	0	1.0	0.0
Southern tip Culross Island	0.00	1	1	0	1.0	0.0
Sphinx Island	0.00	1	1	0	1.0	0.0
Squaw Bay	0.03	1	2	1	1.1	0.3
Squire Island	0.01	1	1	0	1.0	0.0
Squire Island Anchorage	0.00	1	1	0	1.0	0.0
Squirrel Bay	0.02	1	1	0	1.0	0.0
Squirrel Cove	0.00	0	1	1	0.7	0.5
Squirrel Island	0.00	2	2	0	2.0	0.0
Stockdale Harbor	0.10	1	3	2	2.5	0.6
Storey Island	0.01	1	1	0	1.0	0.0
Sunny Cove (Lethcoe)	0.05	1	1	0	1.0	0.0
Surprise Cove	0.02	1	1	0	1.0	0.0
Surprise Cove SMP	0.01	1	1	0	1.0	0.0
Surprise Inlet	0.07	1	3	2	2.5	0.6
Swanson Bay	0.08	0	1	1	0.5	0.5

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Tanker Island	0.00	0	0	0	0.0	0.0
Tatitlek	0.00	0	1	1	0.9	0.3
Tatitlek Narrows	0.09	1	1	0	1.0	0.0
The Keyhole	0.00	1	1	0	1.0	0.0
The Narrows	0.25	0	1	1	1.0	0.1
The Nub	0.00	2	2	0	2.0	0.0
Three Fingers Cove	0.02	0	1	1	0.3	0.5
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	2	3	1	2.1	0.3
Tiger Bight	0.01	1	1	0	1.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	1	0	1.0	0.0
Two Moon Bay	0.10	0	2	2	1.1	0.3
Unakwik Inlet	0.82	0	4	4	2.6	1.4
Unnamed north of Galena	0.01	1	1	0	1.0	0.0
UnNamed466003	4.33	0	2	2	0.2	0.4
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	1	1	0.2	0.4
UnNamed466031	2.68	0	3	3	0.5	0.6
UnNamed466032	5.11	0	1	1	0.1	0.3
UnNamed466033	3.59	0	3	3	0.6	0.8
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	1	1	0.8	0.4
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.1
UnNamed476003	4.67	0	4	4	0.8	1.0
UnNamed476004	1.18	0	2	2	0.9	0.4
UnNamed476005	0.62	1	2	1	1.1	0.4
UnNamed476006	1.45	0	4	4	1.6	0.9
UnNamed476007	4.40	0	3	3	0.6	0.7
UnNamed476008	3.29	0	3	3	0.3	0.6
UnNamed476009	1.24	1	4	3	2.4	0.9
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	1	1	0.2	0.4
UnNamed476033	2.45	0	4	4	0.9	0.9

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476034	2.91	0	3	3	0.7	0.6
UnNamed476035	5.03	0	2	2	0.3	0.5
UnNamed476036	0.66	1	3	2	1.7	0.7
UnNamed485932	1.98	0	1	1	0.6	0.5
UnNamed486004	0.31	0	2	2	0.8	0.5
UnNamed486005	0.70	0	2	2	1.0	0.2
UnNamed486031	0.70	0	2	2	0.7	0.5
UnNamed486033	1.28	0	1	1	0.6	0.5
UnNamed486034	2.07	0	4	4	1.2	0.6
Upper Passage	0.05	1	1	0	1.0	0.0
Useless Cove	0.01	1	2	1	1.5	0.5
Valdez	0.16	0	1	1	0.6	0.5
Valdez Arm	1.15	0	1	1	0.5	0.5
Valdez Arm west side CRD	0.25	0	1	1	0.0	0.0
Valdez Narrows	0.10	0	1	1	0.4	0.5
Verdant Island	0.00	1	1	0	1.0	0.0
Virgin Bay	0.01	1	1	0	1.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	0.00	1	1	0	1.0	0.0
Wells Anchorage	0.01	1	3	2	2.3	0.5
Wells Bay	0.21	0	2	2	1.0	0.2
West Bay Bligh Island	0.03	1	3	2	2.0	0.2
West Culross Anchorage	0.00	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	0.00	1	1	0	1.0	0.0
West Twin Bay	0.06	1	1	0	1.0	0.0
Whale Bay	0.24	1	3	2	2.4	0.8
Whalen Bay	0.02	1	1	0	1.0	0.0
Whiskey Cove	0.01	1	1	0	1.0	0.0
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	2	3	1	2.4	0.5
Windy Bay	0.03	1	1	0	1.0	0.0
Winter Anchorage Unakwik	0.00	3	3	0	3.0	0.0
Wooded Island	0.00	0	0	0	0.0	0.0

Table A2. Population density index (0 – 4) statistics for harlequin duck, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Yale Arm	0.15	0	1	1	0.9	0.3
Yelper Cove	0.00	0	0	0	0.0	0.0
Zaikof Bay	0.29	1	2	1	1.2	0.4
Ziegler Cove	0.00	1	1	0	1.0	0.0
Ziegler Cove SMP	0.00	1	1	0	1.0	0.0
	100.0					

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	1	2	1	1.4	0.5
06-03A Nelson Bay	0.01	1	2	1	1.3	0.4
06-03B Simpson Bay	0.03	0	4	4	1.8	1.9
06-03C Sheep Bay	0.01	2	4	2	3.8	0.5
06-03D Gravina Bay	0.07	0	4	4	3.0	0.9
06-03E Fidalgo Bay	0.84	0	4	4	0.2	0.8
06-03F Valdez Arm	0.06	0	4	4	1.8	1.4
06DU000605	0.33	1	1	0	1.0	0.0
06DU000606	0.15	1	1	0	1.0	0.0
06DU000607	0.21	1	2	1	1.0	0.1
06DU000608	0.82	0	1	1	0.7	0.5
06DU000618	0.10	0	1	1	1.0	0.1
06DU000619	0.10	1	2	1	1.1	0.3
3 Finger-Shrode Lake Tr	tr[b]	1	1	0	1.0	0.0
AA01 West Port Wells	tr	1	1	0	1.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	1	1	0.4	0.5
AA03 College Fjord	0.05	0	1	1	0.9	0.3
AA04 Esther Island/Passage	0.04	1	1	0	1.0	0.0
AA05 Eaglek/Unakwik Bay	0.07	0	1	1	1.0	0.2
AA06 Columbia Bay	0.04	0	2	2	1.2	0.4
AA07 Perry Island	0.02	2	3	1	2.8	0.4
AA09 Culross Island/Passage	tr	1	2	1	1.7	0.4
AA10 Cochrane Bay	0.02	1	1	0	1.0	0.0
AA11 Blackstone Bay	0.02	1	1	0	1.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	1	1	0.8	0.4
AA13 West Knight Island Passage	0.03	1	3	2	1.8	0.8
AA14 West Knight Island	0.10	2	3	1	2.7	0.4
AA15 East Knight Island	0.03	2	3	1	2.2	0.4
AA16 Icy/Whale Bay	0.03	1	2	1	1.3	0.5
AA17 Port Bainbridge	0.02	0	3	3	1.4	0.7
AA18 Passage Canal	0.01	1	1	0	1.0	0.0
Agayuut Bay	tr	1	1	0	1.0	0.0
Agayuut Island	tr	1	1	0	1.0	0.0
Aguliak Island	tr	3	3	0	3.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Anderson Bay Hinchinbrook Island	0.02	2	2	0	2.0	0.0
Anderson Bay Valdez	0.02	1	1	0	1.0	0.0
Applegate Island	tr	1	2	1	1.5	0.5
Auk Bay	0.03	1	1	0	1.0	0.0
Axel Lind Island	tr	1	1	0	1.0	0.0
Bainbridge Island	0.03	1	4	3	2.3	1.2
Bainbridge Passage	0.26	2	4	2	3.2	0.8
Bald Head Chris	tr	1	2	1	1.1	0.3
Barnes Cove	tr	2	2	0	2.0	0.0
Barry Arm	0.31	1	1	0	1.0	0.0
Bass Harbor	0.05	3	4	1	3.4	0.5
Bay of Isles	0.15	2	2	0	2.0	0.0
Beach River	0.07	1	2	1	1.8	0.4
Bear Cove	0.01	3	3	0	3.0	0.0
Beartrap Bay	0.03	1	4	3	3.3	0.8
Bettles Bay	0.08	1	1	0	1.0	0.0
Bettles Bay SMP	tr	1	1	0	1.0	0.0
Bettles Island	tr	3	3	0	3.0	0.0
Billings Point Perry Island	tr	3	3	0	3.0	0.0
Billy's Hole	tr	2	2	0	2.0	0.0
Blackstone Bay	0.54	1	1	0	1.0	0.0
Bligh Island	0.02	2	4	2	2.9	0.7
Block Island Cedar Bay	tr	1	1	0	1.0	0.0
Block Island Eleanor Island	tr	4	4	0	4.0	0.0
Blue Fjord	0.11	0	1	1	0.5	0.5
Bomb Point	tr	4	4	0	4.0	0.0
Boswell Bay	0.05	1	2	1	2.0	0.1
Boswell Bay SMP	tr	2	2	0	2.0	0.0
Boulder Bay	0.07	3	3	0	3.0	0.0
Brave Harbor	tr	1	1	0	1.0	0.0
Bull Head	0.01	1	1	0	1.0	0.0
Busby Island	0.01	3	4	1	3.4	0.5
Bush Point	tr	2	2	0	2.0	0.0
Buyers Cove	0.01	2	2	0	2.0	0.0
Cabin Bay	0.07	3	4	1	3.8	0.4

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Campbell Bay	0.02	1	1	0	1.0	0.0
Cannery Creek	0.04	1	1	0	1.0	0.0
Canoe Passage	0.04	2	3	1	2.4	0.5
Canoe Passage SMP	tr	2	3	1	2.4	0.5
Canoe Passage Trail	tr	3	3	0	3.0	0.0
Cascade Bay	0.02	1	1	0	1.0	0.0
Cat Head	tr	3	3	0	3.0	0.0
Cathead Bay	0.01	3	3	0	3.0	0.0
Cedar Bay Hawkins Island	0.02	2	3	1	3.0	0.2
Cedar Bay Wells Bay	0.04	1	1	0	1.0	0.0
Cedar Lake anchorage	tr	1	1	0	1.0	0.0
Chamberlain Bay	0.03	1	1	0	1.0	0.0
Channel Island south of Green Island	tr	2	2	0	2.0	0.0
Channel Islands The Narrows	0.01	3	3	0	3.0	0.0
Chenega Island	0.02	2	3	1	2.8	0.4
Clam Island	tr	3	3	0	3.0	0.0
Cloudman Bay	0.01	3	3	0	3.0	0.0
Cochrane Bay	0.51	1	1	0	1.0	0.0
Coghill	0.07	1	1	0	1.0	0.0
Coghill Lake Tr	tr	1	1	0	1.0	0.0
College Fjord	1.09	0	1	1	1.0	0.2
Columbia Bay	0.46	1	1	0	1.0	0.0
Comfort Cove	0.01	3	4	1	3.8	0.4
Constantine Harbor	0.05	2	3	1	3.0	0.2
Copper Bay	0.02	3	3	0	3.0	0.0
Cordova	0.01	2	2	0	2.0	0.0
Cow Pens	0.01	1	1	0	1.0	0.0
Crab Bay	tr	3	3	0	3.0	0.0
Crafton Island	tr	2	3	1	2.1	0.2
Culross Bay	0.02	1	1	0	1.0	0.0
Culross Cove	0.01	1	1	0	1.0	0.0
Culross Island	0.02	1	2	1	1.2	0.4
Culross Passage	0.22	1	2	1	1.1	0.4
Dalli Bay	tr	1	1	0	1.0	0.0
Dan Bay	0.02	1	1	0	1.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Danger Island	tr	2	2	0	2.0	0.0
Dangerous Passage	0.34	2	3	1	2.9	0.3
Day Care Cove	tr	3	3	0	3.0	0.0
DECISION POINT SMP	tr	1	1	0	1.0	0.0
Deep Bay	0.03	3	3	0	3.0	0.0
Deep Water Bay	0.03	1	1	0	1.0	0.0
Deer Cove Hinchinbrook	0.01	2	2	0	2.0	0.0
Deer Cove Knight	0.01	3	3	0	3.0	0.0
Derickson Bay Eaglek	0.03	1	1	0	1.0	0.0
Derickson Bay Nellie Juan	0.07	1	1	0	1.0	0.0
Disk Island	tr	3	4	1	3.8	0.4
Disk Island Anchorage	tr	3	4	1	3.7	0.5
Double Bay	0.04	2	2	0	2.0	0.0
Drier Bay	0.11	2	3	1	2.5	0.5
Dual Head	tr	1	1	0	1.0	0.0
Dutch Group	tr	2	2	0	2.0	0.0
Eagle Bay	0.02	1	1	0	1.0	0.0
Eaglek Bay	0.38	1	1	0	1.0	0.0
Eaglek Island	tr	1	1	0	1.0	0.0
East Bight Lower Herring Bay	tr	2	2	0	2.0	0.0
East Finger Inlet	0.01	1	1	0	1.0	0.0
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	3	3	0	3.0	0.0
Eickelberg Bay	0.02	2	2	0	2.0	0.0
Elder Bay	0.01	1	1	0	1.0	0.0
Eleanor Island	0.02	2	4	2	3.3	0.7
Ellamar	tr	3	4	1	3.6	0.5
Elrington Island	0.04	1	3	2	1.7	0.7
Elrington Passage	0.24	1	3	2	2.2	0.6
Emerald Bay	tr	1	1	0	1.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0
English Bay	tr	1	2	1	1.0	0.2
Entrance Island	tr	3	4	1	3.1	0.3
Entry Cove	tr	1	1	0	1.0	0.0
ENTRY COVE SMP	tr	1	1	0	1.0	0.0
Eshamy Bay	0.12	1	3	2	2.6	0.7

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Esther Bay	0.03	1	1	0	1.0	0.0
Esther Bight	0.01	1	1	0	1.0	0.0
Esther Passage	0.17	1	1	0	1.0	0.0
Esther Passage S CS #1	tr	1	1	0	1.0	0.0
Evans Island	0.03	2	4	2	3.1	0.8
Ewan Bay	0.05	1	3	2	2.3	0.7
Fairmount Bay	0.02	1	1	0	1.0	0.0
Fairmount Island	tr	1	1	0	1.0	0.0
Falls Bay	0.02	1	2	1	1.8	0.4
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	2	3	1	2.2	0.4
Fish Bay Port Fidalgo	0.05	2	3	1	2.2	0.4
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	1	1	0	1.0	0.0
Fisherman's Anchorage	tr	1	1	0	1.0	0.0
Flemming Island	0.01	3	4	1	4.0	0.1
Fool Island	tr	3	3	0	3.0	0.0
Foul Bay	0.01	2	2	0	2.0	0.0
Foul Pass	0.01	3	4	1	3.9	0.3
Fox Farm Bay	0.01	1	1	0	1.0	0.0
Fox Point	tr	3	3	0	3.0	0.0
Gaamaak Cove	0.01	1	1	0	1.0	0.0
Galena Bay	0.10	3	4	1	3.9	0.3
Garden Cove	0.01	2	3	1	2.9	0.2
Garden Island	tr	3	3	0	3.0	0.0
Gibbon Anchorage	0.04	3	3	0	3.0	0.0
Gilmour Bight	0.01	2	2	0	2.0	0.0
Glacier Island	0.03	1	1	0	1.0	0.0
Glacier Water Cove	0.01	3	3	0	3.0	0.0
Gold Creek/Camp Bowie	0.01	1	1	0	1.0	0.0
Golden	0.03	1	1	0	1.0	0.0
Goose Bay	0.01	1	2	1	1.9	0.3
Goose Island	tr	2	2	0	2.0	0.0
Granite Bay (Dangerous Passage)	0.02	3	3	0	3.0	0.0
Granite Bay (Eaglek)	0.03	1	1	0	1.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Granite Bay Esther Island	0.04	1	1	0	1.0	0.0
Granite Bay SMP	tr	1	1	0	1.0	0.0
Granite Cove	0.02	1	1	0	1.0	0.0
Granite Point	tr	1	1	0	1.0	0.0
Gravina Island	tr	2	2	0	2.0	0.0
Gravina Point	tr	2	2	0	2.0	0.0
Gravina Rocks	tr	2	2	0	2.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	2	2	0	2.0	0.0
Green Island	0.02	2	3	1	2.6	0.5
Greystone Bay	0.02	1	1	0	1.0	0.0
Grommet Cove	tr	1	1	0	1.0	0.0
Growler Bay	0.04	1	1	0	1.0	0.0
Growler Island	tr	1	1	0	1.0	0.0
Gulf of Alaska	0.74	1	2	1	1.2	0.4
Gull Island	tr	3	3	0	3.0	0.0
Hanning Bay	0.10	1	2	1	2.0	0.1
Harriman Fjord	0.36	1	1	0	1.0	0.0
Harriman south shore complex	0.01	1	1	0	1.0	0.0
Harrison Lagoon	0.02	1	1	0	1.0	0.0
Hartney Bay	0.03	1	1	0	1.0	0.0
Harvard Arm	0.21	1	1	0	1.0	0.0
Hawkins Island	0.06	1	3	2	2.3	0.7
Hawkins Island Cutoff	0.70	1	3	2	1.9	0.4
Head of Barry Arm	0.04	1	1	0	1.0	0.0
Head of Cedar Bay	0.02	1	1	0	1.0	0.0
Head of Eaglek Bay	0.02	1	1	0	1.0	0.0
Head of Galena Bay	0.09	1	3	2	2.3	0.6
Head of Harriman Fjord	0.05	1	1	0	1.0	0.0
Head of Pigot Bay	0.03	1	1	0	1.0	0.0
Head of Port Fidalgo	0.18	2	4	2	3.3	0.8
Head of Port Gravina;Gravina River	0.05	2	4	2	3.2	0.6
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	1	0	1.0	0.0
Heather Bay	0.17	1	2	1	1.0	0.2

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Heather Island	0.01	1	1	0	1.0	0.0
Hells Hole	0.01	3	3	0	3.0	0.0
Herring Bay	0.21	2	3	1	2.9	0.3
Herring Point	tr	2	3	1	3.0	0.2
Hidden Bay	0.02	1	2	1	1.5	0.5
Hidey Hole	tr	1	1	0	1.0	0.0
Hinchinbrook Island	0.09	1	3	2	1.8	0.6
Hinge Beach (Doran Straight)	tr	1	1	0	1.0	0.0
Hobo Bay	0.01	1	1	0	1.0	0.0
Hogan Bay	0.01	2	2	0	2.0	0.0
Hogg Bay	0.13	1	2	1	1.0	0.1
Hole-in-the-wall	tr	4	4	0	4.0	0.0
Hook Point	0.03	1	1	0	1.0	0.0
Horseshoe Bay	tr	2	2	0	2.0	0.0
Horseshoe Bay SMP	0.01	2	2	0	2.0	0.0
Hummer Bay	0.03	1	1	0	1.0	0.0
Humpback Cove	0.01	1	1	0	1.0	0.0
Humpback/Shepard	0.01	2	2	0	2.0	0.0
Icy Bay	0.25	1	1	0	1.0	0.0
Iktua Bay	0.03	4	4	0	4.0	0.0
Ingot Cove	tr	4	4	0	4.0	0.0
Ingot Island	0.01	3	4	1	3.8	0.4
Irish Cove Glacier Island	0.01	1	1	0	1.0	0.0
Irish Cove Port Fidalgo	0.01	2	3	1	2.4	0.5
Italian Bay	tr	3	3	0	3.0	0.0
Jack Bay	0.15	1	2	1	1.1	0.3
Jack Bay SMP	tr	1	1	0	1.0	0.0
Jackpot Bay	0.09	1	3	2	1.5	0.6
Jackson Cove	tr	1	1	0	1.0	0.0
Jackson Hole	0.01	1	1	0	1.0	0.0
Jeanie Cove	0.14	1	1	0	1.0	0.0
Jenny Island	tr	1	1	0	1.0	0.0
Johnson Bay	0.04	2	3	1	2.9	0.3
Jonah Bay	0.05	1	1	0	1.0	0.0
Junction Island	tr	3	3	0	3.0	0.0
Kake Cove	tr	2	2	0	2.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Kelly's Cove	0.02	1	1	0	1.0	0.0
Kenny Cove	0.02	2	2	0	2.0	0.0
Kings Bay	0.62	0	1	1	0.6	0.5
Kiniklik anchorage	tr	1	1	0	1.0	0.0
Kiniklik Island	tr	1	1	0	1.0	0.0
Knight Island Pass CS #1	tr	2	2	0	2.0	0.0
Knowles Bay	0.09	1	2	1	1.9	0.3
Knowles Head	tr	2	2	0	2.0	0.0
Lake Bay	0.01	1	1	0	1.0	0.0
Landlocked Bay	0.13	2	3	1	3.0	0.1
Latouche Island	0.04	1	3	2	2.0	0.3
LaTouche Passage	0.49	1	3	2	2.0	0.3
Lighthouse Reserve	tr	2	2	0	2.0	0.0
Liljegren Passage	0.14	3	4	1	3.7	0.4
Little Axel Lind Island	tr	1	1	0	1.0	0.0
Little Bay	0.02	2	2	0	2.0	0.0
Little Fairmount Island	tr	1	1	0	1.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0
Little Smith Island	tr	2	2	0	2.0	0.0
Logging Camp Bay	tr	1	1	0	1.0	0.0
Logjam Bay	0.01	1	2	1	2.0	0.1
Lone Island	0.01	2	3	1	2.8	0.4
Long Bay Culross	0.01	1	2	1	2.0	0.1
Long Bay Unakwik	0.22	1	2	1	1.9	0.3
Louis Bay	0.02	3	3	0	3.0	0.0
Lower Herring Bay	0.05	2	3	1	2.7	0.4
Lower Passage	0.11	3	4	1	3.4	0.5
Lucky Bay	0.01	3	3	0	3.0	0.0
MacLeod Harbor	0.13	1	2	1	1.8	0.4
Main Bay	0.07	1	2	1	1.4	0.5
Mallard Bay	0.02	2	3	1	2.6	0.5
Mallard Head	tr	3	3	0	3.0	0.0
Marsha Bay	0.03	2	3	1	2.0	0.2
Masked Bay	0.02	3	3	0	3.0	0.0
McClure Bay	0.09	0	1	1	0.8	0.4
McPherson Bay	0.07	3	4	1	3.8	0.4

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
McPherson Passage	0.06	3	4	1	3.8	0.4
Meares Point	tr	2	2	0	2.0	0.0
Middle Bight Lower Herring Bay	tr	2	2	0	2.0	0.0
Miners Bay	0.03	1	1	0	1.0	0.0
Mink Island	0.01	1	1	0	1.0	0.0
Minke Cove	tr	2	2	0	2.0	0.0
Montague Island	0.17	1	4	3	1.6	0.8
Mud Bay	tr	2	2	0	2.0	0.0
Mueller Cove	0.01	1	1	0	1.0	0.0
Mummy Bay	0.07	2	3	1	2.7	0.4
Mummy Island Cordova	0.01	1	2	1	1.9	0.3
Mummy Island Knight	0.01	3	3	0	3.0	0.0
Naked Island	0.02	3	4	1	3.6	0.5
Nassau Fjord	0.13	1	1	0	1.0	0.0
NE Galena Coves (Lethcoe)	0.01	4	4	0	4.0	0.0
Nellie Juan Glacier and spit	0.01	1	1	0	1.0	0.0
Nellie Juan Lagoon	0.02	1	1	0	1.0	0.0
Nelson Bay	0.10	1	2	1	1.4	0.5
New Year Islands	tr	3	3	0	3.0	0.0
North Island	tr	2	3	1	2.2	0.4
North Twin Bay	0.03	1	1	0	1.0	0.0
Northeast Arm Mummy Bay	0.01	2	2	0	2.0	0.0
Northeast Cove Drier Bay	0.01	2	2	0	2.0	0.0
Northwest Arm Lower Herring Bay	0.01	3	3	0	3.0	0.0
Northwest Bay	0.04	3	4	1	3.2	0.4
Nuchek	0.01	3	3	0	3.0	0.0
Observation Island	0.01	3	3	0	3.0	0.0
Old Chenega site	tr	2	2	0	2.0	0.0
Olsen Bay	0.07	4	4	0	4.0	0.0
Olsen Cove	tr	1	1	0	1.0	0.0
Olsen Island	tr	1	1	0	1.0	0.0
Orca Bay	1.73	1	4	3	1.7	0.9
Orca Cove	tr	1	1	0	1.0	0.0
Orca Creek	tr	3	3	0	3.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Orca Inlet	0.91	1	3	2	1.7	0.7
Otter Cove	tr	3	3	0	3.0	0.0
Outpost Island	tr	1	1	0	1.0	0.0
Outside Bay	0.06	3	4	1	3.6	0.5
Paddy Bay	0.04	1	3	2	2.7	0.5
Pakenham Point	0.01	1	1	0	1.0	0.0
Papoose Cove	tr	1	1	0	1.0	0.0
Parshas Bay	0.02	4	4	0	4.0	0.0
Passage Anchorage	0.01	4	4	0	4.0	0.0
Passage Canal	0.50	1	1	0	1.0	0.0
Patton Bay	0.28	1	2	1	1.1	0.3
Paulson Bay	tr	1	1	0	1.0	0.0
Peak Island	0.01	3	4	1	3.9	0.3
Perry Island Rest	tr	2	2	0	2.0	0.0
Picturesque Cove	tr	1	1	0	1.0	0.0
Pigot Bay	0.07	1	1	0	1.0	0.0
Pinnacle Rock	tr	1	1	0	1.0	0.0
Pirate Cove	0.01	1	1	0	1.0	0.0
Pleiades Islands	tr	2	2	0	2.0	0.0
Poe Bay	0.01	1	1	0	1.0	0.0
Point Helen	tr	1	2	1	1.7	0.5
Point Pellew Lagoon	0.01	1	1	0	1.0	0.0
Porpoise Rocks	0.01	2	2	0	2.0	0.0
Port Audrey	0.01	2	2	0	2.0	0.0
Port Bainbridge	0.74	1	2	1	1.4	0.5
Port Chalmers	0.11	2	2	0	2.0	0.0
Port Etches	0.41	1	3	2	2.5	0.6
Port Fidalgo	1.51	1	4	3	2.3	1.0
Port Gravina	1.16	1	4	3	2.5	1.0
Port Nellie Juan	0.92	1	2	1	1.0	0.2
Port Valdez	0.82	1	2	1	1.0	0.1
Prince of Wales Passage	0.52	1	4	3	3.2	1.0
Pt Nowell	tr	3	3	0	3.0	0.0
Puffin Cove	0.02	1	1	0	1.0	0.0
Quayarnaq Cove	tr	3	3	0	3.0	0.0
Quillian Bay	0.01	1	1	0	1.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Ragged Bay	0.02	1	1	0	1.0	0.0
Raging Creek	0.01	3	4	1	3.2	0.4
Red Head	tr	2	2	0	2.0	0.0
Reef Island	tr	2	3	1	2.5	0.5
Rocky Bay	0.13	3	4	1	3.4	0.5
Rocky Point (Lethcoe)	0.01	4	4	0	4.0	0.0
Sahlin Lagoon	tr	3	3	0	3.0	0.0
Saint Matthews Bay	0.09	2	3	1	2.7	0.5
San Juan Bay	0.06	1	1	0	1.0	0.0
Sawmill Bay Evans Island	0.04	3	3	0	3.0	0.0
Sawmill Bay SMP	tr	1	1	0	1.0	0.0
Sawmill Bay Valdez Arm	0.03	1	1	0	1.0	0.0
Schoppe Bay	0.06	1	1	0	1.0	0.0
Schrader Island	tr	2	2	0	2.0	0.0
Seal Island	tr	2	2	0	2.0	0.0
Serpentine Cove	0.02	1	1	0	1.0	0.0
Shady Cove	tr	1	1	0	1.0	0.0
Shallow Cove	tr	1	1	0	1.0	0.0
Sheep Bay	0.36	2	4	2	3.3	0.8
Sheep Point	tr	3	3	0	3.0	0.0
Shelter Bay Evans Island	0.02	4	4	0	4.0	0.0
Shelter Bay Hinchinbrook Island	0.02	1	2	1	1.7	0.4
Shipyard Bay	0.01	2	3	1	2.9	0.3
Shoestring Cove	0.01	1	1	0	1.0	0.0
Shotgun Cove	0.02	1	1	0	1.0	0.0
Shoup Bay	0.05	1	1	0	1.0	0.0
Shoup Bay SMP	0.13	1	1	0	1.0	0.0
Simpson Bay northwest arm	0.12	2	4	2	4.0	0.2
Simpson Bay southeast arm	0.06	3	4	1	4.0	0.1
Siwash Bay	0.03	1	1	0	1.0	0.0
Siwash Island	tr	1	1	0	1.0	0.0
Sleepy Bay	0.01	2	3	1	2.3	0.5
Smith Island	0.01	2	2	0	2.0	0.0
Snug Corner Cove	0.09	2	3	1	2.8	0.4
Snug Harbor	0.05	2	2	0	2.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Solf Cove	0.02	2	2	0	2.0	0.0
South Bay Perry Island	0.05	2	3	1	2.8	0.4
South Esther SMP	0.01	1	1	0	1.0	0.0
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	1	1	0	1.0	0.0
Southern tip Culross Island	tr	1	1	0	1.0	0.0
Sphinx Island	tr	2	3	1	2.9	0.2
Squaw Bay	0.03	1	1	0	1.0	0.0
Squire Island	0.01	3	3	0	3.0	0.0
Squire Island Anchorage	tr	3	3	0	3.0	0.0
Squirrel Bay	0.02	2	2	0	2.0	0.0
Squirrel Cove	tr	1	1	0	1.0	0.0
Squirrel Island	tr	3	3	0	3.0	0.0
Stockdale Harbor	0.10	3	3	0	3.0	0.0
Storey Island	0.01	3	4	1	3.1	0.3
Sunny Cove (Lethcoe)	0.05	2	4	2	3.6	0.5
Surprise Cove	0.02	0	1	1	1.0	0.1
Surprise Cove SMP	0.01	0	1	1	1.0	0.2
Surprise Inlet	0.07	1	1	0	1.0	0.0
Swanson Bay	0.08	1	1	0	1.0	0.0
Tanker Island	tr	1	1	0	1.0	0.0
Tatitlek	tr	3	4	1	3.0	0.2
Tatitlek Narrows	0.09	3	4	1	3.7	0.4
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	2	4	2	3.0	0.6
The Nub	tr	3	3	0	3.0	0.0
Three Fingers Cove	0.02	1	1	0	1.0	0.0
Three Mile Bay	0.01	1	1	0	1.0	0.0
Thumb Bay	0.01	3	3	0	3.0	0.0
Tiger Bight	0.01	1	1	0	1.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	1	0	1.0	0.0
Two Moon Bay	0.10	2	3	1	2.9	0.2
Unakwik Inlet	0.82	0	1	1	1.0	0.2
Unnamed north of Galena	0.01	3	3	0	3.0	0.0
UnNamed466003	4.33	0	3	3	0.9	0.7
UnNamed466004	0.58	1	1	0	1.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed466005	0.71	0	2	2	1.1	0.3
UnNamed466031	2.68	0	2	2	0.8	0.5
UnNamed466032	5.11	0	2	2	0.3	0.5
UnNamed466033	3.59	0	4	4	1.0	1.0
UnNamed475932	1.55	1	2	1	1.1	0.3
UnNamed475933	1.83	1	2	1	1.1	0.2
UnNamed475934	0.05	1	1	0	1.0	0.0
UnNamed476002	1.33	0	2	2	1.0	0.1
UnNamed476003	4.67	0	3	3	1.1	0.3
UnNamed476004	1.18	1	4	3	2.2	0.8
UnNamed476005	0.62	2	4	2	2.7	0.5
UnNamed476006	1.45	1	3	2	2.2	0.6
UnNamed476007	4.40	0	3	3	1.3	0.6
UnNamed476008	3.29	0	3	3	0.9	0.8
UnNamed476009	1.24	1	3	2	1.9	0.6
UnNamed476031	3.36	0	3	3	0.5	0.6
UnNamed476032	5.49	0	4	4	1.3	0.7
UnNamed476033	2.45	1	3	2	1.8	0.8
UnNamed476034	2.91	0	4	4	1.3	0.7
UnNamed476035	5.03	0	3	3	0.6	0.6
UnNamed476036	0.66	1	1	0	1.0	0.0
UnNamed485932	1.98	0	2	2	1.1	0.4
UnNamed486004	0.31	1	3	2	2.1	0.9
UnNamed486005	0.70	1	3	2	1.9	0.4
UnNamed486031	0.70	1	2	1	1.4	0.5
UnNamed486033	1.28	1	3	2	1.5	0.6
UnNamed486034	2.07	0	1	1	1.0	0.0
Upper Passage	0.05	3	4	1	3.9	0.3
Useless Cove	0.01	2	2	0	2.0	0.0
Valdez	0.16	1	1	0	1.0	0.0
Valdez Arm	1.15	1	4	3	1.6	1.0
Valdez Arm west side CRD	0.25	1	1	0	1.0	0.0
Valdez Narrows	0.10	1	2	1	1.7	0.4
Verdant Island	tr	1	1	0	1.0	0.0
Virgin Bay	0.01	3	4	1	4.0	0.1
Waterfall Cove	0.01	1	1	0	1.0	0.0

Table A3. Population density index (0 – 4) statistics for bald eagle, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Wellesley Glacier	tr	0	1	1	0.1	0.3
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	1	1	0	1.0	0.0
West Bay Bligh Island	0.03	3	4	1	3.8	0.4
West Culross Anchorage	tr	1	1	0	1.0	0.0
West Finger Inlet	0.01	0	1	1	1.0	0.1
West Flank Island	tr	1	1	0	1.0	0.0
West Twin Bay	0.06	3	3	0	3.0	0.0
Whale Bay	0.24	1	2	1	1.3	0.5
Whalen Bay	0.02	3	4	1	3.3	0.5
Whiskey Cove	0.01	2	3	1	2.2	0.4
Whittier	0.05	1	1	0	1.0	0.0
Willard Island	0.01	1	1	0	1.0	0.0
Windy Bay	0.03	3	3	0	3.0	0.0
Winter Anchorage Unakwik	tr	1	1	0	1.0	0.0
Wooded Island	tr	1	2	1	2.0	0.2
Yale Arm	0.15	1	1	0	1.0	0.0
Yelper Cove	tr	3	3	0	3.0	0.0
Zaikof Bay	0.29	1	3	2	2.4	0.8
Ziegler Cove	tr	1	1	0	1.0	0.0
Ziegler Cove SMP	tr	1	1	0	1.0	0.0
	100.0					

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	1	1	0.9	0.3
06-03A Nelson Bay	0.01	0	1	1	0.7	0.5
06-03B Simpson Bay	0.03	0	3	3	1.1	1.3
06-03C Sheep Bay	0.01	1	3	2	2.8	0.4
06-03D Gravina Bay	0.07	0	2	2	1.1	0.5
06-03E Fidalgo Bay	0.84	0	1	1	0.1	0.2
06-03F Valdez Arm	0.06	0	2	2	0.7	0.7
06DU000605	0.33	0	0	0	0.0	0.0
06DU000606	0.15	0	0	0	0.0	0.0
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	0	0	0.0	0.0
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	1	1	0	1.0	0.0
AA01 West Port Wells	tr	0	1	1	0.1	0.2
AA02 Harriman Fjord/Barry Arm	0.10	0	3	3	0.7	0.9
AA03 College Fjord	0.05	0	1	1	0.8	0.4
AA04 Esther Island/Passage	0.04	0	1	1	0.4	0.5
AA05 Eaglek/Unakwik Bay	0.07	0	2	2	0.9	0.5
AA06 Columbia Bay	0.04	0	2	2	1.0	0.4
AA07 Perry Island	0.02	1	1	0	1.0	0.0
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	1	1	0.5	0.5
AA11 Blackstone Bay	0.02	0	2	2	1.1	0.8
AA12 Kings Bay/Nellie Juan	0.06	0	3	3	0.5	0.7
AA13 West Knight Island Passage	0.03	0	1	1	0.4	0.5
AA14 West Knight Island	0.10	1	3	2	1.3	0.5
AA15 East Knight Island	0.03	0	2	2	0.4	0.5
AA16 Icy/Whale Bay	0.03	1	1	0	1.0	0.0
AA17 Port Bainbridge	0.02	0	1	1	0.9	0.3
AA18 Passage Canal	0.01	0	0	0	0.0	0.0
Agayuut Bay	tr	1	1	0	1.0	0.0
Agayuut Island	tr	1	1	0	1.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	2	2	0	2.0	0.0
Anderson Bay Hinchinbrook Island	0.02	1	2	1	2.0	0.2
Anderson Bay Valdez	0.02	0	0	0	0.0	0.0
Applegate Island	tr	1	1	0	1.0	0.0
Auk Bay	0.03	1	1	0	1.0	0.0
Axel Lind Island	tr	2	3	1	2.4	0.5
Bainbridge Island	0.03	0	1	1	1.0	0.2
Bainbridge Passage	0.26	1	1	0	1.0	0.0
Bald Head Chris	tr	1	2	1	1.8	0.4
Barnes Cove	tr	1	1	0	1.0	0.0
Barry Arm	0.31	1	2	1	1.3	0.4
Bass Harbor	0.05	1	1	0	1.0	0.0
Bay of Isles	0.15	1	1	0	1.0	0.0
Beach River	0.07	1	2	1	1.1	0.3
Bear Cove	0.01	2	2	0	2.0	0.0
Beartrap Bay	0.03	0	1	1	1.0	0.2
Bettles Bay	0.08	0	1	1	0.4	0.5
Bettles Bay SMP	tr	1	1	0	1.0	0.0
Bettles Island	tr	0	0	0	0.0	0.0
Billings Point Perry Island	tr	1	1	0	1.0	0.0
Billy's Hole	tr	0	1	1	0.9	0.3
Blackstone Bay	0.54	0	2	2	0.9	0.7
Bligh Island	0.02	1	1	0	1.0	0.0
Block Island Cedar Bay	tr	0	0	0	0.0	0.0
Block Island Eleanor Island	tr	1	1	0	1.0	0.0
Blue Fjord	0.11	1	1	0	1.0	0.0
Bomb Point	tr	3	3	0	3.0	0.0
Boswell Bay	0.05	1	1	0	1.0	0.0
Boswell Bay SMP	tr	1	1	0	1.0	0.0
Boulder Bay	0.07	1	1	0	1.0	0.0
Brave Harbor	tr	1	1	0	1.0	0.0
Bull Head	0.01	0	0	0	0.0	0.0
Busby Island	0.01	1	1	0	1.0	0.0
Bush Point	tr	1	1	0	1.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Buyers Cove	0.01	0	0	0	0.0	0.0
Cabin Bay	0.07	1	1	0	1.0	0.0
Campbell Bay	0.02	0	0	0	0.0	0.0
Cannery Creek	0.04	1	2	1	1.4	0.5
Canoe Passage	0.04	1	1	0	1.0	0.0
Canoe Passage SMP	tr	1	1	0	1.0	0.0
Canoe Passage Trail	tr	1	1	0	1.0	0.0
Cascade Bay	0.02	0	1	1	0.1	0.2
Cat Head	tr	1	2	1	1.6	0.5
Cathead Bay	0.01	1	1	0	1.0	0.0
Cedar Bay Hawkins Island	0.02	2	2	0	2.0	0.0
Cedar Bay Wells Bay	0.04	0	1	1	0.8	0.4
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	3	3	0	3.0	0.0
Channel Islands The Narrows	0.01	2	2	0	2.0	0.0
Chenega Island	0.02	0	1	1	0.1	0.3
Clam Island	tr	2	2	0	2.0	0.0
Cloudman Bay	0.01	1	1	0	1.0	0.0
Cochrane Bay	0.51	0	1	1	0.3	0.5
Coghill	0.07	1	1	0	1.0	0.0
Coghill Lake Tr	tr	1	1	0	1.0	0.0
College Fjord	1.09	0	2	2	1.1	0.2
Columbia Bay	0.46	0	2	2	1.2	0.5
Comfort Cove	0.01	1	2	1	1.3	0.4
Constantine Harbor	0.05	2	2	0	2.0	0.0
Copper Bay	0.02	1	1	0	1.0	0.0
Cordova	0.01	1	1	0	1.0	0.0
Cow Pens	0.01	1	1	0	1.0	0.0
Crab Bay	tr	1	1	0	1.0	0.0
Crafton Island	tr	0	0	0	0.0	0.0
Culross Bay	0.02	0	0	0	0.0	0.0
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	1	1	0.0	0.1

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Passage	0.22	0	1	1	0.3	0.4
Dalli Bay	tr	2	2	0	2.0	0.0
Dan Bay	0.02	1	1	0	1.0	0.0
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	0	1	1	0.2	0.4
Day Care Cove	tr	1	1	0	1.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	2	2	0	2.0	0.0
Deep Water Bay	0.03	2	3	1	2.0	0.1
Deer Cove Hinchinbrook	0.01	1	2	1	1.0	0.1
Deer Cove Knight	0.01	1	1	0	1.0	0.0
Derickson Bay Eaglek	0.03	1	1	0	1.0	0.0
Derickson Bay Nellie Juan	0.07	1	3	2	2.5	0.5
Disk Island	tr	1	2	1	1.5	0.5
Disk Island Anchorage	tr	2	2	0	2.0	0.0
Double Bay	0.04	2	3	1	2.6	0.5
Drier Bay	0.11	1	2	1	1.3	0.5
Dual Head	tr	1	1	0	1.0	0.0
Dutch Group	tr	3	3	0	3.0	0.0
Eagle Bay	0.02	0	0	0	0.0	0.0
Eaglek Bay	0.38	0	2	2	0.9	0.3
Eaglek Island	tr	1	2	1	1.8	0.4
East Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
East Finger Inlet	0.01	0	1	1	0.3	0.5
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	1	1	0	1.0	0.0
Eickelberg Bay	0.02	0	1	1	0.3	0.5
Elder Bay	0.01	0	1	1	0.5	0.5
Eleanor Island	0.02	1	1	0	1.0	0.0
Ellamar	tr	1	1	0	1.0	0.0
Elrington Island	0.04	0	1	1	0.7	0.5
Elrington Passage	0.24	0	1	1	0.5	0.5
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	2	2	0	2.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
English Bay	tr	1	2	1	1.9	0.2
Entrance Island	tr	1	1	0	1.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	0	0	0	0.0	0.0
Esther Bay	0.03	0	1	1	0.6	0.5
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	1	1	0.5	0.5
Esther Passage S CS #1	tr	1	1	0	1.0	0.0
Evans Island	0.03	0	1	1	0.8	0.4
Ewan Bay	0.05	0	1	1	0.0	0.2
Fairmount Bay	0.02	1	1	0	1.0	0.0
Fairmount Island	tr	1	1	0	1.0	0.0
Falls Bay	0.02	0	0	0	0.0	0.0
Finski Bay	0.01	0	1	1	0.9	0.3
Fish Bay Hinchinbrook	0.01	1	1	0	1.0	0.0
Fish Bay Port Fidalgo	0.05	1	1	0	1.0	0.0
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	1	1	0	1.0	0.0
Fisherman's Anchorage	tr	1	1	0	1.0	0.0
Flemming Island	0.01	1	1	0	1.0	0.0
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	1	1	0	1.0	0.0
Foul Pass	0.01	1	1	0	1.0	0.0
Fox Farm Bay	0.01	1	1	0	1.0	0.0
Fox Point	tr	2	2	0	2.0	0.0
Gaamaak Cove	0.01	1	1	0	1.0	0.0
Galena Bay	0.10	1	2	1	1.6	0.5
Garden Cove	0.01	2	2	0	2.0	0.0
Garden Island	tr	2	2	0	2.0	0.0
Gibbon Anchorage	0.04	4	4	0	4.0	0.0
Gilmour Bight	0.01	3	3	0	3.0	0.0
Glacier Island	0.03	0	1	1	0.2	0.4
Glacier Water Cove	0.01	0	0	0	0.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gold Creek/Camp Bowie	0.01	0	0	0	0.0	0.0
Golden	0.03	1	1	0	1.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	1	1	0	1.0	0.0
Granite Bay (Dangerous Passage)	0.02	0	0	0	0.0	0.0
Granite Bay (Eaglek)	0.03	1	1	0	1.0	0.0
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	1	1	0	1.0	0.0
Granite Point	tr	1	1	0	1.0	0.0
Gravina Island	tr	1	1	0	1.0	0.0
Gravina Point	tr	1	1	0	1.0	0.0
Gravina Rocks	tr	1	1	0	1.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	1	1	0	1.0	0.0
Green Island	0.02	2	4	2	3.1	0.9
Greystone Bay	0.02	1	1	0	1.0	0.0
Grommet Cove	tr	0	0	0	0.0	0.0
Growler Bay	0.04	0	1	1	0.1	0.4
Growler Island	tr	0	1	1	0.8	0.4
Gulf of Alaska	0.74	0	1	1	0.9	0.3
Gull Island	tr	1	1	0	1.0	0.0
Hanning Bay	0.10	3	4	1	3.9	0.3
Harriman Fjord	0.36	2	3	1	2.8	0.4
Harriman south shore complex	0.01	2	3	1	3.0	0.2
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	0	1	1	0.8	0.4
Harvard Arm	0.21	0	1	1	0.8	0.4
Hawkins Island	0.06	1	2	1	1.3	0.5
Hawkins Island Cutoff	0.70	1	1	0	1.0	0.0
Head of Barry Arm	0.04	1	2	1	2.0	0.2
Head of Cedar Bay	0.02	0	0	0	0.0	0.0
Head of Eaglek Bay	0.02	0	1	1	0.3	0.5
Head of Galena Bay	0.09	0	1	1	0.8	0.4

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Harriman Fjord	0.05	1	2	1	1.9	0.3
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	1	1	0.6	0.5
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	0	1	1	0.8	0.4
Heather Bay	0.17	1	2	1	1.3	0.5
Heather Island	0.01	1	2	1	1.7	0.5
Hells Hole	0.01	1	1	0	1.0	0.0
Herring Bay	0.21	1	2	1	1.8	0.4
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	1	1	0	1.0	0.0
Hinchinbrook Island	0.09	0	2	2	1.4	0.5
Hinge Beach (Doran Straight)	tr	2	2	0	2.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	0	0	0	0.0	0.0
Hogg Bay	0.13	1	1	0	1.0	0.0
Hole-in-the-wall	tr	3	3	0	3.0	0.0
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	0	0	0	0.0	0.0
Horseshoe Bay SMP	0.01	0	0	0	0.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	1	1	0	1.0	0.0
Humpback/Shepard	0.01	1	1	0	1.0	0.0
Icy Bay	0.25	1	1	0	1.0	0.0
Iktua Bay	0.03	1	1	0	1.0	0.0
Ingot Cove	tr	1	1	0	1.0	0.0
Ingot Island	0.01	1	1	0	1.0	0.0
Irish Cove Glacier Island	0.01	0	1	1	1.0	0.1
Irish Cove Port Fidalgo	0.01	1	1	0	1.0	0.0
Italian Bay	tr	1	1	0	1.0	0.0
Jack Bay	0.15	0	1	1	0.0	0.2
Jack Bay SMP	tr	0	0	0	0.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Jackpot Bay	0.09	1	1	0	1.0	0.0
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	0	0	0.0	0.0
Jeanie Cove	0.14	2	2	0	2.0	0.0
Jenny Island	tr	2	2	0	2.0	0.0
Johnson Bay	0.04	2	3	1	2.3	0.5
Jonah Bay	0.05	1	1	0	1.0	0.0
Junction Island	tr	0	0	0	0.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	1	1	0	1.0	0.0
Kenny Cove	0.02	1	1	0	1.0	0.0
Kings Bay	0.62	0	1	1	0.0	0.0
Kiniklik anchorage	tr	1	1	0	1.0	0.0
Kiniklik Island	tr	1	1	0	1.0	0.0
Knight Island Pass CS #1	tr	1	1	0	1.0	0.0
Knowles Bay	0.09	1	1	0	1.0	0.0
Knowles Head	tr	1	1	0	1.0	0.0
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	1	1	0	1.0	0.0
Latouche Island	0.04	0	0	0	0.0	0.0
LaTouche Passage	0.49	0	1	1	0.1	0.2
Lighthouse Reserve	tr	1	1	0	1.0	0.0
Liljegren Passage	0.14	1	1	0	1.0	0.0
Little Axel Lind Island	tr	1	1	0	1.0	0.0
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	1	1	0	1.0	0.0
Little Green Island	tr	2	2	0	2.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0
Logjam Bay	0.01	1	2	1	1.9	0.3
Lone Island	0.01	0	1	1	0.3	0.4
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	1	1	0.9	0.2
Louis Bay	0.02	2	2	0	2.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Lower Herring Bay	0.05	1	2	1	1.6	0.5
Lower Passage	0.11	1	2	1	1.4	0.5
Lucky Bay	0.01	0	1	1	0.9	0.3
MacLeod Harbor	0.13	3	3	0	3.0	0.0
Main Bay	0.07	0	1	1	0.6	0.5
Mallard Bay	0.02	1	1	0	1.0	0.0
Mallard Head	tr	1	1	0	1.0	0.0
Marsha Bay	0.03	0	1	1	0.8	0.4
Masked Bay	0.02	0	0	0	0.0	0.0
McClure Bay	0.09	0	1	1	0.4	0.5
McPherson Bay	0.07	1	1	0	1.0	0.0
McPherson Passage	0.06	1	1	0	1.0	0.0
Meares Point	tr	1	1	0	1.0	0.0
Middle Bight Lower Herring Bay	tr	2	2	0	2.0	0.0
Miners Bay	0.03	1	1	0	1.0	0.0
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	1	1	0	1.0	0.0
Montague Island	0.17	1	4	3	2.6	0.8
Mud Bay	tr	1	1	0	1.0	0.0
Mueller Cove	0.01	0	1	1	0.9	0.3
Mummy Bay	0.07	0	1	1	0.2	0.4
Mummy Island Cordova	0.01	1	1	0	1.0	0.0
Mummy Island Knight	0.01	1	2	1	1.1	0.3
Naked Island	0.02	0	1	1	1.0	0.1
Nassau Fjord	0.13	1	1	0	1.0	0.0
NE Galena Coves (Lethcoe)	0.01	2	2	0	2.0	0.0
Nellie Juan Glacier and spit	0.01	2	3	1	2.9	0.3
Nellie Juan Lagoon	0.02	3	3	0	3.0	0.0
Nelson Bay	0.10	0	1	1	0.9	0.3
New Year Islands	tr	2	2	0	2.0	0.0
North Island	tr	1	2	1	1.9	0.3
North Twin Bay	0.03	1	1	0	1.0	0.0
Northeast Arm Mummy Bay	0.01	1	1	0	1.0	0.0
Northeast Cove Drier Bay	0.01	1	1	0	1.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Northwest Arm Lower Herring Bay	0.01	1	1	0	1.0	0.0
Northwest Bay	0.04	1	1	0	1.0	0.0
Nuchek	0.01	2	2	0	2.0	0.0
Observation Island	0.01	2	2	0	2.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	1	2	1	1.5	0.5
Olsen Cove	tr	1	1	0	1.0	0.0
Olsen Island	tr	0	1	1	0.4	0.5
Orca Bay	1.73	0	3	3	1.3	0.8
Orca Cove	tr	1	1	0	1.0	0.0
Orca Creek	tr	1	2	1	1.8	0.4
Orca Inlet	0.91	0	2	2	1.1	0.5
Otter Cove	tr	1	1	0	1.0	0.0
Outpost Island	tr	1	1	0	1.0	0.0
Outside Bay	0.06	1	1	0	1.0	0.0
Paddy Bay	0.04	0	0	0	0.0	0.0
Pakenham Point	0.01	1	1	0	1.0	0.0
Papoose Cove	tr	1	1	0	1.0	0.0
Parshas Bay	0.02	1	2	1	2.0	0.1
Passage Anchorage	0.01	1	1	0	1.0	0.0
Passage Canal	0.50	0	0	0	0.0	0.0
Patton Bay	0.28	1	2	1	1.2	0.4
Paulson Bay	tr	1	1	0	1.0	0.0
Peak Island	0.01	1	1	0	1.0	0.0
Perry Island Rest	tr	1	1	0	1.0	0.0
Picturesque Cove	tr	0	1	1	0.9	0.3
Pigot Bay	0.07	0	0	0	0.0	0.0
Pinnacle Rock	tr	1	1	0	1.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0
Pleiades Islands	tr	1	1	0	1.0	0.0
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	1	1	0	1.0	0.0
Porpoise Rocks	0.01	2	2	0	2.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Port Audrey	0.01	1	1	0	1.0	0.0
Port Bainbridge	0.74	1	1	0	1.0	0.0
Port Chalmers	0.11	3	3	0	3.0	0.0
Port Etches	0.41	1	2	1	1.9	0.3
Port Fidalgo	1.51	0	1	1	0.9	0.3
Port Gravina	1.16	1	2	1	1.2	0.4
Port Nellie Juan	0.92	0	2	2	0.6	0.6
Port Valdez	0.82	0	0	0	0.0	0.0
Prince of Wales Passage	0.52	0	2	2	1.0	0.5
Pt Nowell	tr	0	0	0	0.0	0.0
Puffin Cove	0.02	1	1	0	1.0	0.0
Quayarnaq Cove	tr	2	2	0	2.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	1	2	1	1.9	0.3
Raging Creek	0.01	1	2	1	1.4	0.5
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	1	1	0	1.0	0.0
Rocky Bay	0.13	1	3	2	2.1	0.3
Rocky Point (Lethcoe)	0.01	2	2	0	2.0	0.0
Sahlin Lagoon	tr	2	2	0	2.0	0.0
Saint Matthews Bay	0.09	0	1	1	0.8	0.4
San Juan Bay	0.06	1	2	1	1.0	0.2
Sawmill Bay Evans Island	0.04	0	1	1	0.3	0.5
Sawmill Bay SMP	tr	0	1	1	0.0	0.2
Sawmill Bay Valdez Arm	0.03	0	1	1	0.1	0.3
Schoppe Bay	0.06	1	1	0	1.0	0.0
Schrader Island	tr	1	1	0	1.0	0.0
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	3	3	0	3.0	0.0
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	3	3	2.0	0.9
Sheep Point	tr	3	3	0	3.0	0.0
Shelter Bay Evans Island	0.02	1	1	0	1.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shelter Bay Hinchinbrook Island	0.02	1	2	1	1.9	0.2
Shipyard Bay	0.01	1	2	1	1.5	0.5
Shoestring Cove	0.01	0	0	0	0.0	0.0
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	1	4	3	2.8	0.5
Simpson Bay southeast arm	0.06	2	3	1	2.7	0.5
Siwash Bay	0.03	1	1	0	1.0	0.0
Siwash Island	tr	1	1	0	1.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	1	1	0	1.0	0.0
Snug Harbor	0.05	0	1	1	0.8	0.4
Solf Cove	0.02	1	2	1	1.7	0.4
South Bay Perry Island	0.05	1	1	0	1.0	0.0
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	1	1	0	1.0	0.0
Southern tip Culross Island	tr	1	1	0	1.0	0.0
Sphinx Island	tr	1	1	0	1.0	0.0
Squaw Bay	0.03	1	1	0	1.0	0.0
Squire Island	0.01	1	1	0	1.0	0.0
Squire Island Anchorage	tr	1	1	0	1.0	0.0
Squirrel Bay	0.02	1	1	0	1.0	0.0
Squirrel Cove	tr	0	0	0	0.0	0.0
Squirrel Island	tr	2	2	0	2.0	0.0
Stockdale Harbor	0.10	1	3	2	2.1	0.4
Storey Island	0.01	1	1	0	1.0	0.0
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	2	3	1	2.9	0.3
Swanson Bay	0.08	0	1	1	1.0	0.0

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Tanker Island	tr	1	1	0	1.0	0.0
Tatitlek	tr	1	1	0	1.0	0.0
Tatitlek Narrows	0.09	1	1	0	1.0	0.0
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	1	3	2	1.9	0.4
The Nub	tr	1	1	0	1.0	0.0
Three Fingers Cove	0.02	1	1	0	1.0	0.0
Three Mile Bay	0.01	1	1	0	1.0	0.0
Thumb Bay	0.01	0	0	0	0.0	0.0
Tiger Bight	0.01	1	1	0	1.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	1	0	1.0	0.0
Two Moon Bay	0.10	1	1	0	1.0	0.0
Unakwik Inlet	0.82	0	2	2	1.0	0.5
Unnamed north of Galena	0.01	2	2	0	2.0	0.0
UnNamed466003	4.33	0	3	3	0.7	0.6
UnNamed466004	0.58	0	1	1	0.2	0.4
UnNamed466005	0.71	0	2	2	1.2	0.5
UnNamed466031	2.68	0	2	2	0.6	0.5
UnNamed466032	5.11	0	1	1	0.2	0.4
UnNamed466033	3.59	0	1	1	0.4	0.5
UnNamed475932	1.55	0	2	2	1.2	0.4
UnNamed475933	1.83	0	3	3	1.3	0.9
UnNamed475934	0.05	1	1	0	1.0	0.0
UnNamed476002	1.33	1	2	1	1.6	0.5
UnNamed476003	4.67	0	3	3	1.0	1.0
UnNamed476004	1.18	0	1	1	0.5	0.5
UnNamed476005	0.62	1	2	1	1.2	0.4
UnNamed476006	1.45	0	3	3	0.8	0.6
UnNamed476007	4.40	0	4	4	0.7	1.0
UnNamed476008	3.29	0	3	3	0.4	0.5
UnNamed476009	1.24	1	4	3	2.6	0.6
UnNamed476031	3.36	0	1	1	0.0	0.1
UnNamed476032	5.49	0	1	1	0.5	0.5
UnNamed476033	2.45	0	3	3	1.4	0.9

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476034	2.91	0	1	1	0.7	0.5
UnNamed476035	5.03	0	2	2	0.2	0.4
UnNamed476036	0.66	0	1	1	1.0	0.2
UnNamed485932	1.98	0	1	1	0.5	0.5
UnNamed486004	0.31	0	1	1	0.9	0.3
UnNamed486005	0.70	0	1	1	0.8	0.4
UnNamed486031	0.70	0	1	1	1.0	0.2
UnNamed486033	1.28	0	1	1	0.4	0.5
UnNamed486034	2.07	0	1	1	0.2	0.4
Upper Passage	0.05	1	1	0	1.0	0.0
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	0	0	0	0.0	0.0
Valdez Arm	1.15	0	2	2	1.1	0.5
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	1	1	0.0	0.1
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	1	1	0	1.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	1	1	0	1.0	0.0
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	0	1	1	0.9	0.2
West Bay Bligh Island	0.03	1	1	0	1.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	1	1	0.9	0.3
West Flank Island	tr	1	1	0	1.0	0.0
West Twin Bay	0.06	1	1	0	1.0	0.0
Whale Bay	0.24	1	1	0	1.0	0.0
Whalen Bay	0.02	0	0	0	0.0	0.0
Whiskey Cove	0.01	1	1	0	1.0	0.0
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	1	2	1	1.8	0.4
Windy Bay	0.03	1	2	1	1.9	0.3
Winter Anchorage Unakwik	tr	1	1	0	1.0	0.0
Wooded Island	tr	1	2	1	1.5	0.5

Table A4. Population density index (0 – 4) statistics for black oyster catchers, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Yale Arm	0.15	0	1	1	0.9	0.3
Yelper Cove	tr	1	2	1	1.2	0.4
Zaikof Bay	0.29	1	3	2	2.0	0.8
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100.0					

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	0	0	0.0	0.0
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	0	0	0.0	0.0
06-03C Sheep Bay	0.01	0	1	1	0.0	0.1
06-03D Gravina Bay	0.07	0	1	1	0.4	0.5
06-03E Fidalgo Bay	0.84	0	1	1	0.0	0.2
06-03F Valdez Arm	0.06	0	0	0	0.0	0.0
06DU000605	0.33	0	0	0	0.0	0.0
06DU000606	0.15	0	0	0	0.0	0.0
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	0	0	0.0	0.0
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	0	0	0	0.0	0.0
AA01 West Port Wells	tr	0	1	1	0.4	0.5
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.7	1.0
AA03 College Fjord	0.05	0	3	3	1.4	1.0
AA04 Esther Island/Passage	0.04	0	0	0	0.0	0.0
AA05 Eaglek/Unakwik Bay	0.07	0	2	2	0.6	0.6
AA06 Columbia Bay	0.04	0	3	3	1.4	0.9
AA07 Perry Island	0.02	0	1	1	0.9	0.3
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	1	1	0.4	0.5
AA11 Blackstone Bay	0.02	1	3	2	1.7	0.8
AA12 Kings Bay/Nellie Juan	0.06	0	1	1	0.6	0.5
AA13 West Knight Island Passage	0.03	0	1	1	0.3	0.5
AA14 West Knight Island	0.10	0	1	1	0.2	0.4
AA15 East Knight Island	0.03	0	1	1	0.2	0.4
AA16 Icy/Whale Bay	0.03	0	3	3	1.2	0.8
AA17 Port Bainbridge	0.02	0	1	1	0.5	0.5
AA18 Passage Canal	0.01	0	1	1	0.9	0.3
Agayuut Bay	tr	0	0	0	0.0	0.0
Agayuut Island	tr	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	0	0	0	0.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Anderson Bay Valdez	0.02	0	0	0	0.0	0.0
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	0	1	1	0.6	0.5
Axel Lind Island	tr	0	0	0	0.0	0.0
Bainbridge Island	0.03	0	1	1	0.4	0.5
Bainbridge Passage	0.26	0	1	1	0.4	0.5
Bald Head Chris	tr	0	0	0	0.0	0.0
Barnes Cove	tr	0	0	0	0.0	0.0
Barry Arm	0.31	1	4	3	2.0	1.3
Bass Harbor	0.05	0	1	1	0.3	0.5
Bay of Isles	0.15	0	1	1	1.0	0.2
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	0	0	0	0.0	0.0
Beartrap Bay	0.03	0	0	0	0.0	0.0
Bettles Bay	0.08	1	1	0	1.0	0.0
Bettles Bay SMP	tr	1	1	0	1.0	0.0
Bettles Island	tr	0	0	0	0.0	0.0
Billings Point Perry Island	tr	1	1	0	1.0	0.0
Billy's Hole	tr	1	1	0	1.0	0.0
Blackstone Bay	0.54	1	3	2	1.5	0.8
Bligh Island	0.02	0	1	1	0.9	0.3
Block Island Cedar Bay	tr	0	0	0	0.0	0.0
Block Island Eleanor Island	tr	0	0	0	0.0	0.0
Blue Fjord	0.11	1	1	0	1.0	0.0
Bomb Point	tr	0	0	0	0.0	0.0
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	0	0	0	0.0	0.0
Brave Harbor	tr	0	0	0	0.0	0.0
Bull Head	0.01	1	1	0	1.0	0.0
Busby Island	0.01	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	1	1	0	1.0	0.0
Cabin Bay	0.07	1	1	0	1.0	0.0
Campbell Bay	0.02	1	1	0	1.0	0.0
Cannery Creek	0.04	1	1	0	1.0	0.0
Canoe Passage	0.04	0	0	0	0.0	0.0
Canoe Passage SMP	tr	0	0	0	0.0	0.0
Canoe Passage Trail	tr	0	0	0	0.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	1	1	0.0	0.1
Cedar Bay Hawkins Island	0.02	0	0	0	0.0	0.0
Cedar Bay Wells Bay	0.04	0	0	0	0.0	0.0
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	1	1	0	1.0	0.0
Channel Island south of Green Island	tr	0	0	0	0.0	0.0
Channel Islands The Narrows	0.01	0	0	0	0.0	0.0
Chenega Island	0.02	0	1	1	1.0	0.2
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	1	1	0	1.0	0.0
Cochrane Bay	0.51	0	1	1	0.7	0.5
Coghill	0.07	1	1	0	1.0	0.0
Coghill Lake Tr	tr	1	1	0	1.0	0.0
College Fjord	1.09	0	3	3	1.4	1.0
Columbia Bay	0.46	1	3	2	1.5	0.7
Comfort Cove	0.01	0	0	0	0.0	0.0
Constantine Harbor	0.05	0	0	0	0.0	0.0
Copper Bay	0.02	1	1	0	1.0	0.0
Cordova	0.01	0	0	0	0.0	0.0
Cow Pens	0.01	1	1	0	1.0	0.0
Crab Bay	tr	0	0	0	0.0	0.0
Crafton Island	tr	0	0	0	0.0	0.0
Culross Bay	0.02	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	0	0	0.0	0.0
Culross Passage	0.22	0	1	1	0.0	0.1
Dalli Bay	tr	2	3	1	2.6	0.5
Dan Bay	0.02	0	0	0	0.0	0.0
Danger Island	tr	0	1	1	0.8	0.4
Dangerous Passage	0.34	0	1	1	0.8	0.4
Day Care Cove	tr	1	1	0	1.0	0.0
DECISION POINT SMP	tr	1	1	0	1.0	0.0
Deep Bay	0.03	0	0	0	0.0	0.0
Deep Water Bay	0.03	1	1	0	1.0	0.0
Deer Cove Hinchinbrook	0.01	0	0	0	0.0	0.0
Deer Cove Knight	0.01	1	1	0	1.0	0.0
Derickson Bay Eaglek	0.03	0	0	0	0.0	0.0
Derickson Bay Nellie Juan	0.07	1	1	0	1.0	0.0
Disk Island	tr	0	0	0	0.0	0.0
Disk Island Anchorage	tr	0	0	0	0.0	0.0
Double Bay	0.04	0	0	0	0.0	0.0
Drier Bay	0.11	0	0	0	0.0	0.0
Dual Head	tr	1	1	0	1.0	0.0
Dutch Group	tr	0	1	1	1.0	0.2
Eagle Bay	0.02	1	1	0	1.0	0.0
Eaglek Bay	0.38	0	1	1	0.0	0.1
Eaglek Island	tr	0	0	0	0.0	0.0
East Bight Lower Herring Bay	tr	0	0	0	0.0	0.0
East Finger Inlet	0.01	1	1	0	1.0	0.0
East Flank Island	tr	0	0	0	0.0	0.0
East Twin Bay	0.03	1	1	0	1.0	0.0
Eickelberg Bay	0.02	1	1	0	1.0	0.0
Elder Bay	0.01	1	1	0	1.0	0.0
Eleanor Island	0.02	0	0	0	0.0	0.0
Ellamar	tr	0	0	0	0.0	0.0
Elrington Island	0.04	0	1	1	0.6	0.5
Elrington Passage	0.24	0	1	1	0.5	0.5

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Emerald Bay	tr	1	1	0	1.0	0.0
Emerald Cove (Heather Bay)	0.01	1	2	1	1.0	0.2
English Bay	tr	0	0	0	0.0	0.0
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	1	1	0	1.0	0.0
ENTRY COVE SMP	tr	1	1	0	1.0	0.0
Eshamy Bay	0.12	0	0	0	0.0	0.0
Esther Bay	0.03	0	0	0	0.0	0.0
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	0	0	0.0	0.0
Esther Passage S CS #1	tr	0	0	0	0.0	0.0
Evans Island	0.03	0	1	1	0.2	0.4
Ewan Bay	0.05	1	1	0	1.0	0.0
Fairmount Bay	0.02	0	0	0	0.0	0.0
Fairmount Island	tr	0	0	0	0.0	0.0
Falls Bay	0.02	0	0	0	0.0	0.0
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	0	0	0	0.0	0.0
Fish Bay Port Fidalgo	0.05	0	0	0	0.0	0.0
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	0	0	0	0.0	0.0
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	1	1	0	1.0	0.0
Fox Point	tr	0	0	0	0.0	0.0
Gaamaak Cove	0.01	2	3	1	2.1	0.2
Galena Bay	0.10	0	0	0	0.0	0.0
Garden Cove	0.01	0	0	0	0.0	0.0
Garden Island	tr	0	0	0	0.0	0.0
Gibbon Anchorage	0.04	0	0	0	0.0	0.0
Gilmour Bight	0.01	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Glacier Island	0.03	0	1	1	0.9	0.2
Glacier Water Cove	0.01	1	1	0	1.0	0.0
Gold Creek/Camp Bowie	0.01	0	0	0	0.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	0	0	0	0.0	0.0
Granite Bay (Dangerous Passage)	0.02	0	0	0	0.0	0.0
Granite Bay (Eaglek)	0.03	0	0	0	0.0	0.0
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	1	1	0	1.0	0.0
Granite Point	tr	0	0	0	0.0	0.0
Gravina Island	tr	1	1	0	1.0	0.0
Gravina Point	tr	1	1	0	1.0	0.0
Gravina Rocks	tr	1	1	0	1.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	1	1	0	1.0	0.0
Green Island	0.02	0	0	0	0.0	0.0
Greystone Bay	0.02	1	1	0	1.0	0.0
Grommet Cove	tr	0	0	0	0.0	0.0
Growler Bay	0.04	1	1	0	1.0	0.0
Growler Island	tr	1	1	0	1.0	0.0
Gulf of Alaska	0.74	0	0	0	0.0	0.0
Gull Island	tr	0	0	0	0.0	0.0
Hanning Bay	0.10	0	0	0	0.0	0.0
Harriman Fjord	0.36	2	4	2	3.0	0.7
Harriman south shore complex	0.01	2	3	1	2.6	0.5
Harrison Lagoon	0.02	0	1	1	1.0	0.2
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	1	3	2	1.9	0.8
Hawkins Island	0.06	0	0	0	0.0	0.0
Hawkins Island Cutoff	0.70	0	0	0	0.0	0.0
Head of Barry Arm	0.04	2	4	2	3.6	0.6
Head of Cedar Bay	0.02	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Eaglek Bay	0.02	0	1	1	0.5	0.5
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	2	2	0	2.0	0.0
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	1	1	0.8	0.4
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	2	2	0	2.0	0.0
Head of Wells Bay	0.03	0	1	1	0.6	0.5
Heather Bay	0.17	1	3	2	2.3	0.8
Heather Island	0.01	1	3	2	2.5	0.7
Hells Hole	0.01	1	1	0	1.0	0.0
Herring Bay	0.21	0	0	0	0.0	0.0
Herring Point	tr	0	0	0	0.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	0	0	0.0	0.0
Hinge Beach (Doran Straight)	tr	4	4	0	4.0	0.0
Hobo Bay	0.01	1	1	0	1.0	0.0
Hogan Bay	0.01	0	1	1	0.9	0.3
Hogg Bay	0.13	0	1	1	0.5	0.5
Hole-in-the-wall	tr	0	0	0	0.0	0.0
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	0	0	0	0.0	0.0
Horseshoe Bay SMP	0.01	0	0	0	0.0	0.0
Hummer Bay	0.03	0	1	1	0.4	0.5
Humpback Cove	0.01	1	2	1	1.5	0.5
Humpback/Shepard	0.01	0	0	0	0.0	0.0
Icy Bay	0.25	1	3	2	1.9	0.8
Iktua Bay	0.03	0	0	0	0.0	0.0
Ingot Cove	tr	0	0	0	0.0	0.0
Ingot Island	0.01	0	0	0	0.0	0.0
Irish Cove Glacier Island	0.01	0	1	1	0.1	0.2
Irish Cove Port Fidalgo	0.01	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Italian Bay	tr	1	1	0	1.0	0.0
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	tr	0	0	0	0.0	0.0
Jackpot Bay	0.09	0	1	1	0.8	0.4
Jackson Cove	tr	1	1	0	1.0	0.0
Jackson Hole	0.01	1	1	0	1.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	0	0	0	0.0	0.0
Johnson Bay	0.04	0	0	0	0.0	0.0
Jonah Bay	0.05	0	1	1	1.0	0.1
Junction Island	tr	0	0	0	0.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	1	1	0	1.0	0.0
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	0	0	0.0	0.0
Kiniklik anchorage	tr	0	0	0	0.0	0.0
Kiniklik Island	tr	0	0	0	0.0	0.0
Knight Island Pass CS #1	tr	0	0	0	0.0	0.0
Knowles Bay	0.09	0	1	1	1.0	0.1
Knowles Head	tr	0	0	0	0.0	0.0
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	0	0	0	0.0	0.0
Latouche Island	0.04	0	0	0	0.0	0.0
LaTouche Passage	0.49	0	1	1	0.0	0.0
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	1	1	0	1.0	0.0
Little Axel Lind Island	tr	0	0	0	0.0	0.0
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	0	0	0	0.0	0.0
Little Green Island	tr	0	0	0	0.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	1	1	0	1.0	0.0
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	1	1	1.0	0.1
Louis Bay	0.02	0	0	0	0.0	0.0
Lower Herring Bay	0.05	0	0	0	0.0	0.0
Lower Passage	0.11	0	0	0	0.0	0.0
Lucky Bay	0.01	1	1	0	1.0	0.0
MacLeod Harbor	0.13	0	0	0	0.0	0.0
Main Bay	0.07	0	0	0	0.0	0.0
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	1	1	0	1.0	0.0
Masked Bay	0.02	1	1	0	1.0	0.0
McClure Bay	0.09	0	1	1	1.0	0.1
McPherson Bay	0.07	1	1	0	1.0	0.0
McPherson Passage	0.06	1	1	0	1.0	0.0
Meares Point	tr	0	0	0	0.0	0.0
Middle Bight Lower Herring Bay	tr	0	0	0	0.0	0.0
Miners Bay	0.03	1	1	0	1.0	0.0
Mink Island	0.01	1	1	0	1.0	0.0
Minke Cove	tr	0	0	0	0.0	0.0
Montague Island	0.17	0	0	0	0.0	0.0
Mud Bay	tr	0	0	0	0.0	0.0
Mueller Cove	0.01	1	1	0	1.0	0.0
Mummy Bay	0.07	0	1	1	0.4	0.5
Mummy Island Cordova	0.01	0	0	0	0.0	0.0
Mummy Island Knight	0.01	1	1	0	1.0	0.0
Naked Island	0.02	0	1	1	0.8	0.4
Nassau Fjord	0.13	1	3	2	1.7	0.8
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0
Nellie Juan Glacier and spit	0.01	1	1	0	1.0	0.0
Nellie Juan Lagoon	0.02	1	1	0	1.0	0.0
Nelson Bay	0.10	0	0	0	0.0	0.0
New Year Islands	tr	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
North Island	tr	0	0	0	0.0	0.0
North Twin Bay	0.03	1	1	0	1.0	0.0
Northeast Arm Mummy Bay	0.01	0	0	0	0.0	0.0
Northeast Cove Drier Bay	0.01	0	0	0	0.0	0.0
Northwest Arm Lower Herring Bay	0.01	0	0	0	0.0	0.0
Northwest Bay	0.04	0	0	0	0.0	0.0
Nuchek	0.01	0	0	0	0.0	0.0
Observation Island	0.01	0	0	0	0.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	0	1	1	0.4	0.5
Olsen Cove	tr	0	1	1	0.4	0.5
Olsen Island	tr	0	1	1	0.7	0.5
Orca Bay	1.73	0	1	1	0.1	0.2
Orca Cove	tr	1	1	0	1.0	0.0
Orca Creek	tr	0	0	0	0.0	0.0
Orca Inlet	0.91	0	0	0	0.0	0.0
Otter Cove	tr	1	1	0	1.0	0.0
Outpost Island	tr	0	0	0	0.0	0.0
Outside Bay	0.06	0	1	1	0.6	0.5
Paddy Bay	0.04	1	1	0	1.0	0.0
Pakenham Point	0.01	0	1	1	1.0	0.1
Papoose Cove	tr	0	0	0	0.0	0.0
Parshas Bay	0.02	0	0	0	0.0	0.0
Passage Anchorage	0.01	1	1	0	1.0	0.0
Passage Canal	0.50	0	1	1	0.9	0.3
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	0	1	1	0.2	0.4
Peak Island	0.01	1	1	0	1.0	0.0
Perry Island Rest	tr	0	1	1	0.5	0.5
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	0	1	1	0.0	0.2
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pleiades Islands	tr	1	1	0	1.0	0.0
Poe Bay	0.01	0	1	1	0.2	0.4
Point Helen	tr	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	0	0	0	0.0	0.0
Porpoise Rocks	0.01	0	0	0	0.0	0.0
Port Audrey	0.01	0	0	0	0.0	0.0
Port Bainbridge	0.74	0	1	1	1.0	0.2
Port Chalmers	0.11	0	0	0	0.0	0.0
Port Etches	0.41	0	0	0	0.0	0.0
Port Fidalgo	1.51	0	1	1	0.3	0.5
Port Gravina	1.16	0	1	1	0.8	0.4
Port Nellie Juan	0.92	0	1	1	0.8	0.4
Port Valdez	0.82	0	0	0	0.0	0.0
Prince of Wales Passage	0.52	0	1	1	0.2	0.4
Pt Nowell	tr	0	0	0	0.0	0.0
Puffin Cove	0.02	1	1	0	1.0	0.0
Quayarnaq Cove	tr	0	0	0	0.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	0	0	0	0.0	0.0
Raging Creek	0.01	0	0	0	0.0	0.0
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	1	1	0	1.0	0.0
Rocky Bay	0.13	0	0	0	0.0	0.0
Rocky Point (Lethcoe)	0.01	0	0	0	0.0	0.0
Sahlin Lagoon	tr	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	0	1	1	0.2	0.4
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	0	0	0	0.0	0.0
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	0	1	1	0.3	0.4
Schrader Island	tr	1	1	0	1.0	0.0
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	2	3	1	2.5	0.5

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shady Cove	tr	0	1	1	0.7	0.5
Shallow Cove	tr	1	1	0	1.0	0.0
Sheep Bay	0.36	0	1	1	0.1	0.2
Sheep Point	tr	0	0	0	0.0	0.0
Shelter Bay Evans Island	0.02	0	0	0	0.0	0.0
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	0	0	0	0.0	0.0
Shoestring Cove	0.01	0	0	0	0.0	0.0
Shotgun Cove	0.02	1	1	0	1.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	0	0	0	0.0	0.0
Simpson Bay southeast arm	0.06	0	0	0	0.0	0.0
Siwash Bay	0.03	1	1	0	1.0	0.0
Siwash Island	tr	1	1	0	1.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	0	0	0	0.0	0.0
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	0	0	0	0.0	0.0
South Bay Perry Island	0.05	0	1	1	0.9	0.3
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	0	0	0	0.0	0.0
South Twin Bay	0.04	1	1	0	1.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	0	0	0	0.0	0.0
Squire Island	0.01	1	1	0	1.0	0.0
Squire Island Anchorage	tr	1	1	0	1.0	0.0
Squirrel Bay	0.02	1	1	0	1.0	0.0
Squirrel Cove	tr	1	1	0	1.0	0.0
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Storey Island	0.01	1	1	0	1.0	0.0
Sunny Cove (Lethcoe)	0.05	0	1	1	0.8	0.4
Surprise Cove	0.02	1	1	0	1.0	0.0
Surprise Cove SMP	0.01	1	1	0	1.0	0.0
Surprise Inlet	0.07	2	4	2	3.6	0.6
Swanson Bay	0.08	0	1	1	1.0	0.2
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	0	0	0	0.0	0.0
Tatitlek Narrows	0.09	0	0	0	0.0	0.0
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	0	0	0	0.0	0.0
The Nub	tr	0	0	0	0.0	0.0
Three Fingers Cove	0.02	0	0	0	0.0	0.0
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	0	0	0	0.0	0.0
Tiger Bight	0.01	1	2	1	2.0	0.2
Tiger Glacier;Head of Icy Bay	0.02	1	1	0	1.0	0.0
Two Moon Bay	0.10	0	1	1	0.0	0.0
Unakwik Inlet	0.82	1	2	1	1.1	0.2
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	1	1	0.3	0.5
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	0	0	0.0	0.0
UnNamed466031	2.68	0	1	1	0.2	0.4
UnNamed466032	5.11	0	1	1	0.1	0.3
UnNamed466033	3.59	0	1	1	0.6	0.5
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	0	0	0.0	0.0
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	0	0	0.0	0.0
UnNamed476003	4.67	0	1	1	0.3	0.5
UnNamed476004	1.18	0	1	1	0.3	0.5
UnNamed476005	0.62	0	1	1	0.6	0.5
UnNamed476006	1.45	0	0	0	0.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476007	4.40	0	1	1	0.2	0.4
UnNamed476008	3.29	0	0	0	0.0	0.0
UnNamed476009	1.24	0	0	0	0.0	0.0
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	1	1	0.0	0.1
UnNamed476033	2.45	0	1	1	0.4	0.5
UnNamed476034	2.91	0	1	1	0.2	0.4
UnNamed476035	5.03	0	1	1	0.2	0.4
UnNamed476036	0.66	0	1	1	0.1	0.2
UnNamed485932	1.98	0	1	1	0.5	0.5
UnNamed486004	0.31	0	1	1	0.8	0.4
UnNamed486005	0.70	0	1	1	1.0	0.1
UnNamed486031	0.70	0	0	0	0.0	0.0
UnNamed486033	1.28	0	1	1	0.2	0.4
UnNamed486034	2.07	0	1	1	0.2	0.4
Upper Passage	0.05	0	0	0	0.0	0.0
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	0	0	0	0.0	0.0
Valdez Arm	1.15	0	1	1	0.0	0.2
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	0	0	0.0	0.0
Verdant Island	tr	1	1	0	1.0	0.0
Virgin Bay	0.01	0	0	0	0.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	2	3	1	3.0	0.2
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	0	1	1	0.6	0.5
West Bay Bligh Island	0.03	0	1	1	0.6	0.5
West Culross Anchorage	tr	1	1	0	1.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	0	0	0	0.0	0.0
West Twin Bay	0.06	1	1	0	1.0	0.0
Whale Bay	0.24	0	2	2	0.8	0.4
Whalen Bay	0.02	1	1	0	1.0	0.0

Table A5. Population density index (0 – 4) statistics for Kittlitz's murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Whiskey Cove	0.01	0	0	0	0.0	0.0
Whittier	0.05	0	1	1	0.2	0.4
Willard Island	0.01	1	3	2	2.4	0.7
Windy Bay	0.03	0	0	0	0.0	0.0
Winter Anchorage Unakwik	tr	1	1	0	1.0	0.0
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	1	3	2	2.4	0.7
Yelper Cove	tr	0	0	0	0.0	0.0
Zaikof Bay	0.29	0	0	0	0.0	0.0
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	1	1	0.4	0.5
06-03A Nelson Bay	0.01	1	1	0	1.0	0.0
06-03B Simpson Bay	0.03	0	3	3	0.7	0.9
06-03C Sheep Bay	0.01	1	3	2	2.2	0.7
06-03D Gravina Bay	0.07	0	3	3	1.6	0.9
06-03E Fidalgo Bay	0.84	0	2	2	0.1	0.3
06-03F Valdez Arm	0.06	0	2	2	0.8	0.5
06DU000605	0.33	1	4	3	1.9	0.9
06DU000606	0.15	1	2	1	1.1	0.3
06DU000607	0.21	0	1	1	0.4	0.5
06DU000608	0.82	0	3	3	0.2	0.5
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	1	1	0	1.0	0.0
AA01 West Port Wells	tr	1	3	2	1.6	0.7
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.6	1.0
AA03 College Fjord	0.05	0	2	2	1.2	0.6
AA04 Esther Island/Passage	0.04	0	1	1	0.9	0.2
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	1.4	0.9
AA06 Columbia Bay	0.04	0	4	4	1.9	1.1
AA07 Perry Island	0.02	1	2	1	1.3	0.4
AA09 Culross Island/Passage	tr	1	3	2	1.3	0.5
AA10 Cochrane Bay	0.02	1	2	1	1.3	0.5
AA11 Blackstone Bay	0.02	1	3	2	1.4	0.6
AA12 Kings Bay/Nellie Juan	0.06	0	2	2	1.1	0.3
AA13 West Knight Island Passage	0.03	1	4	3	2.2	1.2
AA14 West Knight Island	0.10	1	4	3	3.2	1.0
AA15 East Knight Island	0.03	1	4	3	1.9	0.8
AA16 Icy/Whale Bay	0.03	1	4	3	2.3	0.8
AA17 Port Bainbridge	0.02	0	4	4	1.8	1.0
AA18 Passage Canal	0.01	1	2	1	1.2	0.4
Agayuut Bay	tr	3	4	1	3.5	0.5
Agayuut Island	tr	3	3	0	3.0	0.0

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	4	4	0	4.0	0.0
Anderson Bay Hinchinbrook Island	0.02	2	3	1	2.9	0.3
Anderson Bay Valdez	0.02	3	3	0	3.0	0.0
Applegate Island	tr	1	1	0	1.0	0.0
Auk Bay	0.03	1	1	0	1.0	0.0
Axel Lind Island	tr	3	3	0	3.0	0.0
Bainbridge Island	0.03	1	4	3	1.8	1.1
Bainbridge Passage	0.26	1	4	3	2.9	1.2
Bald Head Chris	tr	1	1	0	1.0	0.0
Barnes Cove	tr	2	3	1	2.0	0.2
Barry Arm	0.31	1	4	3	2.6	0.9
Bass Harbor	0.05	1	1	0	1.0	0.0
Bay of Isles	0.15	1	4	3	3.4	0.7
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	2	3	1	2.6	0.5
Beartrap Bay	0.03	1	1	0	1.0	0.0
Bettles Bay	0.08	2	3	1	3.0	0.2
Bettles Bay SMP	tr	3	3	0	3.0	0.0
Bettles Island	tr	2	2	0	2.0	0.0
Billings Point Perry Island	tr	2	2	0	2.0	0.0
Billy's Hole	tr	1	1	0	1.0	0.0
Blackstone Bay	0.54	1	2	1	1.4	0.5
Bligh Island	0.02	1	3	2	2.3	0.7
Block Island Cedar Bay	tr	0	0	0	0.0	0.0
Block Island Eleanor Island	tr	1	1	0	1.0	0.0
Blue Fjord	0.11	0	1	1	0.9	0.2
Bomb Point	tr	1	1	0	1.0	0.0
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	1	1	0	1.0	0.0
Brave Harbor	tr	2	3	1	2.1	0.2
Bull Head	0.01	1	1	0	1.0	0.0
Busby Island	0.01	1	1	0	1.0	0.0

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	1	1	0	1.0	0.0
Buyers Cove	0.01	1	2	1	1.9	0.3
Cabin Bay	0.07	1	2	1	1.9	0.3
Campbell Bay	0.02	1	2	1	1.4	0.5
Cannery Creek	0.04	1	1	0	1.0	0.0
Canoe Passage	0.04	1	3	2	2.4	0.6
Canoe Passage SMP	tr	1	2	1	1.8	0.4
Canoe Passage Trail	tr	2	2	0	2.0	0.0
Cascade Bay	0.02	0	1	1	0.8	0.4
Cat Head	tr	4	4	0	4.0	0.0
Cathead Bay	0.01	4	4	0	4.0	0.0
Cedar Bay Hawkins Island	0.02	1	2	1	1.5	0.5
Cedar Bay Wells Bay	0.04	0	1	1	0.5	0.5
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	1	1	0	1.0	0.0
Channel Island south of Green Island	tr	2	2	0	2.0	0.0
Channel Islands The Narrows	0.01	1	1	0	1.0	0.0
Chenega Island	0.02	1	4	3	2.9	0.6
Clam Island	tr	4	4	0	4.0	0.0
Cloudman Bay	0.01	1	2	1	1.5	0.5
Cochrane Bay	0.51	1	3	2	1.5	0.5
Coghill	0.07	1	3	2	1.9	0.5
Coghill Lake Tr	tr	2	2	0	2.0	0.0
College Fjord	1.09	1	4	3	2.4	0.9
Columbia Bay	0.46	1	4	3	2.2	0.9
Comfort Cove	0.01	1	2	1	1.0	0.2
Constantine Harbor	0.05	1	1	0	1.0	0.0
Copper Bay	0.02	4	4	0	4.0	0.0
Cordova	0.01	1	1	0	1.0	0.0
Cow Pens	0.01	1	1	0	1.0	0.0
Crab Bay	tr	2	2	0	2.0	0.0
Crafton Island	tr	2	3	1	2.1	0.4
Culross Bay	0.02	1	3	2	1.6	0.6

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	3	3	0	3.0	0.0
Culross Island	0.02	1	3	2	2.1	0.7
Culross Passage	0.22	1	3	2	1.7	0.8
Dalli Bay	tr	4	4	0	4.0	0.0
Dan Bay	0.02	1	1	0	1.0	0.0
Danger Island	tr	1	1	0	1.0	0.0
Dangerous Passage	0.34	2	4	2	3.4	0.5
Day Care Cove	tr	2	2	0	2.0	0.0
DECISION POINT SMP	tr	2	2	0	2.0	0.0
Deep Bay	0.03	1	1	0	1.0	0.0
Deep Water Bay	0.03	1	1	0	1.0	0.0
Deer Cove Hinchinbrook	0.01	1	1	0	1.0	0.0
Deer Cove Knight	0.01	4	4	0	4.0	0.0
Derickson Bay Eaglek	0.03	1	3	2	1.5	0.5
Derickson Bay Nellie Juan	0.07	1	1	0	1.0	0.0
Disk Island	tr	1	1	0	1.0	0.0
Disk Island Anchorage	tr	1	1	0	1.0	0.0
Double Bay	0.04	2	3	1	2.1	0.3
Drier Bay	0.11	2	4	2	3.2	0.7
Dual Head	tr	2	3	1	2.3	0.5
Dutch Group	tr	1	1	0	1.0	0.0
Eagle Bay	0.02	2	3	1	2.1	0.3
Eaglek Bay	0.38	0	4	4	2.2	1.1
Eaglek Island	tr	4	4	0	4.0	0.0
East Bight Lower Herring Bay	tr	3	4	1	3.1	0.3
East Finger Inlet	0.01	2	2	0	2.0	0.0
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	1	2	1	1.8	0.4
Eickelberg Bay	0.02	1	1	0	1.0	0.0
Elder Bay	0.01	1	2	1	2.0	0.1
Eleanor Island	0.02	1	1	0	1.0	0.0
Ellamar	tr	1	1	0	1.0	0.0
Elrington Island	0.04	1	3	2	1.7	0.7

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	1	2	1	1.7	0.5
Emerald Bay	tr	1	1	0	1.0	0.0
Emerald Cove (Heather Bay)	0.01	3	4	1	3.4	0.5
English Bay	tr	1	1	0	1.0	0.0
Entrance Island	tr	1	1	0	1.0	0.0
Entry Cove	tr	1	2	1	1.9	0.3
ENTRY COVE SMP	tr	1	2	1	1.2	0.4
Eshamy Bay	0.12	1	3	2	2.4	0.8
Esther Bay	0.03	1	1	0	1.0	0.0
Esther Bight	0.01	1	1	0	1.0	0.0
Esther Passage	0.17	0	1	1	0.8	0.4
Esther Passage S CS #1	tr	1	1	0	1.0	0.0
Evans Island	0.03	1	3	2	1.7	0.7
Ewan Bay	0.05	4	4	0	4.0	0.0
Fairmount Bay	0.02	2	3	1	2.5	0.5
Fairmount Island	tr	3	4	1	3.6	0.5
Falls Bay	0.02	1	1	0	1.0	0.0
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	1	1	0	1.0	0.0
Fish Bay Port Fidalgo	0.05	1	1	0	1.0	0.0
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	1	1	0	1.0	0.0
Flemming Island	0.01	3	4	1	3.6	0.5
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	1	1	0	1.0	0.0
Foul Pass	0.01	1	1	0	1.0	0.0
Fox Farm Bay	0.01	2	2	0	2.0	0.0
Fox Point	tr	1	1	0	1.0	0.0
Gaamaak Cove	0.01	1	2	1	2.0	0.2
Galena Bay	0.10	1	1	0	1.0	0.0
Garden Cove	0.01	1	1	0	1.0	0.0
Garden Island	tr	1	1	0	1.0	0.0
Gibbon Anchorage	0.04	1	2	1	1.5	0.5

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	1	1	0	1.0	0.0
Glacier Island	0.03	1	3	2	1.7	0.7
Glacier Water Cove	0.01	2	3	1	2.8	0.4
Gold Creek/Camp Bowie	0.01	2	3	1	2.9	0.2
Golden	0.03	1	2	1	1.8	0.4
Goose Bay	0.01	2	3	1	2.7	0.5
Goose Island	tr	1	1	0	1.0	0.0
Granite Bay (Dangerous Passage)	0.02	3	4	1	3.9	0.3
Granite Bay (Eaglek)	0.03	1	2	1	1.1	0.4
Granite Bay Esther Island	0.04	1	1	0	1.0	0.0
Granite Bay SMP	tr	1	1	0	1.0	0.0
Granite Cove	0.02	1	3	2	1.9	0.4
Granite Point	tr	3	3	0	3.0	0.0
Gravina Island	tr	3	3	0	3.0	0.0
Gravina Point	tr	2	3	1	2.2	0.4
Gravina Rocks	tr	3	3	0	3.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	3	3	0	3.0	0.0
Green Island	0.02	1	2	1	1.3	0.5
Greystone Bay	0.02	1	1	0	1.0	0.0
Grommet Cove	tr	1	1	0	1.0	0.0
Growler Bay	0.04	1	1	0	1.0	0.0
Growler Island	tr	1	2	1	1.9	0.3
Gulf of Alaska	0.74	0	1	1	0.0	0.1
Gull Island	tr	1	1	0	1.0	0.0
Hanning Bay	0.10	1	1	0	1.0	0.0
Harriman Fjord	0.36	1	2	1	1.8	0.4
Harriman south shore complex	0.01	2	2	0	2.0	0.0
Harrison Lagoon	0.02	1	1	0	1.0	0.0
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	1	1	1.0	0.2
Hawkins Island	0.06	1	3	2	1.3	0.6
Hawkins Island Cutoff	0.70	0	1	1	0.7	0.4

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	1	1	0	1.0	0.0
Head of Cedar Bay	0.02	0	0	0	0.0	0.0
Head of Eaglek Bay	0.02	0	1	1	0.8	0.4
Head of Galena Bay	0.09	1	1	0	1.0	0.0
Head of Harriman Fjord	0.05	1	2	1	1.3	0.5
Head of Pigot Bay	0.03	2	2	0	2.0	0.0
Head of Port Fidalgo	0.18	1	2	1	1.5	0.5
Head of Port Gravina;Gravina River	0.05	1	1	0	1.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	1	0	1.0	0.0
Heather Bay	0.17	1	4	3	3.2	1.1
Heather Island	0.01	3	4	1	3.9	0.3
Hells Hole	0.01	1	1	0	1.0	0.0
Herring Bay	0.21	1	4	3	2.6	1.0
Herring Point	tr	1	2	1	1.2	0.4
Hidden Bay	0.02	1	2	1	1.7	0.5
Hidey Hole	tr	0	1	1	0.3	0.5
Hinchinbrook Island	0.09	0	3	3	1.1	0.8
Hinge Beach (Doran Straight)	tr	2	2	0	2.0	0.0
Hobo Bay	0.01	2	3	1	2.1	0.3
Hogan Bay	0.01	1	2	1	1.1	0.2
Hogg Bay	0.13	1	2	1	1.0	0.1
Hole-in-the-wall	tr	1	1	0	1.0	0.0
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	1	1	0	1.0	0.0
Horseshoe Bay SMP	0.01	1	1	0	1.0	0.0
Hummer Bay	0.03	1	2	1	1.2	0.4
Humpback Cove	0.01	3	3	0	3.0	0.0
Humpback/Shepard	0.01	1	1	0	1.0	0.0
Icy Bay	0.25	1	3	2	2.1	0.4
Iktua Bay	0.03	1	1	0	1.0	0.0
Ingot Cove	tr	1	1	0	1.0	0.0
Ingot Island	0.01	1	1	0	1.0	0.0

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	1	1	0	1.0	0.0
Irish Cove Port Fidalgo	0.01	1	1	0	1.0	0.0
Italian Bay	tr	3	3	0	3.0	0.0
Jack Bay	0.15	0	1	1	0.8	0.4
Jack Bay SMP	tr	1	1	0	1.0	0.0
Jackpot Bay	0.09	1	3	2	2.3	0.7
Jackson Cove	tr	1	2	1	1.3	0.5
Jackson Hole	0.01	2	3	1	2.2	0.4
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	3	3	0	3.0	0.0
Johnson Bay	0.04	4	4	0	4.0	0.0
Jonah Bay	0.05	1	1	0	1.0	0.0
Junction Island	tr	3	4	1	3.6	0.5
Kake Cove	tr	2	3	1	2.1	0.3
Kelly's Cove	0.02	4	4	0	4.0	0.0
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	1	1	0	1.0	0.0
Kiniklik anchorage	tr	2	2	0	2.0	0.0
Kiniklik Island	tr	2	2	0	2.0	0.0
Knight Island Pass CS #1	tr	2	2	0	2.0	0.0
Knowles Bay	0.09	1	1	0	1.0	0.0
Knowles Head	tr	1	1	0	1.0	0.0
Lake Bay	0.01	1	1	0	1.0	0.0
Landlocked Bay	0.13	1	2	1	1.8	0.4
Latouche Island	0.04	1	2	1	1.0	0.2
LaTouche Passage	0.49	1	2	1	1.1	0.3
Lighthouse Reserve	tr	1	1	0	1.0	0.0
Liljegren Passage	0.14	1	2	1	1.9	0.3
Little Axel Lind Island	tr	3	3	0	3.0	0.0
Little Bay	0.02	1	1	0	1.0	0.0
Little Fairmount Island	tr	4	4	0	4.0	0.0
Little Green Island	tr	1	2	1	1.5	0.5
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	2	2	0	2.0	0.0

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	1	1	0	1.0	0.0
Long Bay Culross	0.01	1	2	1	1.4	0.5
Long Bay Unakwik	0.22	0	3	3	1.6	0.8
Louis Bay	0.02	1	2	1	1.3	0.5
Lower Herring Bay	0.05	3	4	1	3.8	0.4
Lower Passage	0.11	1	1	0	1.0	0.0
Lucky Bay	0.01	3	3	0	3.0	0.0
MacLeod Harbor	0.13	2	3	1	2.7	0.4
Main Bay	0.07	1	1	0	1.0	0.0
Mallard Bay	0.02	3	3	0	3.0	0.0
Mallard Head	tr	3	4	1	3.5	0.5
Marsha Bay	0.03	1	1	0	1.0	0.0
Masked Bay	0.02	1	4	3	2.7	0.9
McClure Bay	0.09	1	1	0	1.0	0.0
McPherson Bay	0.07	1	2	1	1.1	0.2
McPherson Passage	0.06	1	2	1	1.5	0.5
Meares Point	tr	1	1	0	1.0	0.0
Middle Bight Lower Herring Bay	tr	4	4	0	4.0	0.0
Miners Bay	0.03	1	1	0	1.0	0.0
Mink Island	0.01	1	1	0	1.0	0.0
Minke Cove	tr	2	3	1	2.3	0.5
Montague Island	0.17	0	3	3	1.1	0.6
Mud Bay	tr	1	1	0	1.0	0.0
Mueller Cove	0.01	2	3	1	2.9	0.3
Mummy Bay	0.07	2	3	1	2.6	0.5
Mummy Island Cordova	0.01	1	1	0	1.0	0.0
Mummy Island Knight	0.01	4	4	0	4.0	0.0
Naked Island	0.02	1	2	1	1.4	0.5
Nassau Fjord	0.13	1	2	1	1.0	0.1
NE Galena Coves (Lethcoe)	0.01	1	1	0	1.0	0.0
Nellie Juan Glacier and spit	0.01	0	1	1	0.4	0.5
Nellie Juan Lagoon	0.02	0	1	1	0.0	0.1

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	1	1	0	1.0	0.0
New Year Islands	tr	4	4	0	4.0	0.0
North Island	tr	1	1	0	1.0	0.0
North Twin Bay	0.03	2	3	1	2.6	0.5
Northeast Arm Mummy Bay	0.01	3	3	0	3.0	0.0
Northeast Cove Drier Bay	0.01	1	2	1	1.8	0.4
Northwest Arm Lower Herring Bay	0.01	3	4	1	3.6	0.5
Northwest Bay	0.04	1	1	0	1.0	0.0
Nuchek	0.01	1	1	0	1.0	0.0
Observation Island	0.01	1	1	0	1.0	0.0
Old Chenega site	tr	3	3	0	3.0	0.0
Olsen Bay	0.07	1	2	1	1.8	0.4
Olsen Cove	tr	2	3	1	3.0	0.2
Olsen Island	tr	3	3	0	3.0	0.0
Orca Bay	1.73	1	3	2	1.5	0.6
Orca Cove	tr	3	3	0	3.0	0.0
Orca Creek	tr	1	1	0	1.0	0.0
Orca Inlet	0.91	0	1	1	0.7	0.5
Otter Cove	tr	4	4	0	4.0	0.0
Outpost Island	tr	3	3	0	3.0	0.0
Outside Bay	0.06	1	1	0	1.0	0.0
Paddy Bay	0.04	4	4	0	4.0	0.0
Pakenham Point	0.01	4	4	0	4.0	0.0
Papoose Cove	tr	1	2	1	1.1	0.3
Parshas Bay	0.02	2	2	0	2.0	0.0
Passage Anchorage	0.01	2	2	0	2.0	0.0
Passage Canal	0.50	1	3	2	1.6	0.5
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	1	1	0	1.0	0.0
Peak Island	0.01	2	2	0	2.0	0.0
Perry Island Rest	tr	1	1	0	1.0	0.0
Picturesque Cove	tr	1	1	0	1.0	0.0
Pigot Bay	0.07	1	2	1	1.8	0.4

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	1	1	0	1.0	0.0
Pleiades Islands	tr	2	2	0	2.0	0.0
Poe Bay	0.01	1	2	1	1.7	0.4
Point Helen	tr	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	2	3	1	2.0	0.1
Porpoise Rocks	0.01	1	1	0	1.0	0.0
Port Audrey	0.01	2	2	0	2.0	0.0
Port Bainbridge	0.74	1	3	2	2.1	0.9
Port Chalmers	0.11	1	1	0	1.0	0.0
Port Etches	0.41	1	1	0	1.0	0.0
Port Fidalgo	1.51	1	3	2	1.2	0.4
Port Gravina	1.16	1	3	2	2.0	0.9
Port Nellie Juan	0.92	1	2	1	1.2	0.4
Port Valdez	0.82	0	4	4	2.4	1.1
Prince of Wales Passage	0.52	1	4	3	2.0	0.8
Pt Nowell	tr	3	3	0	3.0	0.0
Puffin Cove	0.02	3	3	0	3.0	0.0
Quayarnaq Cove	tr	4	4	0	4.0	0.0
Quillian Bay	0.01	1	1	0	1.0	0.0
Ragged Bay	0.02	3	4	1	4.0	0.1
Raging Creek	0.01	1	2	1	1.1	0.3
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	2	2	0	2.0	0.0
Rocky Bay	0.13	1	3	2	2.2	0.5
Rocky Point (Lethcoe)	0.01	1	1	0	1.0	0.0
Sahlin Lagoon	tr	1	1	0	1.0	0.0
Saint Matthews Bay	0.09	1	2	1	1.0	0.2
San Juan Bay	0.06	0	1	1	0.8	0.4
Sawmill Bay Evans Island	0.04	2	2	0	2.0	0.0
Sawmill Bay SMP	tr	2	3	1	2.7	0.5
Sawmill Bay Valdez Arm	0.03	3	3	0	3.0	0.0
Schoppe Bay	0.06	1	2	1	1.3	0.5
Schrader Island	tr	1	1	0	1.0	0.0

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	1	1	0	1.0	0.0
Serpentine Cove	0.02	2	2	0	2.0	0.0
Shady Cove	tr	1	2	1	1.4	0.5
Shallow Cove	tr	1	2	1	1.1	0.3
Sheep Bay	0.36	1	3	2	1.9	0.7
Sheep Point	tr	3	3	0	3.0	0.0
Shelter Bay Evans Island	0.02	1	1	0	1.0	0.0
Shelter Bay Hinchinbrook Island	0.02	1	1	0	1.0	0.0
Shipyard Bay	0.01	1	1	0	1.0	0.0
Shoestring Cove	0.01	0	1	1	0.7	0.5
Shotgun Cove	0.02	1	1	0	1.0	0.0
Shoup Bay	0.05	2	4	2	3.1	0.3
Shoup Bay SMP	0.13	1	4	3	2.5	0.7
Simpson Bay northwest arm	0.12	1	3	2	2.2	0.4
Simpson Bay southeast arm	0.06	1	2	1	1.3	0.4
Siwash Bay	0.03	1	3	2	2.2	0.7
Siwash Island	tr	3	3	0	3.0	0.0
Sleepy Bay	0.01	1	1	0	1.0	0.0
Smith Island	0.01	0	1	1	0.6	0.5
Snug Corner Cove	0.09	1	1	0	1.0	0.0
Snug Harbor	0.05	1	2	1	1.7	0.5
Solf Cove	0.02	3	4	1	3.9	0.3
South Bay Perry Island	0.05	1	2	1	1.5	0.5
South Esther SMP	0.01	1	1	0	1.0	0.0
South Olsen Island	tr	3	3	0	3.0	0.0
South Twin Bay	0.04	2	3	1	3.0	0.1
Southern tip Culross Island	tr	1	1	0	1.0	0.0
Sphinx Island	tr	1	1	0	1.0	0.0
Squaw Bay	0.03	1	3	2	1.8	0.6
Squire Island	0.01	2	4	2	3.6	0.6
Squire Island Anchorage	tr	3	4	1	3.1	0.3
Squirrel Bay	0.02	2	2	0	2.0	0.0
Squirrel Cove	tr	2	2	0	2.0	0.0

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	4	4	0	4.0	0.0
Stockdale Harbor	0.10	1	1	0	1.0	0.0
Storey Island	0.01	1	2	1	1.3	0.4
Sunny Cove (Lethcoe)	0.05	1	2	1	1.8	0.4
Surprise Cove	0.02	3	3	0	3.0	0.0
Surprise Cove SMP	0.01	2	3	1	2.7	0.4
Surprise Inlet	0.07	1	2	1	1.5	0.5
Swanson Bay	0.08	1	2	1	1.1	0.2
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	1	1	0	1.0	0.0
Tatitlek Narrows	0.09	1	1	0	1.0	0.0
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	1	1	0	1.0	0.0
The Nub	tr	4	4	0	4.0	0.0
Three Fingers Cove	0.02	1	1	0	1.0	0.0
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	2	3	1	2.2	0.4
Tiger Bight	0.01	2	3	1	2.9	0.3
Tiger Glacier;Head of Icy Bay	0.02	1	2	1	1.1	0.2
Two Moon Bay	0.10	1	1	0	1.0	0.0
Unakwik Inlet	0.82	0	3	3	1.8	1.0
Unnamed north of Galena	0.01	1	1	0	1.0	0.0
UnNamed466003	4.33	0	3	3	1.1	0.5
UnNamed466004	0.58	0	1	1	0.0	0.1
UnNamed466005	0.71	0	1	1	0.2	0.4
UnNamed466031	2.68	0	3	3	1.1	0.4
UnNamed466032	5.11	0	2	2	0.9	0.3
UnNamed466033	3.59	0	3	3	1.1	0.5
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	3	3	1.4	0.7
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.2
UnNamed476003	4.67	0	2	2	1.0	0.2

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	1	4	3	1.4	0.6
UnNamed476005	0.62	1	4	3	3.0	0.9
UnNamed476006	1.45	1	4	3	2.4	1.0
UnNamed476007	4.40	0	3	3	1.1	0.4
UnNamed476008	3.29	0	2	2	0.8	0.5
UnNamed476009	1.24	1	2	1	1.3	0.4
UnNamed476031	3.36	0	1	1	0.5	0.5
UnNamed476032	5.49	0	2	2	1.0	0.2
UnNamed476033	2.45	1	4	3	1.3	0.7
UnNamed476034	2.91	0	3	3	1.1	0.5
UnNamed476035	5.03	0	3	3	1.1	0.5
UnNamed476036	0.66	1	4	3	2.9	0.6
UnNamed485932	1.98	0	3	3	1.1	0.5
UnNamed486004	0.31	1	4	3	2.2	1.0
UnNamed486005	0.70	1	3	2	2.6	0.5
UnNamed486031	0.70	1	1	0	1.0	0.0
UnNamed486033	1.28	1	2	1	1.1	0.3
UnNamed486034	2.07	1	4	3	1.2	0.6
Upper Passage	0.05	1	1	0	1.0	0.0
Useless Cove	0.01	3	3	0	3.0	0.0
Valdez	0.16	1	2	1	1.3	0.4
Valdez Arm	1.15	0	3	3	1.2	0.6
Valdez Arm west side CRD	0.25	1	3	2	1.2	0.4
Valdez Narrows	0.10	1	2	1	1.0	0.1
Verdant Island	tr	2	2	0	2.0	0.0
Virgin Bay	0.01	1	1	0	1.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	1	2	1	1.9	0.3
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	1	3	2	1.2	0.5
West Bay Bligh Island	0.03	1	2	1	1.7	0.4
West Culross Anchorage	tr	3	3	0	3.0	0.0
West Finger Inlet	0.01	1	1	0	1.0	0.0
West Flank Island	tr	1	1	0	1.0	0.0

Table A6. Population density index (0 – 4) statistics for marbled murrelet, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	1	2	1	1.8	0.4
Whale Bay	0.24	1	3	2	2.3	0.6
Whalen Bay	0.02	1	1	0	1.0	0.0
Whiskey Cove	0.01	3	3	0	3.0	0.0
Whittier	0.05	1	1	0	1.0	0.0
Willard Island	0.01	1	2	1	1.9	0.3
Windy Bay	0.03	1	1	0	1.0	0.0
Winter Anchorage Unakwik	tr	1	2	1	1.3	0.5
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	0	2	2	1.1	0.3
Yelper Cove	tr	1	1	0	1.0	0.0
Zaikof Bay	0.29	1	2	1	1.2	0.4
Ziegler Cove	tr	1	1	0	1.0	0.0
Ziegler Cove SMP	tr	1	2	1	1.1	0.3
	100					

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	1	1	0.2	0.4
06-03A Nelson Bay	0.01	0	1	1	0.3	0.4
06-03B Simpson Bay	0.03	0	1	1	0.5	0.5
06-03C Sheep Bay	0.01	0	1	1	1.0	0.1
06-03D Gravina Bay	0.07	0	1	1	0.1	0.3
06-03E Fidalgo Bay	0.84	0	1	1	0.0	0.2
06-03F Valdez Arm	0.06	0	2	2	0.7	0.6
06DU000605	0.33	0	2	2	1.0	0.1
06DU000606	0.15	1	1	0	1.0	0.0
06DU000607	0.21	0	1	1	0.9	0.2
06DU000608	0.82	0	1	1	0.2	0.4
06DU000618	0.10	0	1	1	0.0	0.2
06DU000619	0.10	0	1	1	0.5	0.5
3 Finger-Shrode Lake Tr	tr[b]	2	2	0	2.0	0.0
AA01 West Port Wells	tr	1	1	0	1.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.7	1.1
AA03 College Fjord	0.05	0	2	2	0.9	0.4
AA04 Esther Island/Passage	0.04	0	1	1	0.5	0.5
AA05 Eaglek/Unakwik Bay	0.07	0	1	1	0.8	0.4
AA06 Columbia Bay	0.04	0	1	1	0.9	0.3
AA07 Perry Island	0.02	1	3	2	1.3	0.5
AA09 Culross Island/Passage	tr	1	1	0	1.0	0.0
AA10 Cochrane Bay	0.02	1	3	2	1.7	0.9
AA11 Blackstone Bay	0.02	1	4	3	2.2	1.2
AA12 Kings Bay/Nellie Juan	0.06	0	1	1	0.4	0.5
AA13 West Knight Island Passage	0.03	0	3	3	1.4	0.7
AA14 West Knight Island	0.10	0	3	3	1.2	0.9
AA15 East Knight Island	0.03	1	3	2	1.6	0.6
AA16 Icy/Whale Bay	0.03	1	4	3	2.1	1.0
AA17 Port Bainbridge	0.02	0	4	4	1.9	1.5
AA18 Passage Canal	0.01	1	1	0	1.0	0.0
Agayuut Bay	tr	1	1	0	1.0	0.0
Agayuut Island	tr	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Anderson Bay Valdez	0.02	1	1	0	1.0	0.0
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	1	2	1	1.7	0.4
Axel Lind Island	tr	1	1	0	1.0	0.0
Bainbridge Island	0.03	1	3	2	1.6	0.8
Bainbridge Passage	0.26	1	3	2	1.7	0.8
Bald Head Chris	tr	1	1	0	1.0	0.0
Barnes Cove	tr	1	1	0	1.0	0.0
Barry Arm	0.31	2	3	1	2.3	0.5
Bass Harbor	0.05	1	2	1	1.8	0.4
Bay of Isles	0.15	1	4	3	2.7	0.9
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	0	1	1	0.9	0.3
Beartrap Bay	0.03	0	0	0	0.0	0.0
Bettles Bay	0.08	1	1	0	1.0	0.0
Bettles Bay SMP	tr	1	1	0	1.0	0.0
Bettles Island	tr	1	1	0	1.0	0.0
Billings Point Perry Island	tr	2	3	1	2.8	0.4
Billy's Hole	tr	1	1	0	1.0	0.0
Blackstone Bay	0.54	1	4	3	2.1	1.3
Bligh Island	0.02	1	3	2	1.5	0.5
Block Island Cedar Bay	tr	0	0	0	0.0	0.0
Block Island Eleanor Island	tr	1	1	0	1.0	0.0
Blue Fjord	0.11	0	0	0	0.0	0.0
Bomb Point	tr	1	1	0	1.0	0.0
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	1	2	1	1.0	0.2
Brave Harbor	tr	1	1	0	1.0	0.0
Bull Head	0.01	1	1	0	1.0	0.0
Busby Island	0.01	1	2	1	1.5	0.5

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	1	1	0	1.0	0.0
Buyers Cove	0.01	1	1	0	1.0	0.0
Cabin Bay	0.07	2	3	1	2.5	0.5
Campbell Bay	0.02	1	1	0	1.0	0.0
Cannery Creek	0.04	1	1	0	1.0	0.0
Canoe Passage	0.04	1	3	2	2.6	0.6
Canoe Passage SMP	tr	1	3	2	2.0	0.6
Canoe Passage Trail	tr	2	2	0	2.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	2	2	0	2.0	0.0
Cathead Bay	0.01	1	2	1	1.8	0.4
Cedar Bay Hawkins Island	0.02	1	2	1	1.0	0.2
Cedar Bay Wells Bay	0.04	0	1	1	0.2	0.4
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	1	1	0	1.0	0.0
Channel Island south of Green Island	tr	0	0	0	0.0	0.0
Channel Islands The Narrows	0.01	1	1	0	1.0	0.0
Chenega Island	0.02	1	3	2	1.8	0.5
Clam Island	tr	1	1	0	1.0	0.0
Cloudman Bay	0.01	1	2	1	1.7	0.5
Cochrane Bay	0.51	1	3	2	1.4	0.8
Coghill	0.07	1	2	1	1.3	0.5
Coghill Lake Tr	tr	2	2	0	2.0	0.0
College Fjord	1.09	1	3	2	1.8	0.6
Columbia Bay	0.46	1	2	1	1.0	0.1
Comfort Cove	0.01	0	0	0	0.0	0.0
Constantine Harbor	0.05	1	1	0	1.0	0.0
Copper Bay	0.02	2	3	1	2.7	0.5
Cordova	0.01	0	0	0	0.0	0.0
Cow Pens	0.01	1	1	0	1.0	0.0
Crab Bay	tr	1	1	0	1.0	0.0
Crafton Island	tr	1	1	0	1.0	0.0
Culross Bay	0.02	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	1	1	0	1.0	0.0
Culross Island	0.02	0	1	1	1.0	0.2
Culross Passage	0.22	0	1	1	0.8	0.4
Dalli Bay	tr	2	2	0	2.0	0.0
Dan Bay	0.02	1	1	0	1.0	0.0
Danger Island	tr	1	1	0	1.0	0.0
Dangerous Passage	0.34	1	3	2	1.8	0.7
Day Care Cove	tr	3	3	0	3.0	0.0
DECISION POINT SMP	tr	1	1	0	1.0	0.0
Deep Bay	0.03	1	1	0	1.0	0.0
Deep Water Bay	0.03	0	1	1	0.9	0.3
Deer Cove Hinchinbrook	0.01	1	1	0	1.0	0.0
Deer Cove Knight	0.01	3	3	0	3.0	0.0
Derickson Bay Eaglek	0.03	1	1	0	1.0	0.0
Derickson Bay Nellie Juan	0.07	0	0	0	0.0	0.0
Disk Island	tr	1	1	0	1.0	0.0
Disk Island Anchorage	tr	1	1	0	1.0	0.0
Double Bay	0.04	0	1	1	0.5	0.5
Drier Bay	0.11	1	2	1	1.0	0.2
Dual Head	tr	1	2	1	1.7	0.4
Dutch Group	tr	1	1	0	1.0	0.0
Eagle Bay	0.02	1	1	0	1.0	0.0
Eaglek Bay	0.38	0	1	1	0.8	0.4
Eaglek Island	tr	1	1	0	1.0	0.0
East Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
East Finger Inlet	0.01	1	1	0	1.0	0.0
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	1	2	1	1.9	0.3
Eickelberg Bay	0.02	0	1	1	0.8	0.4
Elder Bay	0.01	1	1	0	1.0	0.0
Eleanor Island	0.02	1	1	0	1.0	0.0
Ellamar	tr	2	2	0	2.0	0.0
Elrington Island	0.04	1	4	3	1.8	1.1

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	1	3	2	1.2	0.5
Emerald Bay	tr	1	1	0	1.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0
English Bay	tr	1	1	0	1.0	0.0
Entrance Island	tr	1	1	0	1.0	0.0
Entry Cove	tr	1	1	0	1.0	0.0
ENTRY COVE SMP	tr	1	1	0	1.0	0.0
Eshamy Bay	0.12	1	1	0	1.0	0.0
Esther Bay	0.03	1	1	0	1.0	0.0
Esther Bight	0.01	1	1	0	1.0	0.0
Esther Passage	0.17	0	1	1	0.6	0.5
Esther Passage S CS #1	tr	1	1	0	1.0	0.0
Evans Island	0.03	1	2	1	1.5	0.5
Ewan Bay	0.05	1	1	0	1.0	0.0
Fairmount Bay	0.02	1	1	0	1.0	0.0
Fairmount Island	tr	1	1	0	1.0	0.0
Falls Bay	0.02	1	1	0	1.0	0.0
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	1	1	0	1.0	0.0
Fish Bay Port Fidalgo	0.05	0	0	0	0.0	0.0
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	2	3	1	2.0	0.2
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	1	1	0	1.0	0.0
Foul Pass	0.01	1	1	0	1.0	0.0
Fox Farm Bay	0.01	2	3	1	2.9	0.3
Fox Point	tr	0	0	0	0.0	0.0
Gaamaak Cove	0.01	2	2	0	2.0	0.0
Galena Bay	0.10	1	1	0	1.0	0.0
Garden Cove	0.01	0	1	1	0.3	0.5
Garden Island	tr	0	1	1	0.7	0.5
Gibbon Anchorage	0.04	0	0	0	0.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	1	1	0	1.0	0.0
Glacier Island	0.03	1	1	0	1.0	0.0
Glacier Water Cove	0.01	1	2	1	2.0	0.2
Gold Creek/Camp Bowie	0.01	1	1	0	1.0	0.0
Golden	0.03	1	1	0	1.0	0.0
Goose Bay	0.01	1	1	0	1.0	0.0
Goose Island	tr	0	1	1	0.4	0.5
Granite Bay (Dangerous Passage)	0.02	1	1	0	1.0	0.0
Granite Bay (Eaglek)	0.03	1	1	0	1.0	0.0
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	1	1	0	1.0	0.0
Granite Point	tr	1	1	0	1.0	0.0
Gravina Island	tr	0	0	0	0.0	0.0
Gravina Point	tr	0	0	0	0.0	0.0
Gravina Rocks	tr	0	0	0	0.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	0	0	0	0.0	0.0
Green Island	0.02	0	1	1	0.4	0.5
Greystone Bay	0.02	1	1	0	1.0	0.0
Grommet Cove	tr	1	1	0	1.0	0.0
Growler Bay	0.04	1	1	0	1.0	0.0
Growler Island	tr	1	1	0	1.0	0.0
Gulf of Alaska	0.74	0	0	0	0.0	0.0
Gull Island	tr	0	0	0	0.0	0.0
Hanning Bay	0.10	1	1	0	1.0	0.0
Harriman Fjord	0.36	2	4	2	3.1	0.7
Harriman south shore complex	0.01	3	4	1	3.4	0.5
Harrison Lagoon	0.02	1	1	0	1.0	0.0
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	1	1	0.9	0.3
Hawkins Island	0.06	0	3	3	1.2	0.8
Hawkins Island Cutoff	0.70	0	1	1	0.5	0.5

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	1	2	1	1.2	0.4
Head of Cedar Bay	0.02	0	0	0	0.0	0.0
Head of Eaglek Bay	0.02	0	1	1	0.4	0.5
Head of Galena Bay	0.09	0	1	1	0.6	0.5
Head of Harriman Fjord	0.05	1	2	1	1.7	0.5
Head of Pigot Bay	0.03	1	1	0	1.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	0	1	1	1.0	0.2
Heather Bay	0.17	1	2	1	1.3	0.5
Heather Island	0.01	1	2	1	1.7	0.5
Hells Hole	0.01	0	0	0	0.0	0.0
Herring Bay	0.21	0	1	1	0.1	0.3
Herring Point	tr	0	0	0	0.0	0.0
Hidden Bay	0.02	1	1	0	1.0	0.0
Hidey Hole	tr	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	1	1	0.4	0.5
Hinge Beach (Doran Straight)	tr	2	2	0	2.0	0.0
Hobo Bay	0.01	1	1	0	1.0	0.0
Hogan Bay	0.01	1	1	0	1.0	0.0
Hogg Bay	0.13	1	3	2	1.3	0.5
Hole-in-the-wall	tr	1	1	0	1.0	0.0
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	1	1	0	1.0	0.0
Horseshoe Bay SMP	0.01	1	1	0	1.0	0.0
Hummer Bay	0.03	1	1	0	1.0	0.0
Humpback Cove	0.01	3	4	1	3.4	0.5
Humpback/Shepard	0.01	1	1	0	1.0	0.0
Icy Bay	0.25	1	4	3	2.4	0.6
Iktua Bay	0.03	1	2	1	1.2	0.4
Ingot Cove	tr	1	1	0	1.0	0.0
Ingot Island	0.01	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	1	1	0	1.0	0.0
Irish Cove Port Fidalgo	0.01	1	1	0	1.0	0.0
Italian Bay	tr	2	3	1	2.9	0.3
Jack Bay	0.15	0	1	1	0.8	0.4
Jack Bay SMP	tr	1	1	0	1.0	0.0
Jackpot Bay	0.09	2	3	1	2.5	0.5
Jackson Cove	tr	1	1	0	1.0	0.0
Jackson Hole	0.01	1	1	0	1.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	1	1	0	1.0	0.0
Johnson Bay	0.04	1	1	0	1.0	0.0
Jonah Bay	0.05	0	1	1	0.6	0.5
Junction Island	tr	1	1	0	1.0	0.0
Kake Cove	tr	2	2	0	2.0	0.0
Kelly's Cove	0.02	2	2	0	2.0	0.0
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	1	1	0.9	0.2
Kiniklik anchorage	tr	1	1	0	1.0	0.0
Kiniklik Island	tr	1	1	0	1.0	0.0
Knight Island Pass CS #1	tr	0	0	0	0.0	0.0
Knowles Bay	0.09	0	1	1	0.6	0.5
Knowles Head	tr	1	1	0	1.0	0.0
Lake Bay	0.01	1	1	0	1.0	0.0
Landlocked Bay	0.13	0	1	1	0.4	0.5
Latouche Island	0.04	1	1	0	1.0	0.0
LaTouche Passage	0.49	1	1	0	1.0	0.0
Lighthouse Reserve	tr	1	1	0	1.0	0.0
Liljegren Passage	0.14	1	4	3	2.8	0.9
Little Axel Lind Island	tr	1	1	0	1.0	0.0
Little Bay	0.02	1	1	0	1.0	0.0
Little Fairmount Island	tr	1	1	0	1.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	1	1	0	1.0	0.0
Long Bay Culross	0.01	1	1	0	1.0	0.0
Long Bay Unakwik	0.22	0	1	1	0.9	0.2
Louis Bay	0.02	1	1	0	1.0	0.0
Lower Herring Bay	0.05	1	1	0	1.0	0.0
Lower Passage	0.11	1	1	0	1.0	0.0
Lucky Bay	0.01	2	2	0	2.0	0.0
MacLeod Harbor	0.13	1	2	1	1.9	0.3
Main Bay	0.07	1	1	0	1.0	0.0
Mallard Bay	0.02	1	1	0	1.0	0.0
Mallard Head	tr	1	2	1	1.4	0.5
Marsha Bay	0.03	1	1	0	1.0	0.0
Masked Bay	0.02	2	3	1	2.4	0.5
McClure Bay	0.09	0	0	0	0.0	0.0
McPherson Bay	0.07	1	3	2	1.5	0.5
McPherson Passage	0.06	1	3	2	2.4	0.6
Meares Point	tr	1	1	0	1.0	0.0
Middle Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
Miners Bay	0.03	1	1	0	1.0	0.0
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	1	1	0	1.0	0.0
Montague Island	0.17	0	2	2	0.6	0.5
Mud Bay	tr	0	0	0	0.0	0.0
Mueller Cove	0.01	1	1	0	1.0	0.0
Mummy Bay	0.07	1	2	1	1.9	0.3
Mummy Island Cordova	0.01	0	0	0	0.0	0.0
Mummy Island Knight	0.01	2	3	1	2.3	0.5
Naked Island	0.02	1	3	2	1.9	0.7
Nassau Fjord	0.13	1	2	1	1.2	0.4
NE Galena Coves (Lethcoe)	0.01	1	1	0	1.0	0.0
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	0	1	1	0.4	0.5
New Year Islands	tr	2	2	0	2.0	0.0
North Island	tr	1	1	0	1.0	0.0
North Twin Bay	0.03	3	4	1	3.3	0.5
Northeast Arm Mummy Bay	0.01	2	2	0	2.0	0.0
Northeast Cove Drier Bay	0.01	1	1	0	1.0	0.0
Northwest Arm Lower Herring Bay	0.01	1	1	0	1.0	0.0
Northwest Bay	0.04	1	1	0	1.0	0.0
Nuchek	0.01	1	1	0	1.0	0.0
Observation Island	0.01	1	1	0	1.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	0	0	0	0.0	0.0
Olsen Cove	tr	1	1	0	1.0	0.0
Olsen Island	tr	1	1	0	1.0	0.0
Orca Bay	1.73	0	3	3	1.0	0.9
Orca Cove	tr	2	2	0	2.0	0.0
Orca Creek	tr	0	0	0	0.0	0.0
Orca Inlet	0.91	0	1	1	0.3	0.5
Otter Cove	tr	1	1	0	1.0	0.0
Outpost Island	tr	1	1	0	1.0	0.0
Outside Bay	0.06	1	3	2	2.1	0.3
Paddy Bay	0.04	1	1	0	1.0	0.0
Pakenham Point	0.01	1	2	1	2.0	0.1
Papoose Cove	tr	1	1	0	1.0	0.0
Parshas Bay	0.02	0	0	0	0.0	0.0
Passage Anchorage	0.01	3	3	0	3.0	0.0
Passage Canal	0.50	1	1	0	1.0	0.0
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	1	1	0	1.0	0.0
Peak Island	0.01	3	4	1	3.1	0.3
Perry Island Rest	tr	1	1	0	1.0	0.0
Picturesque Cove	tr	0	1	1	1.0	0.2
Pigot Bay	0.07	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	1	1	0	1.0	0.0
Pleiades Islands	tr	4	4	0	4.0	0.0
Poe Bay	0.01	1	1	0	1.0	0.0
Point Helen	tr	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	1	1	0	1.0	0.0
Porpoise Rocks	0.01	1	1	0	1.0	0.0
Port Audrey	0.01	1	1	0	1.0	0.0
Port Bainbridge	0.74	1	4	3	3.0	1.0
Port Chalmers	0.11	0	1	1	1.0	0.1
Port Etches	0.41	0	1	1	0.9	0.3
Port Fidalgo	1.51	0	2	2	0.7	0.5
Port Gravina	1.16	0	0	0	0.0	0.0
Port Nellie Juan	0.92	0	1	1	0.3	0.5
Port Valdez	0.82	1	2	1	1.1	0.3
Prince of Wales Passage	0.52	1	3	2	1.6	0.5
Pt Nowell	tr	1	1	0	1.0	0.0
Puffin Cove	0.02	4	4	0	4.0	0.0
Quayarnaq Cove	tr	1	1	0	1.0	0.0
Quillian Bay	0.01	1	1	0	1.0	0.0
Ragged Bay	0.02	1	1	0	1.0	0.0
Raging Creek	0.01	1	1	0	1.0	0.0
Red Head	tr	0	0	0	0.0	0.0
Reef Island	tr	1	1	0	1.0	0.0
Rocky Bay	0.13	1	1	0	1.0	0.0
Rocky Point (Lethcoe)	0.01	1	1	0	1.0	0.0
Sahlin Lagoon	tr	1	1	0	1.0	0.0
Saint Matthews Bay	0.09	0	0	0	0.0	0.0
San Juan Bay	0.06	0	1	1	0.7	0.5
Sawmill Bay Evans Island	0.04	1	1	0	1.0	0.0
Sawmill Bay SMP	tr	1	2	1	1.4	0.5
Sawmill Bay Valdez Arm	0.03	1	2	1	1.6	0.5
Schoppe Bay	0.06	1	1	0	1.0	0.0
Schrader Island	tr	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	1	1	0	1.0	0.0
Serpentine Cove	0.02	2	3	1	2.8	0.4
Shady Cove	tr	1	1	0	1.0	0.0
Shallow Cove	tr	1	1	0	1.0	0.0
Sheep Bay	0.36	0	1	1	0.5	0.5
Sheep Point	tr	0	1	1	0.2	0.4
Shelter Bay Evans Island	0.02	1	2	1	1.9	0.3
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	0	1	1	0.7	0.5
Shoestring Cove	0.01	1	1	0	1.0	0.0
Shotgun Cove	0.02	1	1	0	1.0	0.0
Shoup Bay	0.05	1	2	1	1.5	0.5
Shoup Bay SMP	0.13	1	2	1	1.1	0.3
Simpson Bay northwest arm	0.12	1	1	0	1.0	0.0
Simpson Bay southeast arm	0.06	1	1	0	1.0	0.0
Siwash Bay	0.03	1	1	0	1.0	0.0
Siwash Island	tr	1	1	0	1.0	0.0
Sleepy Bay	0.01	1	1	0	1.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	0	1	1	0.6	0.5
Snug Harbor	0.05	2	2	0	2.0	0.0
Solf Cove	0.02	1	1	0	1.0	0.0
South Bay Perry Island	0.05	1	2	1	1.3	0.5
South Esther SMP	0.01	1	1	0	1.0	0.0
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	3	4	1	4.0	0.2
Southern tip Culross Island	tr	1	1	0	1.0	0.0
Sphinx Island	tr	1	1	0	1.0	0.0
Squaw Bay	0.03	1	1	0	1.0	0.0
Squire Island	0.01	3	4	1	3.7	0.5
Squire Island Anchorage	tr	4	4	0	4.0	0.0
Squirrel Bay	0.02	2	2	0	2.0	0.0
Squirrel Cove	tr	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	1	1	0	1.0	0.0
Stockdale Harbor	0.10	1	1	0	1.0	0.0
Storey Island	0.01	1	3	2	2.5	0.8
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	1	1	0	1.0	0.0
Surprise Cove SMP	0.01	1	1	0	1.0	0.0
Surprise Inlet	0.07	3	4	1	3.9	0.3
Swanson Bay	0.08	1	2	1	1.1	0.3
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	2	2	0	2.0	0.0
Tatitlek Narrows	0.09	2	3	1	2.4	0.5
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	0	1	1	0.9	0.3
The Nub	tr	1	1	0	1.0	0.0
Three Fingers Cove	0.02	2	3	1	2.2	0.4
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	2	2	0	2.0	0.0
Tiger Bight	0.01	4	4	0	4.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	3	2	1.9	0.7
Two Moon Bay	0.10	1	1	0	1.0	0.0
Unakwik Inlet	0.82	0	1	1	0.9	0.3
Unnamed north of Galena	0.01	0	1	1	0.2	0.4
UnNamed466003	4.33	0	1	1	0.4	0.5
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	1	1	0.2	0.4
UnNamed466031	2.68	0	1	1	0.4	0.5
UnNamed466032	5.11	0	1	1	0.4	0.5
UnNamed466033	3.59	0	3	3	0.7	0.5
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	2	2	1.0	0.2
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.1
UnNamed476003	4.67	0	3	3	0.6	0.6

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	1	4	3	1.6	0.9
UnNamed476005	0.62	1	4	3	2.6	0.9
UnNamed476006	1.45	0	3	3	1.0	0.7
UnNamed476007	4.40	0	4	4	0.8	0.7
UnNamed476008	3.29	0	1	1	0.6	0.5
UnNamed476009	1.24	0	1	1	0.6	0.5
UnNamed476031	3.36	0	1	1	0.2	0.4
UnNamed476032	5.49	0	2	2	0.7	0.5
UnNamed476033	2.45	0	3	3	1.0	0.5
UnNamed476034	2.91	0	4	4	0.9	0.8
UnNamed476035	5.03	0	3	3	0.5	0.6
UnNamed476036	0.66	1	1	0	1.0	0.0
UnNamed485932	1.98	0	4	4	1.1	0.9
UnNamed486004	0.31	1	4	3	2.7	1.3
UnNamed486005	0.70	1	4	3	1.9	1.0
UnNamed486031	0.70	0	1	1	0.5	0.5
UnNamed486033	1.28	0	1	1	0.9	0.3
UnNamed486034	2.07	0	2	2	0.8	0.4
Upper Passage	0.05	1	1	0	1.0	0.0
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	1	1	0	1.0	0.0
Valdez Arm	1.15	0	2	2	0.8	0.4
Valdez Arm west side CRD	0.25	1	2	1	1.0	0.0
Valdez Narrows	0.10	1	1	0	1.0	0.0
Verdant Island	tr	1	1	0	1.0	0.0
Virgin Bay	0.01	2	2	0	2.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	2	2	0	2.0	0.0
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	0	1	1	0.9	0.3
West Bay Bligh Island	0.03	2	3	1	2.0	0.2
West Culross Anchorage	tr	1	1	0	1.0	0.0
West Finger Inlet	0.01	1	1	0	1.0	0.0
West Flank Island	tr	1	1	0	1.0	0.0

Table A7. Population density index (0 – 4) statistics for pigeon guillemot, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	1	1	0	1.0	0.0
Whale Bay	0.24	1	3	2	1.3	0.5
Whalen Bay	0.02	0	0	0	0.0	0.0
Whiskey Cove	0.01	3	3	0	3.0	0.0
Whittier	0.05	1	1	0	1.0	0.0
Willard Island	0.01	3	4	1	3.9	0.3
Windy Bay	0.03	0	1	1	0.4	0.5
Winter Anchorage Unakwik	tr	1	1	0	1.0	0.0
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	0	1	1	1.0	0.1
Yelper Cove	tr	1	1	0	1.0	0.0
Zaikof Bay	0.29	1	1	0	1.0	0.0
Ziegler Cove	tr	1	1	0	1.0	0.0
Ziegler Cove SMP	tr	1	1	0	1.0	0.0
	100					

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	1	1	0.4	0.5
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	2	2	0.4	0.6
06-03C Sheep Bay	0.01	0	1	1	0.0	0.1
06-03D Gravina Bay	0.07	0	4	4	1.1	0.8
06-03E Fidalgo Bay	0.84	0	3	3	0.1	0.4
06-03F Valdez Arm	0.06	0	3	3	0.4	0.7
06DU000605	0.33	0	0	0	0.0	0.0
06DU000606	0.15	0	0	0	0.0	0.0
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	0	0	0.0	0.0
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	0	0	0	0.0	0.0
AA01 West Port Wells	tr	0	2	2	0.6	0.8
AA02 Harriman Fjord/Barry Arm	0.10	0	2	2	0.3	0.6
AA03 College Fjord	0.05	0	0	0	0.0	0.0
AA04 Esther Island/Passage	0.04	0	0	0	0.0	0.0
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	0.5	1.0
AA06 Columbia Bay	0.04	0	4	4	0.2	0.9
AA07 Perry Island	0.02	0	1	1	0.0	0.1
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	0	0	0.0	0.0
AA11 Blackstone Bay	0.02	0	0	0	0.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	2	2	0.3	0.6
AA13 West Knight Island Passage	0.03	0	3	3	1.0	1.1
AA14 West Knight Island	0.10	0	3	3	0.9	0.9
AA15 East Knight Island	0.03	0	3	3	1.8	1.0
AA16 Icy/Whale Bay	0.03	0	1	1	0.3	0.5
AA17 Port Bainbridge	0.02	0	3	3	1.4	1.0
AA18 Passage Canal	0.01	0	0	0	0.0	0.0
Agayuut Bay	tr	0	0	0	0.0	0.0
Agayuut Island	tr	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	0	0	0	0.0	0.0
Anderson Bay Hinchinbrook Island	0.02	3	4	1	3.9	0.3
Anderson Bay Valdez	0.02	0	0	0	0.0	0.0
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	2	3	1	2.9	0.3
Axel Lind Island	tr	1	2	1	1.1	0.3
Bainbridge Island	0.03	0	3	3	1.2	0.9
Bainbridge Passage	0.26	0	3	3	0.7	0.8
Bald Head Chris	tr	0	0	0	0.0	0.0
Barnes Cove	tr	0	0	0	0.0	0.0
Barry Arm	0.31	0	2	2	1.4	0.7
Bass Harbor	0.05	0	0	0	0.0	0.0
Bay of Isles	0.15	0	3	3	2.1	0.7
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	2	2	0	2.0	0.0
Beartrap Bay	0.03	0	0	0	0.0	0.0
Bettles Bay	0.08	1	2	1	1.6	0.5
Bettles Bay SMP	tr	2	2	0	2.0	0.0
Bettles Island	tr	0	0	0	0.0	0.0
Billings Point Perry Island	tr	0	0	0	0.0	0.0
Billy's Hole	tr	0	0	0	0.0	0.0
Blackstone Bay	0.54	0	0	0	0.0	0.0
Bligh Island	0.02	2	4	2	2.4	0.5
Block Island Cedar Bay	tr	0	0	0	0.0	0.0
Block Island Eleanor Island	tr	0	1	1	0.2	0.4
Blue Fjord	0.11	0	0	0	0.0	0.0
Bomb Point	tr	1	1	0	1.0	0.0
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	1	2	1	1.1	0.3
Brave Harbor	tr	0	0	0	0.0	0.0
Bull Head	0.01	0	0	0	0.0	0.0
Busby Island	0.01	2	3	1	2.4	0.5

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	0	0	0	0.0	0.0
Cabin Bay	0.07	0	1	1	0.2	0.4
Campbell Bay	0.02	0	0	0	0.0	0.0
Cannery Creek	0.04	0	0	0	0.0	0.0
Canoe Passage	0.04	1	4	3	3.4	0.9
Canoe Passage SMP	tr	0	4	4	3.0	1.3
Canoe Passage Trail	tr	2	2	0	2.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	0	0	0.0	0.0
Cedar Bay Hawkins Island	0.02	1	2	1	1.7	0.5
Cedar Bay Wells Bay	0.04	0	3	3	1.1	0.9
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	0	0	0	0.0	0.0
Channel Islands The Narrows	0.01	2	2	0	2.0	0.0
Chenega Island	0.02	0	1	1	0.1	0.3
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	2	2	0	2.0	0.0
Cochrane Bay	0.51	0	0	0	0.0	0.0
Coghill	0.07	0	0	0	0.0	0.0
Coghill Lake Tr	tr	0	0	0	0.0	0.0
College Fjord	1.09	0	0	0	0.0	0.0
Columbia Bay	0.46	0	0	0	0.0	0.0
Comfort Cove	0.01	1	1	0	1.0	0.0
Constantine Harbor	0.05	0	3	3	0.8	0.9
Copper Bay	0.02	0	1	1	0.5	0.5
Cordova	0.01	0	1	1	0.3	0.5
Cow Pens	0.01	0	0	0	0.0	0.0
Crab Bay	tr	0	1	1	0.0	0.2
Crafton Island	tr	3	3	0	3.0	0.0
Culross Bay	0.02	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	0	0	0.0	0.0
Culross Passage	0.22	0	0	0	0.0	0.0
Dalli Bay	tr	0	0	0	0.0	0.0
Dan Bay	0.02	0	0	0	0.0	0.0
Danger Island	tr	2	2	0	2.0	0.0
Dangerous Passage	0.34	0	2	2	0.3	0.5
Day Care Cove	tr	0	0	0	0.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	2	2	0	2.0	0.0
Deep Water Bay	0.03	0	0	0	0.0	0.0
Deer Cove Hinchinbrook	0.01	4	4	0	4.0	0.0
Deer Cove Knight	0.01	2	3	1	2.1	0.3
Derickson Bay Eaglek	0.03	0	0	0	0.0	0.0
Derickson Bay Nellie Juan	0.07	0	0	0	0.0	0.0
Disk Island	tr	0	1	1	0.2	0.4
Disk Island Anchorage	tr	0	1	1	0.8	0.4
Double Bay	0.04	3	4	1	4.0	0.2
Drier Bay	0.11	0	0	0	0.0	0.0
Dual Head	tr	0	0	0	0.0	0.0
Dutch Group	tr	0	1	1	0.9	0.3
Eagle Bay	0.02	0	0	0	0.0	0.0
Eaglek Bay	0.38	0	1	1	0.0	0.1
Eaglek Island	tr	1	1	0	1.0	0.0
East Bight Lower Herring Bay	tr	0	1	1	0.3	0.5
East Finger Inlet	0.01	0	0	0	0.0	0.0
East Flank Island	tr	0	0	0	0.0	0.0
East Twin Bay	0.03	0	0	0	0.0	0.0
Eickelberg Bay	0.02	0	0	0	0.0	0.0
Elder Bay	0.01	0	0	0	0.0	0.0
Eleanor Island	0.02	0	4	4	2.1	1.2
Ellamar	tr	2	3	1	2.7	0.5
Elrington Island	0.04	0	4	4	2.1	1.4

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	0	4	4	1.2	0.8
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	0	0	0	0.0	0.0
English Bay	tr	0	0	0	0.0	0.0
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	0	3	3	2.0	1.1
Esther Bay	0.03	0	0	0	0.0	0.0
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	0	0	0.0	0.0
Esther Passage S CS #1	tr	0	0	0	0.0	0.0
Evans Island	0.03	0	3	3	1.6	1.0
Ewan Bay	0.05	0	0	0	0.0	0.0
Fairmount Bay	0.02	2	4	2	2.8	0.5
Fairmount Island	tr	4	4	0	4.0	0.0
Falls Bay	0.02	2	3	1	2.6	0.5
Finski Bay	0.01	0	0	0	0.0	0.0
Fish Bay Hinchinbrook	0.01	1	2	1	1.0	0.1
Fish Bay Port Fidalgo	0.05	0	1	1	0.0	0.2
Fish Hook Anchorage	tr	4	4	0	4.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	1	3	2	2.2	0.7
Fool Island	tr	0	0	0	0.0	0.0
Foul Bay	0.01	1	2	1	1.9	0.3
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	3	4	1	4.0	0.2
Fox Point	tr	0	0	0	0.0	0.0
Gaamaak Cove	0.01	0	0	0	0.0	0.0
Galena Bay	0.10	0	1	1	0.1	0.3
Garden Cove	0.01	0	0	0	0.0	0.0
Garden Island	tr	0	0	0	0.0	0.0
Gibbon Anchorage	0.04	0	1	1	0.5	0.5

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	0	0	0	0.0	0.0
Glacier Island	0.03	0	1	1	0.1	0.3
Glacier Water Cove	0.01	0	0	0	0.0	0.0
Gold Creek/Camp Bowie	0.01	0	0	0	0.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	1	3	2	2.6	0.5
Granite Bay (Dangerous Passage)	0.02	1	2	1	1.7	0.5
Granite Bay (Eaglek)	0.03	1	4	3	2.9	0.9
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	0	0	0	0.0	0.0
Granite Point	tr	2	3	1	2.2	0.4
Gravina Island	tr	1	1	0	1.0	0.0
Gravina Point	tr	1	1	0	1.0	0.0
Gravina Rocks	tr	2	2	0	2.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	2	2	0	2.0	0.0
Green Island	0.02	0	2	2	0.7	0.6
Greystone Bay	0.02	0	0	0	0.0	0.0
Grommet Cove	tr	0	0	0	0.0	0.0
Growler Bay	0.04	0	0	0	0.0	0.0
Growler Island	tr	0	0	0	0.0	0.0
Gulf of Alaska	0.74	0	0	0	0.0	0.0
Gull Island	tr	2	2	0	2.0	0.0
Hanning Bay	0.10	0	1	1	0.7	0.5
Harriman Fjord	0.36	0	2	2	1.0	0.7
Harriman south shore complex	0.01	0	1	1	0.6	0.5
Harrison Lagoon	0.02	0	1	1	0.8	0.4
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	0	0	0.0	0.0
Hawkins Island	0.06	0	4	4	1.7	1.3
Hawkins Island Cutoff	0.70	0	2	2	0.1	0.3

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	1	2	1	1.2	0.4
Head of Cedar Bay	0.02	0	0	0	0.0	0.0
Head of Eaglek Bay	0.02	0	0	0	0.0	0.0
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	0	1	1	0.8	0.4
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	0	0	0	0.0	0.0
Heather Bay	0.17	0	0	0	0.0	0.0
Heather Island	0.01	0	0	0	0.0	0.0
Hells Hole	0.01	0	2	2	1.0	0.2
Herring Bay	0.21	1	2	1	1.7	0.5
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	1	1	0	1.0	0.0
Hinchinbrook Island	0.09	0	4	4	2.2	2.0
Hinge Beach (Doran Straight)	tr	2	2	0	2.0	0.0
Hobo Bay	0.01	1	1	0	1.0	0.0
Hogan Bay	0.01	1	1	0	1.0	0.0
Hogg Bay	0.13	1	3	2	1.2	0.4
Hole-in-the-wall	tr	1	2	1	1.1	0.3
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	0	1	1	0.9	0.3
Horseshoe Bay SMP	0.01	0	1	1	0.5	0.5
Hummer Bay	0.03	0	1	1	0.4	0.5
Humpback Cove	0.01	0	1	1	0.9	0.3
Humpback/Shepard	0.01	0	1	1	0.1	0.3
Icy Bay	0.25	0	1	1	0.1	0.3
Iktua Bay	0.03	0	1	1	0.0	0.2
Ingot Cove	tr	0	1	1	0.3	0.5
Ingot Island	0.01	0	1	1	0.2	0.4

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	0	1	1	1.0	0.1
Irish Cove Port Fidalgo	0.01	0	1	1	0.8	0.4
Italian Bay	tr	3	3	0	3.0	0.0
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	tr	0	0	0	0.0	0.0
Jackpot Bay	0.09	0	0	0	0.0	0.0
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	0	0	0.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	1	1	0	1.0	0.0
Johnson Bay	0.04	0	0	0	0.0	0.0
Jonah Bay	0.05	0	0	0	0.0	0.0
Junction Island	tr	1	1	0	1.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	0	1	1	0.8	0.4
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	2	2	1.1	0.8
Kiniklik anchorage	tr	0	0	0	0.0	0.0
Kiniklik Island	tr	0	0	0	0.0	0.0
Knight Island Pass CS #1	tr	1	1	0	1.0	0.0
Knowles Bay	0.09	2	4	2	3.5	0.5
Knowles Head	tr	1	2	1	1.8	0.4
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	0	3	3	1.7	0.9
Latouche Island	0.04	0	3	3	2.1	1.0
LaTouche Passage	0.49	0	3	3	1.3	1.1
Lighthouse Reserve	tr	0	1	1	0.3	0.5
Liljegren Passage	0.14	0	2	2	0.9	0.4
Little Axel Lind Island	tr	1	1	0	1.0	0.0
Little Bay	0.02	2	3	1	2.9	0.3
Little Fairmount Island	tr	4	4	0	4.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	1	2	1	1.0	0.2
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	0	0	0.0	0.0
Louis Bay	0.02	1	1	0	1.0	0.0
Lower Herring Bay	0.05	0	2	2	0.3	0.5
Lower Passage	0.11	0	1	1	0.3	0.4
Lucky Bay	0.01	2	3	1	2.9	0.3
MacLeod Harbor	0.13	2	4	2	3.7	0.6
Main Bay	0.07	0	3	3	1.7	0.8
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	1	2	1	1.5	0.5
Masked Bay	0.02	0	0	0	0.0	0.0
McClure Bay	0.09	0	0	0	0.0	0.0
McPherson Bay	0.07	0	1	1	0.0	0.0
McPherson Passage	0.06	0	1	1	0.4	0.5
Meares Point	tr	1	1	0	1.0	0.0
Middle Bight Lower Herring Bay	tr	0	0	0	0.0	0.0
Miners Bay	0.03	0	0	0	0.0	0.0
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	0	0	0	0.0	0.0
Montague Island	0.17	0	4	4	0.7	1.2
Mud Bay	tr	1	1	0	1.0	0.0
Mueller Cove	0.01	0	1	1	0.6	0.5
Mummy Bay	0.07	0	3	3	2.3	0.8
Mummy Island Cordova	0.01	0	0	0	0.0	0.0
Mummy Island Knight	0.01	0	1	1	0.5	0.5
Naked Island	0.02	0	1	1	0.2	0.4
Nassau Fjord	0.13	0	0	0	0.0	0.0
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	0	0	0	0.0	0.0
New Year Islands	tr	0	0	0	0.0	0.0
North Island	tr	1	1	0	1.0	0.0
North Twin Bay	0.03	4	4	0	4.0	0.0
Northeast Arm Mummy Bay	0.01	1	1	0	1.0	0.0
Northeast Cove Drier Bay	0.01	0	0	0	0.0	0.0
Northwest Arm Lower Herring Bay	0.01	0	1	1	0.9	0.3
Northwest Bay	0.04	1	3	2	2.4	0.6
Nuchek	0.01	0	3	3	1.1	0.8
Observation Island	0.01	1	2	1	1.3	0.5
Old Chenega site	tr	0	1	1	0.5	0.5
Olsen Bay	0.07	1	2	1	1.7	0.5
Olsen Cove	tr	1	1	0	1.0	0.0
Olsen Island	tr	2	3	1	2.5	0.5
Orca Bay	1.73	0	4	4	2.2	1.4
Orca Cove	tr	0	0	0	0.0	0.0
Orca Creek	tr	1	1	0	1.0	0.0
Orca Inlet	0.91	0	2	2	0.4	0.5
Otter Cove	tr	0	0	0	0.0	0.0
Outpost Island	tr	3	3	0	3.0	0.0
Outside Bay	0.06	0	1	1	0.5	0.5
Paddy Bay	0.04	0	0	0	0.0	0.0
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	0	0	0	0.0	0.0
Parshas Bay	0.02	1	2	1	1.4	0.5
Passage Anchorage	0.01	0	1	1	0.0	0.1
Passage Canal	0.50	0	0	0	0.0	0.0
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	0	0	0	0.0	0.0
Peak Island	0.01	0	1	1	0.8	0.4
Perry Island Rest	tr	0	0	0	0.0	0.0
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0
Pleiades Islands	tr	3	4	1	3.6	0.5
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	2	2	0	2.0	0.0
Point Pellew Lagoon	0.01	0	0	0	0.0	0.0
Porpoise Rocks	0.01	1	3	2	2.2	0.4
Port Audrey	0.01	0	0	0	0.0	0.0
Port Bainbridge	0.74	1	3	2	2.4	0.7
Port Chalmers	0.11	0	1	1	0.0	0.1
Port Etches	0.41	0	4	4	0.8	1.2
Port Fidalgo	1.51	0	4	4	1.7	1.3
Port Gravina	1.16	0	4	4	2.0	0.9
Port Nellie Juan	0.92	0	0	0	0.0	0.0
Port Valdez	0.82	0	0	0	0.0	0.0
Prince of Wales Passage	0.52	0	3	3	1.5	1.0
Pt Nowell	tr	3	3	0	3.0	0.0
Puffin Cove	0.02	1	2	1	1.9	0.3
Quayarnaq Cove	tr	0	0	0	0.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	0	1	1	0.4	0.5
Raging Creek	0.01	1	1	0	1.0	0.0
Red Head	tr	4	4	0	4.0	0.0
Reef Island	tr	1	2	1	1.4	0.5
Rocky Bay	0.13	0	3	3	1.1	0.7
Rocky Point (Lethcoe)	0.01	0	0	0	0.0	0.0
Sahlin Lagoon	tr	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	0	1	1	0.6	0.5
San Juan Bay	0.06	0	4	4	0.9	0.9
Sawmill Bay Evans Island	0.04	0	2	2	1.1	0.6
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	0	0	0	0.0	0.0
Schrader Island	tr	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	1	1	1.0	0.2
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	1	1	0.2	0.4
Sheep Point	tr	0	1	1	0.3	0.4
Shelter Bay Evans Island	0.02	1	2	1	1.2	0.4
Shelter Bay Hinchinbrook Island	0.02	4	4	0	4.0	0.0
Shipyard Bay	0.01	1	2	1	1.7	0.5
Shoestring Cove	0.01	0	0	0	0.0	0.0
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	0	1	1	0.4	0.5
Simpson Bay southeast arm	0.06	1	2	1	1.1	0.2
Siwash Bay	0.03	0	0	0	0.0	0.0
Siwash Island	tr	0	0	0	0.0	0.0
Sleepy Bay	0.01	3	3	0	3.0	0.0
Smith Island	0.01	1	1	0	1.0	0.0
Snug Corner Cove	0.09	0	3	3	1.3	0.7
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	2	2	0	2.0	0.0
South Bay Perry Island	0.05	0	1	1	0.6	0.5
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	4	4	0	4.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	0	0	0	0.0	0.0
Squire Island	0.01	1	4	3	2.5	1.0
Squire Island Anchorage	tr	3	3	0	3.0	0.0
Squirrel Bay	0.02	1	2	1	1.0	0.2
Squirrel Cove	tr	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	0	1	1	0.1	0.2
Storey Island	0.01	1	2	1	1.6	0.5
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	1	3	2	1.5	0.5
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	2	2	0	2.0	0.0
Tatitlek Narrows	0.09	2	3	1	2.8	0.4
The Keyhole	tr	0	0	0	0.0	0.0
The Narrows	0.25	0	2	2	1.6	0.6
The Nub	tr	0	0	0	0.0	0.0
Three Fingers Cove	0.02	0	0	0	0.0	0.0
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	2	3	1	2.5	0.5
Tiger Bight	0.01	1	1	0	1.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	0	1	1	0.4	0.5
Two Moon Bay	0.10	1	3	2	2.4	0.7
Unakwik Inlet	0.82	0	4	4	0.5	1.0
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	4	4	3.4	1.0
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	2	2	0.1	0.3
UnNamed466031	2.68	0	4	4	2.5	1.4
UnNamed466032	5.11	0	4	4	2.1	1.4
UnNamed466033	3.59	0	4	4	2.2	1.4
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	4	4	2.8	1.3
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.1
UnNamed476003	4.67	0	4	4	1.2	1.2

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	1	4	3	3.6	0.6
UnNamed476005	0.62	0	4	4	1.0	1.2
UnNamed476006	1.45	0	3	3	1.5	1.0
UnNamed476007	4.40	0	3	3	1.4	1.1
UnNamed476008	3.29	0	4	4	1.4	1.3
UnNamed476009	1.24	0	1	1	0.0	0.1
UnNamed476031	3.36	0	3	3	0.3	0.6
UnNamed476032	5.49	0	4	4	1.9	1.5
UnNamed476033	2.45	0	3	3	0.7	0.8
UnNamed476034	2.91	0	4	4	1.5	1.0
UnNamed476035	5.03	0	4	4	1.1	1.2
UnNamed476036	0.66	0	4	4	3.0	1.0
UnNamed485932	1.98	0	4	4	2.2	1.4
UnNamed486004	0.31	1	4	3	2.8	0.9
UnNamed486005	0.70	0	3	3	0.6	0.8
UnNamed486031	0.70	0	3	3	1.0	1.1
UnNamed486033	1.28	0	0	0	0.0	0.0
UnNamed486034	2.07	0	1	1	0.1	0.3
Upper Passage	0.05	0	2	2	0.7	0.6
Useless Cove	0.01	0	0	0	0.0	0.0
Valdez	0.16	0	0	0	0.0	0.0
Valdez Arm	1.15	0	2	2	0.2	0.4
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	0	0	0.0	0.0
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	2	3	1	3.0	0.2
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	0	0	0	0.0	0.0
Wells Bay	0.21	0	4	4	2.4	1.6
West Bay Bligh Island	0.03	2	3	1	2.9	0.2
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	0	0	0	0.0	0.0

Table A8. Population density index (0 – 4) statistics for common murre, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	0	0	0	0.0	0.0
Whale Bay	0.24	0	1	1	0.1	0.3
Whalen Bay	0.02	0	0	0	0.0	0.0
Whiskey Cove	0.01	4	4	0	4.0	0.0
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	0	0	0	0.0	0.0
Windy Bay	0.03	0	1	1	0.4	0.5
Winter Anchorage Unakwik	tr	0	0	0	0.0	0.0
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	0	0	0	0.0	0.0
Yelper Cove	tr	3	3	0	3.0	0.0
Zaikof Bay	0.29	1	3	2	2.2	0.4
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	4	4	1.0	1.4
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	4	4	0.4	0.7
06-03C Sheep Bay	0.01	1	4	3	2.6	0.7
06-03D Gravina Bay	0.07	0	4	4	2.0	1.1
06-03E Fidalgo Bay	0.84	0	3	3	0.0	0.1
06-03F Valdez Arm	0.06	0	3	3	1.3	1.1
06DU000605	0.33	1	4	3	2.9	0.6
06DU000606	0.15	2	4	2	2.8	0.4
06DU000607	0.21	1	4	3	2.6	0.7
06DU000608	0.82	0	3	3	0.2	0.5
06DU000618	0.10	0	1	1	0.2	0.4
06DU000619	0.10	0	3	3	1.2	0.6
3 Finger-Shrode Lake Tr	tr[b]	3	3	0	3.0	0.0
AA01 West Port Wells	tr	0	0	0	0.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	1.0	1.3
AA03 College Fjord	0.05	0	4	4	1.4	1.7
AA04 Esther Island/Passage	0.04	0	4	4	0.8	1.0
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	2.5	0.9
AA06 Columbia Bay	0.04	0	4	4	0.5	0.9
AA07 Perry Island	0.02	1	4	3	2.6	1.4
AA09 Culross Island/Passage	tr	0	1	1	0.1	0.3
AA10 Cochrane Bay	0.02	0	4	4	1.6	1.6
AA11 Blackstone Bay	0.02	1	4	3	3.3	0.9
AA12 Kings Bay/Nellie Juan	0.06	0	2	2	0.2	0.5
AA13 West Knight Island Passage	0.03	0	2	2	0.7	0.9
AA14 West Knight Island	0.10	0	3	3	1.0	1.0
AA15 East Knight Island	0.03	0	3	3	1.2	1.2
AA16 Icy/Whale Bay	0.03	0	4	4	3.1	1.3
AA17 Port Bainbridge	0.02	0	4	4	3.1	1.0
AA18 Passage Canal	0.01	0	4	4	3.5	1.1
Agayuut Bay	tr	3	4	1	3.2	0.4
Agayuut Island	tr	3	3	0	3.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	1	2	1	1.0	0.2
Anderson Bay Valdez	0.02	1	3	2	1.9	0.4
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	4	4	0	4.0	0.0
Axel Lind Island	tr	4	4	0	4.0	0.0
Bainbridge Island	0.03	1	4	3	2.7	1.2
Bainbridge Passage	0.26	1	4	3	2.5	1.0
Bald Head Chris	tr	4	4	0	4.0	0.0
Barnes Cove	tr	3	3	0	3.0	0.0
Barry Arm	0.31	0	4	4	2.7	1.4
Bass Harbor	0.05	4	4	0	4.0	0.0
Bay of Isles	0.15	1	3	2	2.6	0.6
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	1	1	0	1.0	0.0
Beartrap Bay	0.03	0	1	1	0.0	0.2
Bettles Bay	0.08	0	0	0	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	0	1	1	0.4	0.5
Billings Point Perry Island	tr	4	4	0	4.0	0.0
Billy's Hole	tr	0	0	0	0.0	0.0
Blackstone Bay	0.54	2	4	2	3.4	0.7
Bligh Island	0.02	2	4	2	3.3	0.8
Block Island Cedar Bay	tr	1	1	0	1.0	0.0
Block Island Eleanor Island	tr	3	4	1	3.2	0.4
Blue Fjord	0.11	0	1	1	0.2	0.4
Bomb Point	tr	1	2	1	1.2	0.4
Boswell Bay	0.05	1	4	3	3.4	0.7
Boswell Bay SMP	tr	4	4	0	4.0	0.0
Boulder Bay	0.07	1	2	1	1.2	0.4
Brave Harbor	tr	2	2	0	2.0	0.0
Bull Head	0.01	4	4	0	4.0	0.0
Busby Island	0.01	1	2	1	1.4	0.5

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	1	1	0	1.0	0.0
Buyers Cove	0.01	0	0	0	0.0	0.0
Cabin Bay	0.07	4	4	0	4.0	0.0
Campbell Bay	0.02	1	2	1	1.2	0.4
Cannery Creek	0.04	3	4	1	3.8	0.4
Canoe Passage	0.04	3	3	0	3.0	0.0
Canoe Passage SMP	tr	3	3	0	3.0	0.0
Canoe Passage Trail	tr	3	3	0	3.0	0.0
Cascade Bay	0.02	1	2	1	1.7	0.4
Cat Head	tr	2	2	0	2.0	0.0
Cathead Bay	0.01	1	2	1	1.7	0.5
Cedar Bay Hawkins Island	0.02	0	1	1	1.0	0.2
Cedar Bay Wells Bay	0.04	1	3	2	2.1	0.6
Cedar Lake anchorage	tr	2	2	0	2.0	0.0
Chamberlain Bay	0.03	3	4	1	4.0	0.2
Channel Island south of Green Island	tr	3	3	0	3.0	0.0
Channel Islands The Narrows	0.01	0	0	0	0.0	0.0
Chenega Island	0.02	1	3	2	1.8	0.7
Clam Island	tr	3	3	0	3.0	0.0
Cloudman Bay	0.01	1	2	1	1.6	0.5
Cochrane Bay	0.51	0	4	4	0.8	1.3
Coghill	0.07	0	0	0	0.0	0.0
Coghill Lake Tr	tr	0	0	0	0.0	0.0
College Fjord	1.09	0	4	4	0.3	0.7
Columbia Bay	0.46	0	0	0	0.0	0.0
Comfort Cove	0.01	1	2	1	1.4	0.5
Constantine Harbor	0.05	3	4	1	3.7	0.4
Copper Bay	0.02	0	1	1	0.9	0.3
Cordova	0.01	0	0	0	0.0	0.0
Cow Pens	0.01	3	4	1	3.2	0.4
Crab Bay	tr	1	1	0	1.0	0.0
Crafton Island	tr	3	3	0	3.0	0.0
Culross Bay	0.02	1	1	0	1.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	1	1	0.8	0.4
Culross Island	0.02	0	1	1	0.5	0.5
Culross Passage	0.22	0	2	2	0.2	0.5
Dalli Bay	tr	0	0	0	0.0	0.0
Dan Bay	0.02	0	0	0	0.0	0.0
Danger Island	tr	4	4	0	4.0	0.0
Dangerous Passage	0.34	0	3	3	1.6	1.0
Day Care Cove	tr	4	4	0	4.0	0.0
DECISION POINT SMP	tr	2	3	1	2.8	0.4
Deep Bay	0.03	0	0	0	0.0	0.0
Deep Water Bay	0.03	1	2	1	1.7	0.5
Deer Cove Hinchinbrook	0.01	2	3	1	2.9	0.2
Deer Cove Knight	0.01	0	1	1	0.9	0.3
Derickson Bay Eaglek	0.03	1	2	1	1.5	0.5
Derickson Bay Nellie Juan	0.07	1	2	1	1.5	0.5
Disk Island	tr	3	3	0	3.0	0.0
Disk Island Anchorage	tr	3	3	0	3.0	0.0
Double Bay	0.04	0	1	1	0.0	0.1
Drier Bay	0.11	2	3	1	2.8	0.4
Dual Head	tr	3	4	1	3.7	0.4
Dutch Group	tr	4	4	0	4.0	0.0
Eagle Bay	0.02	2	3	1	2.6	0.5
Eaglek Bay	0.38	1	4	3	2.6	0.8
Eaglek Island	tr	4	4	0	4.0	0.0
East Bight Lower Herring Bay	tr	0	1	1	0.3	0.5
East Finger Inlet	0.01	0	0	0	0.0	0.0
East Flank Island	tr	2	2	0	2.0	0.0
East Twin Bay	0.03	4	4	0	4.0	0.0
Eickelberg Bay	0.02	1	1	0	1.0	0.0
Elder Bay	0.01	1	3	2	2.1	0.6
Eleanor Island	0.02	1	4	3	1.7	0.8
Ellamar	tr	3	3	0	3.0	0.0
Elrington Island	0.04	0	4	4	3.3	1.0
Elrington Passage	0.24	0	4	4	3.2	1.3

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Emerald Bay	tr	3	4	1	3.5	0.5
Emerald Cove (Heather Bay)	0.01	0	1	1	0.1	0.3
English Bay	tr	3	3	0	3.0	0.0
Entrance Island	tr	4	4	0	4.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	0	3	3	0.9	0.7
Esther Bay	0.03	1	4	3	2.3	1.1
Esther Bight	0.01	2	3	1	2.2	0.4
Esther Passage	0.17	0	3	3	1.5	0.8
Esther Passage S CS #1	tr	2	2	0	2.0	0.0
Evans Island	0.03	1	4	3	2.7	1.1
Ewan Bay	0.05	0	1	1	0.2	0.4
Fairmount Bay	0.02	3	4	1	3.4	0.5
Fairmount Island	tr	3	4	1	3.2	0.4
Falls Bay	0.02	1	2	1	1.6	0.5
Finski Bay	0.01	2	2	0	2.0	0.0
Fish Bay Hinchinbrook	0.01	0	0	0	0.0	0.0
Fish Bay Port Fidalgo	0.05	0	0	0	0.0	0.0
Fish Hook Anchorage	tr	3	3	0	3.0	0.0
Fish Island	tr	2	2	0	2.0	0.0
Fisherman's Anchorage	tr	1	1	0	1.0	0.0
Flemming Island	0.01	4	4	0	4.0	0.0
Fool Island	tr	4	4	0	4.0	0.0
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	3	4	1	3.1	0.3
Fox Farm Bay	0.01	4	4	0	4.0	0.0
Fox Point	tr	2	2	0	2.0	0.0
Gaamaak Cove	0.01	4	4	0	4.0	0.0
Galena Bay	0.10	1	3	2	2.0	0.4
Garden Cove	0.01	2	2	0	2.0	0.0
Garden Island	tr	2	2	0	2.0	0.0
Gibbon Anchorage	0.04	4	4	0	4.0	0.0
Gilmour Bight	0.01	3	3	0	3.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Glacier Island	0.03	1	4	3	2.3	1.0
Glacier Water Cove	0.01	1	2	1	1.0	0.1
Gold Creek/Camp Bowie	0.01	3	3	0	3.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	2	3	1	2.3	0.5
Granite Bay (Dangerous Passage)	0.02	0	0	0	0.0	0.0
Granite Bay (Eaglek)	0.03	2	3	1	2.9	0.3
Granite Bay Esther Island	0.04	0	1	1	0.1	0.3
Granite Bay SMP	tr	0	1	1	0.4	0.5
Granite Cove	0.02	0	0	0	0.0	0.0
Granite Point	tr	4	4	0	4.0	0.0
Gravina Island	tr	2	2	0	2.0	0.0
Gravina Point	tr	1	2	1	1.2	0.4
Gravina Rocks	tr	3	3	0	3.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	2	3	1	2.6	0.5
Green Island	0.02	3	4	1	3.8	0.4
Greystone Bay	0.02	0	1	1	0.5	0.5
Grommet Cove	tr	1	1	0	1.0	0.0
Growler Bay	0.04	2	4	2	3.2	0.7
Growler Island	tr	1	3	2	1.8	0.5
Gulf of Alaska	0.74	2	4	2	3.6	0.5
Gull Island	tr	3	3	0	3.0	0.0
Hanning Bay	0.10	0	0	0	0.0	0.0
Harriman Fjord	0.36	2	4	2	3.5	0.8
Harriman south shore complex	0.01	3	4	1	3.6	0.5
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	0	3	3	1.5	0.6
Harvard Arm	0.21	1	4	3	2.5	0.9
Hawkins Island	0.06	0	3	3	0.8	0.9
Hawkins Island Cutoff	0.70	0	4	4	1.3	1.5
Head of Barry Arm	0.04	4	4	0	4.0	0.0
Head of Cedar Bay	0.02	1	1	0	1.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Eaglek Bay	0.02	3	3	0	3.0	0.0
Head of Galena Bay	0.09	0	1	1	0.8	0.4
Head of Harriman Fjord	0.05	2	3	1	2.6	0.5
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	3	2	2.1	0.5
Heather Bay	0.17	0	2	2	0.4	0.5
Heather Island	0.01	0	0	0	0.0	0.0
Hells Hole	0.01	3	3	0	3.0	0.0
Herring Bay	0.21	0	1	1	0.4	0.5
Herring Point	tr	0	0	0	0.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	2	3	1	2.7	0.5
Hinchinbrook Island	0.09	0	4	4	1.9	1.3
Hinge Beach (Doran Straight)	tr	4	4	0	4.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	1	1	0	1.0	0.0
Hogg Bay	0.13	1	4	3	2.4	1.0
Hole-in-the-wall	tr	1	1	0	1.0	0.0
Hook Point	0.03	2	3	1	2.8	0.4
Horseshoe Bay	tr	1	1	0	1.0	0.0
Horseshoe Bay SMP	0.01	1	1	0	1.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	4	4	0	4.0	0.0
Humpback/Shepard	0.01	0	0	0	0.0	0.0
Icy Bay	0.25	3	4	1	3.9	0.3
Iktua Bay	0.03	3	3	0	3.0	0.0
Ingot Cove	tr	3	3	0	3.0	0.0
Ingot Island	0.01	1	4	3	2.4	1.0
Irish Cove Glacier Island	0.01	2	3	1	2.2	0.4
Irish Cove Port Fidalgo	0.01	0	1	1	0.1	0.3

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Italian Bay	tr	1	1	0	1.0	0.0
Jack Bay	0.15	0	3	3	2.3	0.8
Jack Bay SMP	tr	2	2	0	2.0	0.0
Jackpot Bay	0.09	1	3	2	1.9	0.7
Jackson Cove	tr	3	4	1	3.0	0.2
Jackson Hole	0.01	1	3	2	2.4	0.6
Jeanie Cove	0.14	1	3	2	2.1	0.5
Jenny Island	tr	4	4	0	4.0	0.0
Johnson Bay	0.04	1	2	1	1.9	0.2
Jonah Bay	0.05	1	3	2	1.5	0.6
Junction Island	tr	1	1	0	1.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	0	2	2	0.9	0.3
Kenny Cove	0.02	3	4	1	3.8	0.4
Kings Bay	0.62	0	0	0	0.0	0.0
Kiniklik anchorage	tr	2	3	1	2.1	0.3
Kiniklik Island	tr	2	2	0	2.0	0.0
Knight Island Pass CS #1	tr	0	0	0	0.0	0.0
Knowles Bay	0.09	1	3	2	1.9	0.7
Knowles Head	tr	1	2	1	1.3	0.4
Lake Bay	0.01	1	2	1	1.0	0.2
Landlocked Bay	0.13	0	0	0	0.0	0.0
Latouche Island	0.04	0	4	4	1.6	1.2
LaTouche Passage	0.49	0	4	4	1.1	1.1
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	4	4	0	4.0	0.0
Little Axel Lind Island	tr	3	4	1	4.0	0.2
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	3	3	0	3.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0
Little Smith Island	tr	4	4	0	4.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0
Logjam Bay	0.01	3	3	0	3.0	0.0
Lone Island	0.01	4	4	0	4.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	0	0	0.0	0.0
Louis Bay	0.02	1	3	2	2.1	0.4
Lower Herring Bay	0.05	0	1	1	0.2	0.4
Lower Passage	0.11	1	4	3	2.6	0.5
Lucky Bay	0.01	0	0	0	0.0	0.0
MacLeod Harbor	0.13	3	4	1	3.3	0.5
Main Bay	0.07	0	1	1	0.1	0.3
Mallard Bay	0.02	1	2	1	1.9	0.3
Mallard Head	tr	1	2	1	1.9	0.4
Marsha Bay	0.03	3	3	0	3.0	0.0
Masked Bay	0.02	1	2	1	1.8	0.4
McClure Bay	0.09	0	0	0	0.0	0.0
McPherson Bay	0.07	4	4	0	4.0	0.0
McPherson Passage	0.06	4	4	0	4.0	0.0
Meares Point	tr	3	3	0	3.0	0.0
Middle Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
Miners Bay	0.03	2	3	1	2.2	0.4
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	0	1	1	0.9	0.3
Montague Island	0.17	0	4	4	0.9	1.1
Mud Bay	tr	0	0	0	0.0	0.0
Mueller Cove	0.01	2	3	1	3.0	0.1
Mummy Bay	0.07	0	1	1	0.3	0.4
Mummy Island Cordova	0.01	4	4	0	4.0	0.0
Mummy Island Knight	0.01	1	2	1	1.8	0.4
Naked Island	0.02	4	4	0	4.0	0.0
Nassau Fjord	0.13	3	4	1	4.0	0.2
NE Galena Coves (Lethcoe)	0.01	2	3	1	2.1	0.3
Nellie Juan Glacier and spit	0.01	2	3	1	2.2	0.4
Nellie Juan Lagoon	0.02	2	3	1	2.6	0.5
Nelson Bay	0.10	0	0	0	0.0	0.0
New Year Islands	tr	3	3	0	3.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
North Island	tr	0	0	0	0.0	0.0
North Twin Bay	0.03	3	4	1	3.9	0.3
Northeast Arm Mummy Bay	0.01	1	1	0	1.0	0.0
Northeast Cove Drier Bay	0.01	3	3	0	3.0	0.0
Northwest Arm Lower Herring Bay	0.01	0	0	0	0.0	0.0
Northwest Bay	0.04	1	2	1	1.4	0.5
Nuchek	0.01	4	4	0	4.0	0.0
Observation Island	0.01	0	0	0	0.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	3	4	1	3.4	0.5
Olsen Cove	tr	3	3	0	3.0	0.0
Olsen Island	tr	3	4	1	3.8	0.4
Orca Bay	1.73	0	4	4	1.4	1.0
Orca Cove	tr	4	4	0	4.0	0.0
Orca Creek	tr	1	2	1	1.1	0.3
Orca Inlet	0.91	0	4	4	1.4	1.7
Otter Cove	tr	1	2	1	1.6	0.5
Outpost Island	tr	3	3	0	3.0	0.0
Outside Bay	0.06	4	4	0	4.0	0.0
Paddy Bay	0.04	0	1	1	0.2	0.4
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	1	2	1	1.1	0.3
Parshas Bay	0.02	2	3	1	3.0	0.1
Passage Anchorage	0.01	4	4	0	4.0	0.0
Passage Canal	0.50	0	4	4	2.0	1.3
Patton Bay	0.28	0	3	3	1.6	0.9
Paulson Bay	tr	0	1	1	0.9	0.3
Peak Island	0.01	4	4	0	4.0	0.0
Perry Island Rest	tr	2	2	0	2.0	0.0
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	0	0	0	0.0	0.0
Pinnacle Rock	tr	4	4	0	4.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pleiades Islands	tr	3	4	1	3.1	0.3
Poe Bay	0.01	1	1	0	1.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	3	3	0	3.0	0.0
Porpoise Rocks	0.01	4	4	0	4.0	0.0
Port Audrey	0.01	2	3	1	2.7	0.5
Port Bainbridge	0.74	3	4	1	4.0	0.1
Port Chalmers	0.11	1	3	2	1.7	0.6
Port Etches	0.41	1	4	3	3.1	0.8
Port Fidalgo	1.51	0	4	4	0.6	1.0
Port Gravina	1.16	0	4	4	2.5	0.7
Port Nellie Juan	0.92	0	1	1	0.1	0.3
Port Valdez	0.82	1	4	3	2.5	0.8
Prince of Wales Passage	0.52	1	4	3	3.2	0.9
Pt Nowell	tr	0	1	1	0.3	0.4
Puffin Cove	0.02	3	4	1	3.8	0.4
Quayarnaq Cove	tr	1	1	0	1.0	0.0
Quillian Bay	0.01	1	1	0	1.0	0.0
Ragged Bay	0.02	4	4	0	4.0	0.0
Raging Creek	0.01	0	0	0	0.0	0.0
Red Head	tr	3	3	0	3.0	0.0
Reef Island	tr	3	4	1	3.6	0.5
Rocky Bay	0.13	0	0	0	0.0	0.0
Rocky Point (Lethcoe)	0.01	2	2	0	2.0	0.0
Sahlin Lagoon	tr	1	2	1	1.4	0.5
Saint Matthews Bay	0.09	0	2	2	1.1	0.6
San Juan Bay	0.06	0	1	1	0.1	0.2
Sawmill Bay Evans Island	0.04	1	3	2	1.5	0.8
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	2	3	1	2.0	0.2
Schrader Island	tr	0	0	0	0.0	0.0
Seal Island	tr	4	4	0	4.0	0.0
Serpentine Cove	0.02	3	3	0	3.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	4	4	2.4	0.8
Sheep Point	tr	4	4	0	4.0	0.0
Shelter Bay Evans Island	0.02	2	3	1	2.5	0.5
Shelter Bay Hinchinbrook Island	0.02	1	1	0	1.0	0.0
Shipyard Bay	0.01	0	0	0	0.0	0.0
Shoestring Cove	0.01	1	2	1	1.0	0.1
Shotgun Cove	0.02	4	4	0	4.0	0.0
Shoup Bay	0.05	4	4	0	4.0	0.0
Shoup Bay SMP	0.13	3	4	1	3.9	0.3
Simpson Bay northwest arm	0.12	0	3	3	1.4	0.6
Simpson Bay southeast arm	0.06	0	1	1	0.5	0.5
Siwash Bay	0.03	3	3	0	3.0	0.0
Siwash Island	tr	3	3	0	3.0	0.0
Sleepy Bay	0.01	0	1	1	0.5	0.5
Smith Island	0.01	4	4	0	4.0	0.0
Snug Corner Cove	0.09	1	2	1	1.7	0.4
Snug Harbor	0.05	2	3	1	2.4	0.5
Solf Cove	0.02	1	1	0	1.0	0.0
South Bay Perry Island	0.05	3	4	1	3.9	0.2
South Esther SMP	0.01	1	1	0	1.0	0.0
South Olsen Island	tr	3	3	0	3.0	0.0
South Twin Bay	0.04	3	4	1	3.0	0.1
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	4	4	0	4.0	0.0
Squaw Bay	0.03	1	3	2	2.1	0.3
Squire Island	0.01	1	2	1	1.3	0.5
Squire Island Anchorage	tr	1	2	1	1.7	0.4
Squirrel Bay	0.02	4	4	0	4.0	0.0
Squirrel Cove	tr	2	3	1	2.7	0.5
Squirrel Island	tr	3	3	0	3.0	0.0
Stockdale Harbor	0.10	0	2	2	1.3	0.5

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Storey Island	0.01	4	4	0	4.0	0.0
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	0	1	1	0.4	0.5
Surprise Cove SMP	0.01	0	1	1	0.0	0.2
Surprise Inlet	0.07	4	4	0	4.0	0.0
Swanson Bay	0.08	3	4	1	3.6	0.5
Tanker Island	tr	3	3	0	3.0	0.0
Tatitlek	tr	2	2	0	2.0	0.0
Tatitlek Narrows	0.09	1	3	2	2.0	0.5
The Keyhole	tr	2	3	1	2.6	0.5
The Narrows	0.25	0	2	2	0.3	0.5
The Nub	tr	1	1	0	1.0	0.0
Three Fingers Cove	0.02	2	3	1	2.8	0.4
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	0	1	1	0.1	0.3
Tiger Bight	0.01	4	4	0	4.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	3	4	1	3.5	0.5
Two Moon Bay	0.10	0	1	1	0.0	0.2
Unakwik Inlet	0.82	0	4	4	2.7	0.9
Unnamed north of Galena	0.01	3	3	0	3.0	0.0
UnNamed466003	4.33	0	4	4	0.8	1.1
UnNamed466004	0.58	0	3	3	1.7	0.8
UnNamed466005	0.71	0	3	3	0.3	0.7
UnNamed466031	2.68	0	3	3	0.4	0.7
UnNamed466032	5.11	0	3	3	0.3	0.6
UnNamed466033	3.59	0	4	4	1.2	1.2
UnNamed475932	1.55	0	3	3	1.6	1.0
UnNamed475933	1.83	0	3	3	0.9	0.8
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	0	0	0.0	0.0
UnNamed476003	4.67	0	3	3	0.9	0.9
UnNamed476004	1.18	0	4	4	1.1	1.4
UnNamed476005	0.62	1	3	2	2.2	0.8
UnNamed476006	1.45	0	3	3	1.0	1.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476007	4.40	0	4	4	2.4	1.2
UnNamed476008	3.29	0	4	4	0.4	0.9
UnNamed476009	1.24	0	4	4	2.3	0.7
UnNamed476031	3.36	0	4	4	0.9	1.4
UnNamed476032	5.49	0	4	4	1.8	1.5
UnNamed476033	2.45	1	4	3	3.8	0.6
UnNamed476034	2.91	0	4	4	2.3	1.4
UnNamed476035	5.03	0	4	4	1.1	1.3
UnNamed476036	0.66	2	4	2	3.2	0.4
UnNamed485932	1.98	0	4	4	2.6	1.3
UnNamed486004	0.31	2	4	2	3.9	0.4
UnNamed486005	0.70	1	3	2	2.6	0.6
UnNamed486031	0.70	0	2	2	0.3	0.5
UnNamed486033	1.28	0	4	4	1.1	1.0
UnNamed486034	2.07	0	3	3	0.4	0.7
Upper Passage	0.05	1	4	3	2.6	1.2
Useless Cove	0.01	0	0	0	0.0	0.0
Valdez	0.16	2	4	2	3.4	0.6
Valdez Arm	1.15	0	4	4	2.1	0.8
Valdez Arm west side CRD	0.25	0	2	2	0.4	0.5
Valdez Narrows	0.10	1	3	2	1.9	0.6
Verdant Island	tr	3	3	0	3.0	0.0
Virgin Bay	0.01	3	3	0	3.0	0.0
Waterfall Cove	0.01	3	3	0	3.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	3	4	1	3.1	0.3
Wells Bay	0.21	3	3	0	3.0	0.0
West Bay Bligh Island	0.03	2	3	1	2.1	0.3
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	2	2	0.8	0.7
West Flank Island	tr	3	4	1	3.1	0.3
West Twin Bay	0.06	1	4	3	3.0	0.8
Whale Bay	0.24	0	4	4	2.7	1.1
Whalen Bay	0.02	0	0	0	0.0	0.0

Table A9. Population density index (0 – 4) statistics for seabird colonies, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Whiskey Cove	0.01	2	3	1	2.0	0.1
Whittier	0.05	3	4	1	3.3	0.5
Willard Island	0.01	3	4	1	3.6	0.5
Windy Bay	0.03	1	2	1	1.1	0.3
Winter Anchorage Unakwik	tr	3	3	0	3.0	0.0
Wooded Island	tr	3	3	0	3.0	0.0
Yale Arm	0.15	3	4	1	3.8	0.4
Yelper Cove	tr	0	0	0	0.0	0.0
Zaikof Bay	0.29	0	1	1	0.1	0.3
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	1	4	3	2.1	0.6
06-03A Nelson Bay	0.01	1	1	0	1.0	0.0
06-03B Simpson Bay	0.03	0	2	2	0.8	0.9
06-03C Sheep Bay	0.01	1	1	0	1.0	0.0
06-03D Gravina Bay	0.07	0	2	2	1.1	0.3
06-03E Fidalgo Bay	0.84	0	2	2	0.1	0.3
06-03F Valdez Arm	0.06	0	1	1	0.7	0.4
06DU000605	0.33	1	1	0	1.0	0.0
06DU000606	0.15	1	1	0	1.0	0.0
06DU000607	0.21	0	1	1	0.9	0.3
06DU000608	0.82	0	1	1	0.3	0.5
06DU000618	0.10	0	1	1	0.1	0.3
06DU000619	0.10	0	1	1	0.7	0.5
3 Finger-Shrode Lake Tr	tr[b]	1	1	0	1.0	0.0
AA01 West Port Wells	tr	1	2	1	1.1	0.2
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.5	0.7
AA03 College Fjord	0.05	0	3	3	1.5	0.6
AA04 Esther Island/Passage	0.04	0	2	2	1.1	0.6
AA05 Eaglek/Unakwik Bay	0.07	0	2	2	1.2	0.5
AA06 Columbia Bay	0.04	0	2	2	1.0	0.3
AA07 Perry Island	0.02	1	1	0	1.0	0.0
AA09 Culross Island/Passage	tr	1	1	0	1.0	0.0
AA10 Cochrane Bay	0.02	0	1	1	0.8	0.4
AA11 Blackstone Bay	0.02	0	1	1	0.7	0.5
AA12 Kings Bay/Nellie Juan	0.06	0	1	1	0.6	0.5
AA13 West Knight Island Passage	0.03	0	1	1	1.0	0.1
AA14 West Knight Island	0.10	1	2	1	1.1	0.2
AA15 East Knight Island	0.03	0	1	1	0.9	0.3
AA16 Icy/Whale Bay	0.03	1	1	0	1.0	0.0
AA17 Port Bainbridge	0.02	0	1	1	0.6	0.5
AA18 Passage Canal	0.01	0	1	1	0.2	0.4
Agayuut Bay	tr	1	1	0	1.0	0.0
Agayuut Island	tr	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	1	1	0	1.0	0.0
Anderson Bay Valdez	0.02	1	1	0	1.0	0.0
Applegate Island	tr	0	1	1	0.3	0.5
Auk Bay	0.03	1	1	0	1.0	0.0
Axel Lind Island	tr	1	1	0	1.0	0.0
Bainbridge Island	0.03	1	1	0	1.0	0.0
Bainbridge Passage	0.26	1	1	0	1.0	0.0
Bald Head Chris	tr	1	1	0	1.0	0.0
Barnes Cove	tr	1	1	0	1.0	0.0
Barry Arm	0.31	1	4	3	1.8	0.7
Bass Harbor	0.05	1	1	0	1.0	0.0
Bay of Isles	0.15	1	1	0	1.0	0.0
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	1	1	0	1.0	0.0
Beartrap Bay	0.03	1	1	0	1.0	0.0
Bettles Bay	0.08	1	2	1	1.1	0.3
Bettles Bay SMP	tr	1	1	0	1.0	0.0
Bettles Island	tr	1	1	0	1.0	0.0
Billings Point Perry Island	tr	1	1	0	1.0	0.0
Billy's Hole	tr	1	1	0	1.0	0.0
Blackstone Bay	0.54	0	1	1	0.6	0.5
Bligh Island	0.02	1	1	0	1.0	0.0
Block Island Cedar Bay	tr	1	1	0	1.0	0.0
Block Island Eleanor Island	tr	1	1	0	1.0	0.0
Blue Fjord	0.11	1	1	0	1.0	0.0
Bomb Point	tr	1	2	1	2.0	0.2
Boswell Bay	0.05	1	2	1	1.1	0.3
Boswell Bay SMP	tr	1	2	1	1.1	0.3
Boulder Bay	0.07	1	1	0	1.0	0.0
Brave Harbor	tr	1	1	0	1.0	0.0
Bull Head	0.01	1	1	0	1.0	0.0
Busby Island	0.01	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	1	1	0	1.0	0.0
Buyers Cove	0.01	2	2	0	2.0	0.0
Cabin Bay	0.07	1	1	0	1.0	0.0
Campbell Bay	0.02	1	1	0	1.0	0.0
Cannery Creek	0.04	2	2	0	2.0	0.0
Canoe Passage	0.04	1	3	2	1.4	0.6
Canoe Passage SMP	tr	1	4	3	1.7	0.9
Canoe Passage Trail	tr	2	2	0	2.0	0.0
Cascade Bay	0.02	1	1	0	1.0	0.0
Cat Head	tr	1	1	0	1.0	0.0
Cathead Bay	0.01	1	1	0	1.0	0.0
Cedar Bay Hawkins Island	0.02	1	1	0	1.0	0.0
Cedar Bay Wells Bay	0.04	1	1	0	1.0	0.0
Cedar Lake anchorage	tr	1	1	0	1.0	0.0
Chamberlain Bay	0.03	1	1	0	1.0	0.0
Channel Island south of Green Island	tr	2	2	0	2.0	0.0
Channel Islands The Narrows	0.01	2	2	0	2.0	0.0
Chenega Island	0.02	1	1	0	1.0	0.0
Clam Island	tr	1	1	0	1.0	0.0
Cloudman Bay	0.01	1	1	0	1.0	0.0
Cochrane Bay	0.51	0	1	1	0.9	0.2
Coghill	0.07	1	2	1	2.0	0.1
Coghill Lake Tr	tr	2	2	0	2.0	0.0
College Fjord	1.09	1	4	3	2.2	0.5
Columbia Bay	0.46	0	1	1	1.0	0.2
Comfort Cove	0.01	1	1	0	1.0	0.0
Constantine Harbor	0.05	1	2	1	1.8	0.4
Copper Bay	0.02	1	1	0	1.0	0.0
Cordova	0.01	1	2	1	1.8	0.4
Cow Pens	0.01	2	2	0	2.0	0.0
Crab Bay	tr	1	1	0	1.0	0.0
Crafton Island	tr	1	1	0	1.0	0.0
Culross Bay	0.02	0	1	1	0.9	0.3

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	1	1	0	1.0	0.0
Culross Island	0.02	0	1	1	0.9	0.3
Culross Passage	0.22	0	1	1	0.7	0.4
Dalli Bay	tr	1	1	0	1.0	0.0
Dan Bay	0.02	1	2	1	1.9	0.4
Danger Island	tr	1	1	0	1.0	0.0
Dangerous Passage	0.34	1	1	0	1.0	0.0
Day Care Cove	tr	1	1	0	1.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	2	2	0	2.0	0.0
Deep Water Bay	0.03	1	1	0	1.0	0.0
Deer Cove Hinchinbrook	0.01	1	1	0	1.0	0.0
Deer Cove Knight	0.01	1	1	0	1.0	0.0
Derickson Bay Eaglek	0.03	1	1	0	1.0	0.0
Derickson Bay Nellie Juan	0.07	1	1	0	1.0	0.0
Disk Island	tr	1	1	0	1.0	0.0
Disk Island Anchorage	tr	1	1	0	1.0	0.0
Double Bay	0.04	1	2	1	1.0	0.1
Drier Bay	0.11	1	2	1	1.0	0.0
Dual Head	tr	1	1	0	1.0	0.0
Dutch Group	tr	1	1	0	1.0	0.0
Eagle Bay	0.02	1	1	0	1.0	0.0
Eaglek Bay	0.38	1	1	0	1.0	0.0
Eaglek Island	tr	1	1	0	1.0	0.0
East Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
East Finger Inlet	0.01	0	1	1	0.6	0.5
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	1	1	0	1.0	0.0
Eickelberg Bay	0.02	1	2	1	1.8	0.4
Elder Bay	0.01	1	1	0	1.0	0.0
Eleanor Island	0.02	0	1	1	0.3	0.5
Ellamar	tr	1	1	0	1.0	0.0
Elrington Island	0.04	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	1	1	0	1.0	0.0
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0
English Bay	tr	1	1	0	1.0	0.0
Entrance Island	tr	1	1	0	1.0	0.0
Entry Cove	tr	1	1	0	1.0	0.0
ENTRY COVE SMP	tr	1	1	0	1.0	0.0
Eshamy Bay	0.12	1	1	0	1.0	0.0
Esther Bay	0.03	0	1	1	1.0	0.1
Esther Bight	0.01	1	1	0	1.0	0.0
Esther Passage	0.17	0	2	2	0.6	0.5
Esther Passage S CS #1	tr	1	1	0	1.0	0.0
Evans Island	0.03	1	1	0	1.0	0.0
Ewan Bay	0.05	1	1	0	1.0	0.0
Fairmount Bay	0.02	1	1	0	1.0	0.0
Fairmount Island	tr	1	1	0	1.0	0.0
Falls Bay	0.02	1	1	0	1.0	0.0
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	2	2	0	2.0	0.0
Fish Bay Port Fidalgo	0.05	1	1	0	1.0	0.0
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	1	1	0	1.0	0.0
Flemming Island	0.01	1	1	0	1.0	0.0
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	1	1	0	1.0	0.0
Foul Pass	0.01	1	1	0	1.0	0.0
Fox Farm Bay	0.01	1	1	0	1.0	0.0
Fox Point	tr	1	1	0	1.0	0.0
Gaamaak Cove	0.01	1	1	0	1.0	0.0
Galena Bay	0.10	1	1	0	1.0	0.0
Garden Cove	0.01	1	2	1	1.8	0.4
Garden Island	tr	2	2	0	2.0	0.0
Gibbon Anchorage	0.04	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	2	3	1	2.5	0.5
Glacier Island	0.03	1	1	0	1.0	0.0
Glacier Water Cove	0.01	1	1	0	1.0	0.0
Gold Creek/Camp Bowie	0.01	1	1	0	1.0	0.0
Golden	0.03	2	3	1	2.4	0.5
Goose Bay	0.01	1	1	0	1.0	0.0
Goose Island	tr	1	1	0	1.0	0.0
Granite Bay (Dangerous Passage)	0.02	1	1	0	1.0	0.0
Granite Bay (Eaglek)	0.03	1	1	0	1.0	0.0
Granite Bay Esther Island	0.04	1	1	0	1.0	0.0
Granite Bay SMP	tr	1	1	0	1.0	0.0
Granite Cove	0.02	1	1	0	1.0	0.0
Granite Point	tr	1	1	0	1.0	0.0
Gravina Island	tr	1	1	0	1.0	0.0
Gravina Point	tr	1	1	0	1.0	0.0
Gravina Rocks	tr	1	1	0	1.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	1	1	0	1.0	0.0
Green Island	0.02	1	1	0	1.0	0.0
Greystone Bay	0.02	0	1	1	0.3	0.5
Grommet Cove	tr	0	0	0	0.0	0.0
Growler Bay	0.04	1	1	0	1.0	0.0
Growler Island	tr	1	1	0	1.0	0.0
Gulf of Alaska	0.74	0	4	4	1.9	1.2
Gull Island	tr	1	1	0	1.0	0.0
Hanning Bay	0.10	1	1	0	1.0	0.0
Harriman Fjord	0.36	1	2	1	1.7	0.5
Harriman south shore complex	0.01	2	2	0	2.0	0.0
Harrison Lagoon	0.02	1	2	1	1.8	0.4
Hartney Bay	0.03	2	3	1	2.0	0.1
Harvard Arm	0.21	1	2	1	1.0	0.2
Hawkins Island	0.06	1	3	2	1.5	0.6
Hawkins Island Cutoff	0.70	2	4	2	3.2	0.5

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	1	1	0	1.0	0.0
Head of Cedar Bay	0.02	1	1	0	1.0	0.0
Head of Eaglek Bay	0.02	1	1	0	1.0	0.0
Head of Galena Bay	0.09	1	1	0	1.0	0.0
Head of Harriman Fjord	0.05	1	1	0	1.0	0.0
Head of Pigot Bay	0.03	1	1	0	1.0	0.0
Head of Port Fidalgo	0.18	1	1	0	1.0	0.0
Head of Port Gravina;Gravina River	0.05	1	1	0	1.0	0.0
Head of Unakwik Inlet	0.04	1	1	0	1.0	0.0
Head of Wells Bay	0.03	0	1	1	0.7	0.5
Heather Bay	0.17	0	1	1	1.0	0.1
Heather Island	0.01	1	1	0	1.0	0.0
Hells Hole	0.01	1	2	1	1.3	0.4
Herring Bay	0.21	1	1	0	1.0	0.0
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	0	1	1	0.9	0.3
Hidey Hole	tr	1	1	0	1.0	0.0
Hinchinbrook Island	0.09	0	3	3	1.2	0.8
Hinge Beach (Doran Straight)	tr	1	1	0	1.0	0.0
Hobo Bay	0.01	1	1	0	1.0	0.0
Hogan Bay	0.01	1	1	0	1.0	0.0
Hogg Bay	0.13	1	1	0	1.0	0.0
Hole-in-the-wall	tr	2	2	0	2.0	0.0
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	1	1	0	1.0	0.0
Horseshoe Bay SMP	0.01	1	1	0	1.0	0.0
Hummer Bay	0.03	1	1	0	1.0	0.0
Humpback Cove	0.01	1	1	0	1.0	0.0
Humpback/Shepard	0.01	1	2	1	1.8	0.4
Icy Bay	0.25	1	1	0	1.0	0.0
Iktua Bay	0.03	1	1	0	1.0	0.0
Ingot Cove	tr	1	1	0	1.0	0.0
Ingot Island	0.01	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	1	1	0	1.0	0.0
Irish Cove Port Fidalgo	0.01	1	1	0	1.0	0.0
Italian Bay	tr	1	1	0	1.0	0.0
Jack Bay	0.15	0	1	1	0.8	0.4
Jack Bay SMP	tr	1	1	0	1.0	0.0
Jackpot Bay	0.09	1	1	0	1.0	0.0
Jackson Cove	tr	1	1	0	1.0	0.0
Jackson Hole	0.01	1	1	0	1.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	1	1	0	1.0	0.0
Johnson Bay	0.04	1	1	0	1.0	0.0
Jonah Bay	0.05	1	2	1	1.7	0.5
Junction Island	tr	1	1	0	1.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	2	3	1	2.6	0.5
Kenny Cove	0.02	2	3	1	2.3	0.5
Kings Bay	0.62	0	1	1	0.8	0.4
Kiniklik anchorage	tr	1	1	0	1.0	0.0
Kiniklik Island	tr	1	1	0	1.0	0.0
Knight Island Pass CS #1	tr	1	1	0	1.0	0.0
Knowles Bay	0.09	1	1	0	1.0	0.0
Knowles Head	tr	1	1	0	1.0	0.0
Lake Bay	0.01	0	1	1	1.0	0.2
Landlocked Bay	0.13	1	1	0	1.0	0.0
Latouche Island	0.04	1	1	0	1.0	0.0
LaTouche Passage	0.49	1	1	0	1.0	0.0
Lighthouse Reserve	tr	1	1	0	1.0	0.0
Liljegren Passage	0.14	1	1	0	1.0	0.0
Little Axel Lind Island	tr	1	1	0	1.0	0.0
Little Bay	0.02	0	1	1	0.7	0.5
Little Fairmount Island	tr	1	1	0	1.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	0	1	1	0.6	0.5
Long Bay Culross	0.01	1	1	0	1.0	0.0
Long Bay Unakwik	0.22	1	2	1	1.4	0.5
Louis Bay	0.02	1	1	0	1.0	0.0
Lower Herring Bay	0.05	1	1	0	1.0	0.0
Lower Passage	0.11	1	1	0	1.0	0.0
Lucky Bay	0.01	1	1	0	1.0	0.0
MacLeod Harbor	0.13	0	1	1	1.0	0.2
Main Bay	0.07	1	1	0	1.0	0.0
Mallard Bay	0.02	1	1	0	1.0	0.0
Mallard Head	tr	1	1	0	1.0	0.0
Marsha Bay	0.03	1	1	0	1.0	0.0
Masked Bay	0.02	1	1	0	1.0	0.0
McClure Bay	0.09	0	1	1	0.4	0.5
McPherson Bay	0.07	1	1	0	1.0	0.0
McPherson Passage	0.06	1	1	0	1.0	0.0
Meares Point	tr	1	1	0	1.0	0.0
Middle Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
Miners Bay	0.03	1	2	1	1.5	0.5
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	1	1	0	1.0	0.0
Montague Island	0.17	0	3	3	1.1	0.7
Mud Bay	tr	2	2	0	2.0	0.0
Mueller Cove	0.01	1	1	0	1.0	0.0
Mummy Bay	0.07	1	1	0	1.0	0.0
Mummy Island Cordova	0.01	4	4	0	4.0	0.0
Mummy Island Knight	0.01	1	1	0	1.0	0.0
Naked Island	0.02	1	1	0	1.0	0.0
Nassau Fjord	0.13	1	1	0	1.0	0.0
NE Galena Coves (Lethcoe)	0.01	1	1	0	1.0	0.0
Nellie Juan Glacier and spit	0.01	1	1	0	1.0	0.0
Nellie Juan Lagoon	0.02	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	1	1	0	1.0	0.0
New Year Islands	tr	1	1	0	1.0	0.0
North Island	tr	2	2	0	2.0	0.0
North Twin Bay	0.03	1	1	0	1.0	0.0
Northeast Arm Mummy Bay	0.01	1	1	0	1.0	0.0
Northeast Cove Drier Bay	0.01	1	1	0	1.0	0.0
Northwest Arm Lower Herring Bay	0.01	1	1	0	1.0	0.0
Northwest Bay	0.04	0	1	1	0.0	0.1
Nuchek	0.01	1	2	1	1.6	0.5
Observation Island	0.01	2	2	0	2.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	1	1	0	1.0	0.0
Olsen Cove	tr	1	1	0	1.0	0.0
Olsen Island	tr	1	1	0	1.0	0.0
Orca Bay	1.73	1	2	1	1.0	0.1
Orca Cove	tr	1	1	0	1.0	0.0
Orca Creek	tr	1	1	0	1.0	0.0
Orca Inlet	0.91	1	4	3	2.7	0.8
Otter Cove	tr	1	1	0	1.0	0.0
Outpost Island	tr	1	1	0	1.0	0.0
Outside Bay	0.06	1	1	0	1.0	0.0
Paddy Bay	0.04	1	1	0	1.0	0.0
Pakenham Point	0.01	3	4	1	3.8	0.4
Papoose Cove	tr	1	1	0	1.0	0.0
Parshas Bay	0.02	1	1	0	1.0	0.0
Passage Anchorage	0.01	1	1	0	1.0	0.0
Passage Canal	0.50	0	1	1	0.3	0.4
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	1	1	0	1.0	0.0
Peak Island	0.01	1	1	0	1.0	0.0
Perry Island Rest	tr	1	1	0	1.0	0.0
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	4	4	0	4.0	0.0
Pirate Cove	0.01	1	1	0	1.0	0.0
Pleiades Islands	tr	1	1	0	1.0	0.0
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	1	1	0	1.0	0.0
Porpoise Rocks	0.01	1	1	0	1.0	0.0
Port Audrey	0.01	1	1	0	1.0	0.0
Port Bainbridge	0.74	1	1	0	1.0	0.0
Port Chalmers	0.11	2	3	1	2.7	0.5
Port Etches	0.41	1	2	1	1.3	0.5
Port Fidalgo	1.51	1	2	1	1.0	0.0
Port Gravina	1.16	1	2	1	1.1	0.3
Port Nellie Juan	0.92	0	1	1	0.6	0.5
Port Valdez	0.82	1	1	0	1.0	0.0
Prince of Wales Passage	0.52	1	1	0	1.0	0.0
Pt Nowell	tr	1	1	0	1.0	0.0
Puffin Cove	0.02	1	1	0	1.0	0.0
Quayarnaq Cove	tr	1	1	0	1.0	0.0
Quillian Bay	0.01	0	1	1	0.1	0.3
Ragged Bay	0.02	1	1	0	1.0	0.0
Raging Creek	0.01	1	2	1	1.3	0.5
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	1	1	0	1.0	0.0
Rocky Bay	0.13	1	1	0	1.0	0.0
Rocky Point (Lethcoe)	0.01	1	1	0	1.0	0.0
Sahlin Lagoon	tr	1	1	0	1.0	0.0
Saint Matthews Bay	0.09	1	1	0	1.0	0.0
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	1	1	0	1.0	0.0
Sawmill Bay SMP	tr	1	1	0	1.0	0.0
Sawmill Bay Valdez Arm	0.03	1	1	0	1.0	0.0
Schoppe Bay	0.06	1	1	0	1.0	0.0
Schrader Island	tr	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	1	1	0	1.0	0.0
Serpentine Cove	0.02	1	2	1	2.0	0.1
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	1	1	0	1.0	0.0
Sheep Bay	0.36	1	1	0	1.0	0.0
Sheep Point	tr	1	1	0	1.0	0.0
Shelter Bay Evans Island	0.02	1	1	0	1.0	0.0
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	2	2	0	2.0	0.0
Shoestring Cove	0.01	0	0	0	0.0	0.0
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	1	1	0	1.0	0.0
Shoup Bay SMP	0.13	1	1	0	1.0	0.0
Simpson Bay northwest arm	0.12	1	2	1	1.8	0.4
Simpson Bay southeast arm	0.06	2	2	0	2.0	0.0
Siwash Bay	0.03	1	2	1	1.2	0.4
Siwash Island	tr	2	2	0	2.0	0.0
Sleepy Bay	0.01	1	1	0	1.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	1	2	1	1.8	0.4
Snug Harbor	0.05	1	1	0	1.0	0.0
Solf Cove	0.02	1	1	0	1.0	0.0
South Bay Perry Island	0.05	1	1	0	1.0	0.0
South Esther SMP	0.01	0	1	1	0.5	0.5
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	1	1	0	1.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	1	1	0	1.0	0.0
Squaw Bay	0.03	1	1	0	1.0	0.0
Squire Island	0.01	1	1	0	1.0	0.0
Squire Island Anchorage	tr	1	1	0	1.0	0.0
Squirrel Bay	0.02	1	1	0	1.0	0.0
Squirrel Cove	tr	0	0	0	0.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	1	1	0	1.0	0.0
Stockdale Harbor	0.10	2	3	1	2.0	0.2
Storey Island	0.01	1	1	0	1.0	0.0
Sunny Cove (Lethcoe)	0.05	1	1	0	1.0	0.0
Surprise Cove	0.02	1	1	0	1.0	0.0
Surprise Cove SMP	0.01	1	1	0	1.0	0.0
Surprise Inlet	0.07	1	2	1	1.5	0.5
Swanson Bay	0.08	1	1	0	1.0	0.0
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	1	1	0	1.0	0.0
Tatitlek Narrows	0.09	1	1	0	1.0	0.0
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	1	2	1	1.6	0.5
The Nub	tr	1	1	0	1.0	0.0
Three Fingers Cove	0.02	1	1	0	1.0	0.0
Three Mile Bay	0.01	2	2	0	2.0	0.0
Thumb Bay	0.01	1	1	0	1.0	0.0
Tiger Bight	0.01	1	1	0	1.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	1	0	1.0	0.0
Two Moon Bay	0.10	1	1	0	1.0	0.0
Unakwik Inlet	0.82	1	2	1	1.7	0.5
Unnamed north of Galena	0.01	1	1	0	1.0	0.0
UnNamed466003	4.33	0	2	2	0.5	0.6
UnNamed466004	0.58	0	1	1	0.1	0.3
UnNamed466005	0.71	0	1	1	0.6	0.5
UnNamed466031	2.68	0	2	2	1.1	0.4
UnNamed466032	5.11	0	1	1	0.3	0.5
UnNamed466033	3.59	0	2	2	0.7	0.5
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	1	1	0.8	0.4
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.1
UnNamed476003	4.67	0	1	1	0.8	0.4

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	0	1	1	0.8	0.4
UnNamed476005	0.62	1	2	1	1.0	0.1
UnNamed476006	1.45	1	2	1	1.0	0.0
UnNamed476007	4.40	0	1	1	0.9	0.2
UnNamed476008	3.29	0	2	2	0.5	0.5
UnNamed476009	1.24	1	3	2	2.1	0.7
UnNamed476031	3.36	0	1	1	0.1	0.3
UnNamed476032	5.49	0	1	1	0.4	0.5
UnNamed476033	2.45	0	1	1	0.8	0.4
UnNamed476034	2.91	0	1	1	0.8	0.4
UnNamed476035	5.03	0	2	2	0.5	0.5
UnNamed476036	0.66	1	1	0	1.0	0.0
UnNamed485932	1.98	0	1	1	0.8	0.4
UnNamed486004	0.31	1	1	0	1.0	0.0
UnNamed486005	0.70	1	1	0	1.0	0.0
UnNamed486031	0.70	0	1	1	0.8	0.4
UnNamed486033	1.28	0	1	1	1.0	0.2
UnNamed486034	2.07	1	4	3	1.9	0.8
Upper Passage	0.05	0	1	1	0.9	0.2
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	1	1	0	1.0	0.0
Valdez Arm	1.15	0	1	1	0.8	0.4
Valdez Arm west side CRD	0.25	1	1	0	1.0	0.0
Valdez Narrows	0.10	1	1	0	1.0	0.0
Verdant Island	tr	1	1	0	1.0	0.0
Virgin Bay	0.01	1	1	0	1.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	1	2	1	1.7	0.5
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	1	1	0	1.0	0.0
West Bay Bligh Island	0.03	1	1	0	1.0	0.0
West Culross Anchorage	tr	1	1	0	1.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	1	1	0	1.0	0.0

Table A10. Population density index (0 – 4) statistics for sea otter, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	1	1	0	1.0	0.0
Whale Bay	0.24	1	1	0	1.0	0.0
Whalen Bay	0.02	1	1	0	1.0	0.0
Whiskey Cove	0.01	1	1	0	1.0	0.0
Whittier	0.05	0	1	1	0.1	0.3
Willard Island	0.01	1	1	0	1.0	0.0
Windy Bay	0.03	1	1	0	1.0	0.0
Winter Anchorage Unakwik	tr	2	2	0	2.0	0.0
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	1	2	1	1.5	0.5
Yelper Cove	tr	2	2	0	2.0	0.0
Zaikof Bay	0.29	1	1	0	1.0	0.0
Ziegler Cove	tr	1	1	0	1.0	0.0
Ziegler Cove SMP	tr	1	1	0	1.0	0.0
	100					

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	0	0	0.0	0.0
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	0	0	0.0	0.0
06-03C Sheep Bay	0.01	0	0	0	0.0	0.0
06-03D Gravina Bay	0.07	0	0	0	0.0	0.0
06-03E Fidalgo Bay	0.84	0	0	0	0.0	0.0
06-03F Valdez Arm	0.06	0	0	0	0.0	0.0
06DU000605	0.33	0	0	0	0.0	0.0
06DU000606	0.15	0	0	0	0.0	0.0
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	0	0	0.0	0.0
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	0	0	0	0.0	0.0
AA01 West Port Wells	tr	0	0	0	0.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	0	0	0.0	0.0
AA03 College Fjord	0.05	0	0	0	0.0	0.0
AA04 Esther Island/Passage	0.04	0	0	0	0.0	0.0
AA05 Eaglek/Unakwik Bay	0.07	0	0	0	0.0	0.0
AA06 Columbia Bay	0.04	0	0	0	0.0	0.0
AA07 Perry Island	0.02	0	4	4	2.5	1.2
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	0	0	0.0	0.0
AA11 Blackstone Bay	0.02	0	0	0	0.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	0	0	0.0	0.0
AA13 West Knight Island Passage	0.03	0	0	0	0.0	0.0
AA14 West Knight Island	0.10	0	2	2	0.2	0.5
AA15 East Knight Island	0.03	0	0	0	0.0	0.0
AA16 Icy/Whale Bay	0.03	0	0	0	0.0	0.0
AA17 Port Bainbridge	0.02	0	2	2	0.1	0.4
AA18 Passage Canal	0.01	0	0	0	0.0	0.0
Agayuut Bay	tr	0	0	0	0.0	0.0
Agayuut Island	tr	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	0	0	0	0.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Anderson Bay Valdez	0.02	0	0	0	0.0	0.0
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	tr	0	0	0	0.0	0.0
Bainbridge Island	0.03	0	2	2	0.1	0.4
Bainbridge Passage	0.26	0	2	2	0.2	0.5
Bald Head Chris	tr	0	1	1	0.0	0.2
Barnes Cove	tr	0	0	0	0.0	0.0
Barry Arm	0.31	0	0	0	0.0	0.0
Bass Harbor	0.05	0	0	0	0.0	0.0
Bay of Isles	0.15	0	0	0	0.0	0.0
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	0	0	0	0.0	0.0
Beartrap Bay	0.03	0	0	0	0.0	0.0
Bettles Bay	0.08	0	0	0	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	0	0	0	0.0	0.0
Billings Point Perry Island	tr	3	3	0	3.0	0.0
Billy's Hole	tr	0	0	0	0.0	0.0
Blackstone Bay	0.54	0	0	0	0.0	0.0
Bligh Island	0.02	0	0	0	0.0	0.0
Block Island Cedar Bay	tr	0	0	0	0.0	0.0
Block Island Eleanor Island	tr	0	1	1	0.5	0.5
Blue Fjord	0.11	0	0	0	0.0	0.0
Bomb Point	tr	0	0	0	0.0	0.0
Boswell Bay	0.05	0	1	1	0.0	0.1
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	0	0	0	0.0	0.0
Brave Harbor	tr	0	0	0	0.0	0.0
Bull Head	0.01	0	4	4	3.4	1.5
Busby Island	0.01	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	2	2	0	2.0	0.0
Buyers Cove	0.01	0	0	0	0.0	0.0
Cabin Bay	0.07	0	0	0	0.0	0.0
Campbell Bay	0.02	0	0	0	0.0	0.0
Cannery Creek	0.04	0	0	0	0.0	0.0
Canoe Passage	0.04	0	0	0	0.0	0.0
Canoe Passage SMP	tr	0	0	0	0.0	0.0
Canoe Passage Trail	tr	0	0	0	0.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	0	0	0.0	0.0
Cedar Bay Hawkins Island	0.02	0	0	0	0.0	0.0
Cedar Bay Wells Bay	0.04	0	0	0	0.0	0.0
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	3	4	1	3.2	0.4
Channel Island south of Green Island	tr	0	0	0	0.0	0.0
Channel Islands The Narrows	0.01	0	0	0	0.0	0.0
Chenega Island	0.02	0	3	3	0.1	0.4
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	0	0	0	0.0	0.0
Cochrane Bay	0.51	0	0	0	0.0	0.0
Coghill	0.07	0	0	0	0.0	0.0
Coghill Lake Tr	tr	0	0	0	0.0	0.0
College Fjord	1.09	0	0	0	0.0	0.0
Columbia Bay	0.46	0	0	0	0.0	0.0
Comfort Cove	0.01	0	0	0	0.0	0.0
Constantine Harbor	0.05	0	0	0	0.0	0.0
Copper Bay	0.02	0	1	1	0.1	0.3
Cordova	0.01	0	0	0	0.0	0.0
Cow Pens	0.01	0	0	0	0.0	0.0
Crab Bay	tr	0	0	0	0.0	0.0
Crafton Island	tr	0	0	0	0.0	0.0
Culross Bay	0.02	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	0	0	0.0	0.0
Culross Passage	0.22	0	0	0	0.0	0.0
Dalli Bay	tr	0	0	0	0.0	0.0
Dan Bay	0.02	0	0	0	0.0	0.0
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	0	0	0	0.0	0.0
Day Care Cove	tr	4	4	0	4.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	0	0	0	0.0	0.0
Deep Water Bay	0.03	0	0	0	0.0	0.0
Deer Cove Hinchinbrook	0.01	0	0	0	0.0	0.0
Deer Cove Knight	0.01	1	2	1	1.6	0.5
Derickson Bay Eaglek	0.03	0	0	0	0.0	0.0
Derickson Bay Nellie Juan	0.07	0	0	0	0.0	0.0
Disk Island	tr	0	0	0	0.0	0.0
Disk Island Anchorage	tr	0	0	0	0.0	0.0
Double Bay	0.04	0	0	0	0.0	0.0
Drier Bay	0.11	0	0	0	0.0	0.0
Dual Head	tr	0	0	0	0.0	0.0
Dutch Group	tr	0	2	2	1.4	0.6
Eagle Bay	0.02	1	3	2	1.9	0.6
Eaglek Bay	0.38	0	0	0	0.0	0.0
Eaglek Island	tr	0	0	0	0.0	0.0
East Bight Lower Herring Bay	tr	0	0	0	0.0	0.0
East Finger Inlet	0.01	0	0	0	0.0	0.0
East Flank Island	tr	0	0	0	0.0	0.0
East Twin Bay	0.03	3	4	1	3.8	0.4
Eickelberg Bay	0.02	0	0	0	0.0	0.0
Elder Bay	0.01	1	2	1	1.5	0.5
Eleanor Island	0.02	0	4	4	2.8	1.0
Ellamar	tr	0	0	0	0.0	0.0
Elrington Island	0.04	0	4	4	1.1	1.5

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	0	2	2	0.2	0.5
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	0	0	0	0.0	0.0
English Bay	tr	1	1	0	1.0	0.0
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	0	0	0	0.0	0.0
Esther Bay	0.03	0	0	0	0.0	0.0
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	0	0	0.0	0.0
Esther Passage S CS #1	tr	0	0	0	0.0	0.0
Evans Island	0.03	0	0	0	0.0	0.0
Ewan Bay	0.05	0	0	0	0.0	0.0
Fairmount Bay	0.02	0	0	0	0.0	0.0
Fairmount Island	tr	0	0	0	0.0	0.0
Falls Bay	0.02	0	0	0	0.0	0.0
Finski Bay	0.01	1	2	1	1.3	0.5
Fish Bay Hinchinbrook	0.01	0	0	0	0.0	0.0
Fish Bay Port Fidalgo	0.05	0	0	0	0.0	0.0
Fish Hook Anchorage	tr	0	0	0	0.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	0	1	1	0.2	0.4
Fool Island	tr	2	3	1	2.7	0.5
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	1	3	2	1.9	0.3
Fox Point	tr	0	0	0	0.0	0.0
Gaamaak Cove	0.01	0	0	0	0.0	0.0
Galena Bay	0.10	0	0	0	0.0	0.0
Garden Cove	0.01	0	0	0	0.0	0.0
Garden Island	tr	0	0	0	0.0	0.0
Gibbon Anchorage	0.04	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	0	0	0	0.0	0.0
Glacier Island	0.03	0	4	4	1.5	1.4
Glacier Water Cove	0.01	0	0	0	0.0	0.0
Gold Creek/Camp Bowie	0.01	0	0	0	0.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	0	0	0	0.0	0.0
Granite Bay (Dangerous Passage)	0.02	0	0	0	0.0	0.0
Granite Bay (Eaglek)	0.03	0	0	0	0.0	0.0
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	0	0	0	0.0	0.0
Granite Point	tr	0	0	0	0.0	0.0
Gravina Island	tr	0	0	0	0.0	0.0
Gravina Point	tr	0	0	0	0.0	0.0
Gravina Rocks	tr	0	0	0	0.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	0	0	0	0.0	0.0
Green Island	0.02	0	0	0	0.0	0.0
Greystone Bay	0.02	0	0	0	0.0	0.0
Grommet Cove	tr	0	0	0	0.0	0.0
Growler Bay	0.04	1	4	3	3.0	0.9
Growler Island	tr	1	2	1	1.4	0.5
Gulf of Alaska	0.74	0	4	4	0.4	1.0
Gull Island	tr	0	0	0	0.0	0.0
Hanning Bay	0.10	0	0	0	0.0	0.0
Harriman Fjord	0.36	0	0	0	0.0	0.0
Harriman south shore complex	0.01	0	0	0	0.0	0.0
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	0	0	0.0	0.0
Hawkins Island	0.06	0	0	0	0.0	0.0
Hawkins Island Cutoff	0.70	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	0	0	0	0.0	0.0
Head of Cedar Bay	0.02	0	0	0	0.0	0.0
Head of Eaglek Bay	0.02	0	0	0	0.0	0.0
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	0	0	0	0.0	0.0
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	0	0	0	0.0	0.0
Heather Bay	0.17	0	0	0	0.0	0.0
Heather Island	0.01	0	0	0	0.0	0.0
Hells Hole	0.01	0	0	0	0.0	0.0
Herring Bay	0.21	0	0	0	0.0	0.0
Herring Point	tr	0	0	0	0.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	4	4	0.3	0.9
Hinge Beach (Doran Straight)	tr	0	0	0	0.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	0	0	0	0.0	0.0
Hogg Bay	0.13	0	0	0	0.0	0.0
Hole-in-the-wall	tr	0	0	0	0.0	0.0
Hook Point	0.03	3	4	1	3.8	0.4
Horseshoe Bay	tr	0	0	0	0.0	0.0
Horseshoe Bay SMP	0.01	0	0	0	0.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	0	0	0	0.0	0.0
Humpback/Shepard	0.01	0	0	0	0.0	0.0
Icy Bay	0.25	0	0	0	0.0	0.0
Iktua Bay	0.03	0	0	0	0.0	0.0
Ingot Cove	tr	1	1	0	1.0	0.0
Ingot Island	0.01	0	1	1	0.1	0.3

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	0	0	0	0.0	0.0
Irish Cove Port Fidalgo	0.01	0	0	0	0.0	0.0
Italian Bay	tr	1	2	1	1.3	0.4
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	tr	0	0	0	0.0	0.0
Jackpot Bay	0.09	0	0	0	0.0	0.0
Jackson Cove	tr	2	3	1	2.3	0.4
Jackson Hole	0.01	0	2	2	1.1	0.4
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	0	0	0	0.0	0.0
Johnson Bay	0.04	0	0	0	0.0	0.0
Jonah Bay	0.05	0	0	0	0.0	0.0
Junction Island	tr	0	0	0	0.0	0.0
Kake Cove	tr	2	3	1	2.6	0.5
Kelly's Cove	0.02	0	0	0	0.0	0.0
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	0	0	0.0	0.0
Kiniklik anchorage	tr	0	0	0	0.0	0.0
Kiniklik Island	tr	0	0	0	0.0	0.0
Knight Island Pass CS #1	tr	0	0	0	0.0	0.0
Knowles Bay	0.09	0	0	0	0.0	0.0
Knowles Head	tr	0	0	0	0.0	0.0
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	0	0	0	0.0	0.0
Latouche Island	0.04	0	0	0	0.0	0.0
LaTouche Passage	0.49	0	0	0	0.0	0.0
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	0	0	0	0.0	0.0
Little Axel Lind Island	tr	0	0	0	0.0	0.0
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	0	0	0	0.0	0.0
Little Green Island	tr	0	0	0	0.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	1	2	1	2.0	0.1
Lone Island	0.01	0	0	0	0.0	0.0
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	0	0	0.0	0.0
Louis Bay	0.02	0	0	0	0.0	0.0
Lower Herring Bay	0.05	0	0	0	0.0	0.0
Lower Passage	0.11	0	0	0	0.0	0.0
Lucky Bay	0.01	0	0	0	0.0	0.0
MacLeod Harbor	0.13	0	0	0	0.0	0.0
Main Bay	0.07	0	0	0	0.0	0.0
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	0	0	0	0.0	0.0
Masked Bay	0.02	0	0	0	0.0	0.0
McClure Bay	0.09	0	0	0	0.0	0.0
McPherson Bay	0.07	0	0	0	0.0	0.0
McPherson Passage	0.06	0	0	0	0.0	0.0
Meares Point	tr	0	4	4	2.4	2.0
Middle Bight Lower Herring Bay	tr	0	0	0	0.0	0.0
Miners Bay	0.03	0	0	0	0.0	0.0
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	0	0	0	0.0	0.0
Montague Island	0.17	0	1	1	0.0	0.2
Mud Bay	tr	0	0	0	0.0	0.0
Mueller Cove	0.01	0	0	0	0.0	0.0
Mummy Bay	0.07	0	0	0	0.0	0.0
Mummy Island Cordova	0.01	0	0	0	0.0	0.0
Mummy Island Knight	0.01	0	1	1	0.5	0.5
Naked Island	0.02	0	2	2	0.1	0.3
Nassau Fjord	0.13	0	0	0	0.0	0.0
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	0	0	0	0.0	0.0
New Year Islands	tr	0	0	0	0.0	0.0
North Island	tr	0	0	0	0.0	0.0
North Twin Bay	0.03	2	4	2	3.2	0.5
Northeast Arm Mummy Bay	0.01	0	0	0	0.0	0.0
Northeast Cove Drier Bay	0.01	0	0	0	0.0	0.0
Northwest Arm Lower Herring Bay	0.01	0	0	0	0.0	0.0
Northwest Bay	0.04	2	4	2	3.7	0.5
Nuchek	0.01	0	0	0	0.0	0.0
Observation Island	0.01	0	0	0	0.0	0.0
Old Chenega site	tr	1	2	1	1.5	0.5
Olsen Bay	0.07	0	0	0	0.0	0.0
Olsen Cove	tr	0	0	0	0.0	0.0
Olsen Island	tr	0	0	0	0.0	0.0
Orca Bay	1.73	0	0	0	0.0	0.0
Orca Cove	tr	0	0	0	0.0	0.0
Orca Creek	tr	0	0	0	0.0	0.0
Orca Inlet	0.91	0	0	0	0.0	0.0
Otter Cove	tr	0	0	0	0.0	0.0
Outpost Island	tr	0	0	0	0.0	0.0
Outside Bay	0.06	0	1	1	0.1	0.4
Paddy Bay	0.04	0	0	0	0.0	0.0
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	0	0	0	0.0	0.0
Parshas Bay	0.02	0	0	0	0.0	0.0
Passage Anchorage	0.01	0	0	0	0.0	0.0
Passage Canal	0.50	0	0	0	0.0	0.0
Patton Bay	0.28	0	2	2	0.2	0.4
Paulson Bay	tr	0	0	0	0.0	0.0
Peak Island	0.01	0	0	0	0.0	0.0
Perry Island Rest	tr	3	4	1	3.9	0.3
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0
Pleiades Islands	tr	4	4	0	4.0	0.0
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	0	0	0	0.0	0.0
Porpoise Rocks	0.01	0	0	0	0.0	0.0
Port Audrey	0.01	0	0	0	0.0	0.0
Port Bainbridge	0.74	0	0	0	0.0	0.0
Port Chalmers	0.11	0	0	0	0.0	0.0
Port Etches	0.41	0	1	1	0.0	0.2
Port Fidalgo	1.51	0	0	0	0.0	0.0
Port Gravina	1.16	0	0	0	0.0	0.0
Port Nellie Juan	0.92	0	0	0	0.0	0.0
Port Valdez	0.82	0	0	0	0.0	0.0
Prince of Wales Passage	0.52	0	2	2	0.0	0.1
Pt Nowell	tr	0	0	0	0.0	0.0
Puffin Cove	0.02	0	0	0	0.0	0.0
Quayarnaq Cove	tr	0	0	0	0.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	0	0	0	0.0	0.0
Raging Creek	0.01	0	0	0	0.0	0.0
Red Head	tr	0	0	0	0.0	0.0
Reef Island	tr	0	0	0	0.0	0.0
Rocky Bay	0.13	0	0	0	0.0	0.0
Rocky Point (Lethcoe)	0.01	0	0	0	0.0	0.0
Sahlin Lagoon	tr	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	0	0	0	0.0	0.0
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	0	0	0	0.0	0.0
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	0	0	0	0.0	0.0
Schrader Island	tr	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	0	0	0.0	0.0
Sheep Point	tr	0	0	0	0.0	0.0
Shelter Bay Evans Island	0.02	0	0	0	0.0	0.0
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	0	0	0	0.0	0.0
Shoestring Cove	0.01	0	0	0	0.0	0.0
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	0	0	0	0.0	0.0
Simpson Bay southeast arm	0.06	0	0	0	0.0	0.0
Siwash Bay	0.03	0	0	0	0.0	0.0
Siwash Island	tr	0	0	0	0.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	0	0	0	0.0	0.0
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	0	0	0	0.0	0.0
South Bay Perry Island	0.05	0	4	4	4.0	0.2
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	0	0	0	0.0	0.0
South Twin Bay	0.04	0	4	4	3.9	0.6
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	0	0	0	0.0	0.0
Squire Island	0.01	1	4	3	3.0	0.8
Squire Island Anchorage	tr	3	4	1	3.4	0.5
Squirrel Bay	0.02	0	0	0	0.0	0.0
Squirrel Cove	tr	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	0	0	0	0.0	0.0
Storey Island	0.01	0	0	0	0.0	0.0
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	0	0	0	0.0	0.0
Tanker Island	tr	4	4	0	4.0	0.0
Tatitlek	tr	0	0	0	0.0	0.0
Tatitlek Narrows	0.09	0	0	0	0.0	0.0
The Keyhole	tr	0	0	0	0.0	0.0
The Narrows	0.25	0	0	0	0.0	0.0
The Nub	tr	0	0	0	0.0	0.0
Three Fingers Cove	0.02	0	0	0	0.0	0.0
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	0	0	0	0.0	0.0
Tiger Bight	0.01	0	0	0	0.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	0	0	0	0.0	0.0
Two Moon Bay	0.10	0	0	0	0.0	0.0
Unakwik Inlet	0.82	0	0	0	0.0	0.0
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	4	4	0.0	0.3
UnNamed466004	0.58	0	4	4	1.2	1.5
UnNamed466005	0.71	0	4	4	0.3	1.0
UnNamed466031	2.68	0	0	0	0.0	0.0
UnNamed466032	5.11	0	0	0	0.0	0.0
UnNamed466033	3.59	0	0	0	0.0	0.0
UnNamed475932	1.55	0	4	4	1.3	1.6
UnNamed475933	1.83	0	0	0	0.0	0.0
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	0	0	0.0	0.0
UnNamed476003	4.67	0	4	4	0.8	1.3

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	0	4	4	0.5	1.1
UnNamed476005	0.62	0	4	4	1.4	1.6
UnNamed476006	1.45	0	0	0	0.0	0.0
UnNamed476007	4.40	0	0	0	0.0	0.0
UnNamed476008	3.29	0	0	0	0.0	0.0
UnNamed476009	1.24	0	0	0	0.0	0.0
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	4	4	0.9	1.4
UnNamed476033	2.45	0	4	4	0.9	1.3
UnNamed476034	2.91	0	0	0	0.0	0.0
UnNamed476035	5.03	0	4	4	0.5	1.1
UnNamed476036	0.66	0	0	0	0.0	0.0
UnNamed485932	1.98	0	4	4	0.8	1.3
UnNamed486004	0.31	0	4	4	1.9	1.6
UnNamed486005	0.70	0	4	4	1.3	1.5
UnNamed486031	0.70	0	3	3	0.5	0.9
UnNamed486033	1.28	0	3	3	0.2	0.5
UnNamed486034	2.07	0	0	0	0.0	0.0
Upper Passage	0.05	0	3	3	1.0	0.8
Useless Cove	0.01	0	0	0	0.0	0.0
Valdez	0.16	0	0	0	0.0	0.0
Valdez Arm	1.15	0	0	0	0.0	0.0
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	0	0	0.0	0.0
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	0	0	0	0.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	0	0	0	0.0	0.0
Wells Bay	0.21	0	0	0	0.0	0.0
West Bay Bligh Island	0.03	0	0	0	0.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	0	0	0	0.0	0.0

Table A11. Population density index (0 – 4) statistics for sea lion, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	1	4	3	2.4	0.6
Whale Bay	0.24	0	0	0	0.0	0.0
Whalen Bay	0.02	0	0	0	0.0	0.0
Whiskey Cove	0.01	0	0	0	0.0	0.0
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	0	0	0	0.0	0.0
Windy Bay	0.03	0	0	0	0.0	0.0
Winter Anchorage Unakwik	tr	0	0	0	0.0	0.0
Wooded Island	tr	3	4	1	3.3	0.5
Yale Arm	0.15	0	0	0	0.0	0.0
Yelper Cove	tr	0	0	0	0.0	0.0
Zaikof Bay	0.29	0	0	0	0.0	0.0
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	3	3	1.1	1.0
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	4	4	0.3	0.9
06-03C Sheep Bay	0.01	0	4	4	2.1	1.7
06-03D Gravina Bay	0.07	0	4	4	2.5	1.3
06-03E Fidalgo Bay	0.84	0	4	4	0.2	0.7
06-03F Valdez Arm	0.06	0	4	4	0.4	0.8
06DU000605	0.33	0	0	0	0.0	0.0
06DU000606	0.15	0	0	0	0.0	0.0
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	1	1	0.0	0.1
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	0	0	0	0.0	0.0
AA01 West Port Wells	tr	0	0	0	0.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.5	1.0
AA03 College Fjord	0.05	0	4	4	1.3	1.6
AA04 Esther Island/Passage	0.04	0	0	0	0.0	0.0
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	1.7	1.6
AA06 Columbia Bay	0.04	0	4	4	0.9	1.0
AA07 Perry Island	0.02	0	4	4	0.7	1.1
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	0	0	0.0	0.0
AA11 Blackstone Bay	0.02	0	4	4	1.5	1.6
AA12 Kings Bay/Nellie Juan	0.06	0	3	3	0.4	0.8
AA13 West Knight Island Passage	0.03	0	4	4	1.7	1.4
AA14 West Knight Island	0.10	0	4	4	2.2	1.4
AA15 East Knight Island	0.03	0	4	4	1.1	1.7
AA16 Icy/Whale Bay	0.03	0	4	4	1.8	1.5
AA17 Port Bainbridge	0.02	0	4	4	0.5	0.7
AA18 Passage Canal	0.01	0	0	0	0.0	0.0
Agayuut Bay	tr	2	4	2	3.1	0.4
Agayuut Island	tr	3	3	0	3.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	2	2	0	2.0	0.0
Anderson Bay Hinchinbrook Island	0.02	2	4	2	3.1	0.4
Anderson Bay Valdez	0.02	1	1	0	1.0	0.0
Applegate Island	tr	4	4	0	4.0	0.0
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	tr	3	4	1	3.2	0.4
Bainbridge Island	0.03	3	4	1	3.9	0.3
Bainbridge Passage	0.26	1	4	3	3.4	0.8
Bald Head Chris	tr	1	3	2	2.0	0.2
Barnes Cove	tr	0	0	0	0.0	0.0
Barry Arm	0.31	0	3	3	0.8	1.1
Bass Harbor	0.05	2	4	2	3.1	0.4
Bay of Isles	0.15	3	4	1	3.9	0.3
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	4	4	0	4.0	0.0
Beartrap Bay	0.03	0	1	1	0.0	0.1
Bettles Bay	0.08	0	1	1	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	1	1	0	1.0	0.0
Billings Point Perry Island	tr	3	3	0	3.0	0.0
Billy's Hole	tr	0	0	0	0.0	0.0
Blackstone Bay	0.54	0	4	4	0.9	1.4
Bligh Island	0.02	0	0	0	0.0	0.0
Block Island Cedar Bay	tr	1	1	0	1.0	0.0
Block Island Eleanor Island	tr	3	3	0	3.0	0.0
Blue Fjord	0.11	0	2	2	1.1	0.3
Bomb Point	tr	1	2	1	2.0	0.2
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	0	0	0	0.0	0.0
Brave Harbor	tr	0	0	0	0.0	0.0
Bull Head	0.01	0	0	0	0.0	0.0
Busby Island	0.01	0	0	0	0.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	0	0	0	0.0	0.0
Cabin Bay	0.07	0	2	2	0.5	0.5
Campbell Bay	0.02	0	0	0	0.0	0.0
Cannery Creek	0.04	0	0	0	0.0	0.0
Canoe Passage	0.04	4	4	0	4.0	0.0
Canoe Passage SMP	tr	3	4	1	3.7	0.5
Canoe Passage Trail	tr	4	4	0	4.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	0	0	0.0	0.0
Cedar Bay Hawkins Island	0.02	1	2	1	1.2	0.4
Cedar Bay Wells Bay	0.04	1	4	3	3.0	0.9
Cedar Lake anchorage	tr	2	2	0	2.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	4	4	0	4.0	0.0
Channel Islands The Narrows	0.01	0	0	0	0.0	0.0
Chenega Island	0.02	0	4	4	2.6	1.1
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	0	0	0	0.0	0.0
Cochrane Bay	0.51	0	0	0	0.0	0.0
Coghill	0.07	0	0	0	0.0	0.0
Coghill Lake Tr	tr	0	0	0	0.0	0.0
College Fjord	1.09	0	3	3	0.2	0.5
Columbia Bay	0.46	0	4	4	2.6	1.0
Comfort Cove	0.01	1	2	1	1.4	0.5
Constantine Harbor	0.05	0	4	4	2.5	1.3
Copper Bay	0.02	0	2	2	1.1	0.4
Cordova	0.01	0	1	1	0.1	0.3
Cow Pens	0.01	0	0	0	0.0	0.0
Crab Bay	tr	2	3	1	2.4	0.5
Crafton Island	tr	4	4	0	4.0	0.0
Culross Bay	0.02	0	0	0	0.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	3	3	0.2	0.6
Culross Passage	0.22	0	4	4	1.2	1.4
Dalli Bay	tr	2	3	1	2.4	0.5
Dan Bay	0.02	2	3	1	2.9	0.4
Danger Island	tr	4	4	0	4.0	0.0
Dangerous Passage	0.34	2	4	2	3.6	0.5
Day Care Cove	tr	2	2	0	2.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	0	0	0	0.0	0.0
Deep Water Bay	0.03	2	3	1	2.5	0.5
Deer Cove Hinchinbrook	0.01	1	2	1	1.4	0.5
Deer Cove Knight	0.01	2	3	1	2.9	0.3
Derickson Bay Eaglek	0.03	0	2	2	0.6	0.5
Derickson Bay Nellie Juan	0.07	2	4	2	3.0	0.6
Disk Island	tr	3	4	1	3.9	0.3
Disk Island Anchorage	tr	4	4	0	4.0	0.0
Double Bay	0.04	3	4	1	3.6	0.5
Drier Bay	0.11	0	1	1	0.1	0.3
Dual Head	tr	0	1	1	0.2	0.4
Dutch Group	tr	4	4	0	4.0	0.0
Eagle Bay	0.02	0	0	0	0.0	0.0
Eaglek Bay	0.38	0	4	4	2.6	1.5
Eaglek Island	tr	4	4	0	4.0	0.0
East Bight Lower Herring Bay	tr	4	4	0	4.0	0.0
East Finger Inlet	0.01	0	0	0	0.0	0.0
East Flank Island	tr	0	0	0	0.0	0.0
East Twin Bay	0.03	0	1	1	0.3	0.5
Eickelberg Bay	0.02	0	0	0	0.0	0.0
Elder Bay	0.01	0	0	0	0.0	0.0
Eleanor Island	0.02	3	4	1	3.4	0.5
Ellamar	tr	0	0	0	0.0	0.0
Elrington Island	0.04	0	3	3	1.0	0.8

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	0	3	3	0.9	0.6
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	1	2	1	1.0	0.2
English Bay	tr	3	3	0	3.0	0.0
Entrance Island	tr	3	3	0	3.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	0	4	4	1.3	1.1
Esther Bay	0.03	0	0	0	0.0	0.0
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	0	0	0.0	0.0
Esther Passage S CS #1	tr	0	0	0	0.0	0.0
Evans Island	0.03	0	4	4	2.7	1.4
Ewan Bay	0.05	0	4	4	2.1	0.8
Fairmount Bay	0.02	1	3	2	1.7	0.6
Fairmount Island	tr	4	4	0	4.0	0.0
Falls Bay	0.02	2	3	1	2.2	0.4
Finski Bay	0.01	0	0	0	0.0	0.0
Fish Bay Hinchinbrook	0.01	3	3	0	3.0	0.0
Fish Bay Port Fidalgo	0.05	1	2	1	1.4	0.5
Fish Hook Anchorage	tr	4	4	0	4.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	4	4	0	4.0	0.0
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	0	1	1	0.5	0.5
Foul Pass	0.01	3	4	1	3.6	0.5
Fox Farm Bay	0.01	0	1	1	0.9	0.3
Fox Point	tr	3	3	0	3.0	0.0
Gaamaak Cove	0.01	3	3	0	3.0	0.0
Galena Bay	0.10	0	0	0	0.0	0.0
Garden Cove	0.01	0	0	0	0.0	0.0
Garden Island	tr	0	0	0	0.0	0.0
Gibbon Anchorage	0.04	4	4	0	4.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	3	4	1	3.7	0.5
Glacier Island	0.03	0	0	0	0.0	0.0
Glacier Water Cove	0.01	3	4	1	3.3	0.5
Gold Creek/Camp Bowie	0.01	0	0	0	0.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	4	4	0	4.0	0.0
Granite Bay (Dangerous Passage)	0.02	2	3	1	2.6	0.5
Granite Bay (Eaglek)	0.03	1	4	3	3.5	0.8
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	1	2	1	1.2	0.4
Granite Point	tr	1	2	1	1.4	0.5
Gravina Island	tr	4	4	0	4.0	0.0
Gravina Point	tr	4	4	0	4.0	0.0
Gravina Rocks	tr	4	4	0	4.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	3	4	1	4.0	0.1
Green Island	0.02	1	4	3	2.6	0.9
Greystone Bay	0.02	0	1	1	0.3	0.5
Grommet Cove	tr	0	0	0	0.0	0.0
Growler Bay	0.04	0	0	0	0.0	0.0
Growler Island	tr	0	0	0	0.0	0.0
Gulf of Alaska	0.74	0	3	3	0.6	0.8
Gull Island	tr	4	4	0	4.0	0.0
Hanning Bay	0.10	0	0	0	0.0	0.0
Harriman Fjord	0.36	0	4	4	1.2	1.2
Harriman south shore complex	0.01	0	1	1	0.2	0.4
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	2	3	1	2.5	0.5
Harvard Arm	0.21	1	4	3	3.3	0.8
Hawkins Island	0.06	0	4	4	1.6	1.2
Hawkins Island Cutoff	0.70	0	4	4	2.3	1.3

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	3	4	1	3.8	0.4
Head of Cedar Bay	0.02	0	2	2	0.8	0.4
Head of Eaglek Bay	0.02	0	0	0	0.0	0.0
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	3	4	1	3.2	0.4
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	4	4	2.0	1.2
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	3	4	1	4.0	0.2
Head of Wells Bay	0.03	0	0	0	0.0	0.0
Heather Bay	0.17	0	3	3	1.8	0.9
Heather Island	0.01	2	4	2	2.9	0.4
Hells Hole	0.01	3	4	1	3.9	0.3
Herring Bay	0.21	2	4	2	3.4	0.7
Herring Point	tr	2	3	1	2.3	0.5
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	4	4	0	4.0	0.0
Hinchinbrook Island	0.09	0	4	4	1.4	1.3
Hinge Beach (Doran Straight)	tr	2	2	0	2.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	0	0	0	0.0	0.0
Hogg Bay	0.13	4	4	0	4.0	0.0
Hole-in-the-wall	tr	1	2	1	1.1	0.2
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	0	0	0	0.0	0.0
Horseshoe Bay SMP	0.01	0	0	0	0.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	0	0	0	0.0	0.0
Humpback/Shepard	0.01	0	0	0	0.0	0.0
Icy Bay	0.25	0	4	4	1.7	0.8
Iktua Bay	0.03	4	4	0	4.0	0.0
Ingot Cove	tr	3	3	0	3.0	0.0
Ingot Island	0.01	3	4	1	3.3	0.4

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	0	0	0	0.0	0.0
Irish Cove Port Fidalgo	0.01	1	2	1	1.1	0.3
Italian Bay	tr	3	3	0	3.0	0.0
Jack Bay	0.15	1	4	3	3.0	0.9
Jack Bay SMP	tr	3	4	1	3.7	0.4
Jackpot Bay	0.09	2	4	2	3.6	0.5
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	0	0	0.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	4	4	0	4.0	0.0
Johnson Bay	0.04	1	2	1	1.2	0.4
Jonah Bay	0.05	0	0	0	0.0	0.0
Junction Island	tr	4	4	0	4.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	0	0	0	0.0	0.0
Kenny Cove	0.02	0	1	1	0.1	0.3
Kings Bay	0.62	0	0	0	0.0	0.0
Kiniklik anchorage	tr	4	4	0	4.0	0.0
Kiniklik Island	tr	4	4	0	4.0	0.0
Knight Island Pass CS #1	tr	2	3	1	2.5	0.5
Knowles Bay	0.09	0	1	1	0.2	0.4
Knowles Head	tr	2	3	1	2.7	0.5
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	0	0	0	0.0	0.0
Latouche Island	0.04	0	4	4	1.1	1.5
LaTouche Passage	0.49	0	4	4	0.7	1.1
Lighthouse Reserve	tr	2	3	1	2.7	0.5
Liljegren Passage	0.14	1	4	3	2.8	0.9
Little Axel Lind Island	tr	4	4	0	4.0	0.0
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	4	4	0	4.0	0.0
Little Green Island	tr	4	4	0	4.0	0.0
Little Smith Island	tr	4	4	0	4.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	2	4	2	3.1	0.7
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	0	0	0	0.0	0.0
Louis Bay	0.02	4	4	0	4.0	0.0
Lower Herring Bay	0.05	2	4	2	3.6	0.5
Lower Passage	0.11	2	4	2	3.3	0.7
Lucky Bay	0.01	1	2	1	1.8	0.4
MacLeod Harbor	0.13	0	0	0	0.0	0.0
Main Bay	0.07	0	1	1	0.1	0.3
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	0	2	2	0.8	0.6
Masked Bay	0.02	2	3	1	2.8	0.4
McClure Bay	0.09	0	2	2	0.3	0.5
McPherson Bay	0.07	1	2	1	1.2	0.4
McPherson Passage	0.06	1	3	2	1.9	0.6
Meares Point	tr	3	3	0	3.0	0.0
Middle Bight Lower Herring Bay	tr	3	4	1	3.9	0.3
Miners Bay	0.03	0	0	0	0.0	0.0
Mink Island	0.01	0	1	1	0.8	0.4
Minke Cove	tr	2	3	1	2.1	0.3
Montague Island	0.17	0	4	4	0.9	1.4
Mud Bay	tr	2	2	0	2.0	0.0
Mueller Cove	0.01	3	4	1	3.2	0.4
Mummy Bay	0.07	0	1	1	0.2	0.4
Mummy Island Cordova	0.01	2	3	1	3.0	0.2
Mummy Island Knight	0.01	0	1	1	0.8	0.4
Naked Island	0.02	0	4	4	1.6	0.8
Nassau Fjord	0.13	2	4	2	3.6	0.5
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0
Nellie Juan Glacier and spit	0.01	3	4	1	3.9	0.3
Nellie Juan Lagoon	0.02	4	4	0	4.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	0	0	0	0.0	0.0
New Year Islands	tr	0	0	0	0.0	0.0
North Island	tr	0	0	0	0.0	0.0
North Twin Bay	0.03	0	2	2	1.0	0.2
Northeast Arm Mummy Bay	0.01	0	0	0	0.0	0.0
Northeast Cove Drier Bay	0.01	0	0	0	0.0	0.0
Northwest Arm Lower Herring Bay	0.01	4	4	0	4.0	0.0
Northwest Bay	0.04	3	4	1	4.0	0.1
Nuchek	0.01	2	4	2	3.4	0.8
Observation Island	0.01	0	0	0	0.0	0.0
Old Chenega site	tr	0	0	0	0.0	0.0
Olsen Bay	0.07	2	4	2	3.5	0.5
Olsen Cove	tr	4	4	0	4.0	0.0
Olsen Island	tr	4	4	0	4.0	0.0
Orca Bay	1.73	0	4	4	2.1	1.4
Orca Cove	tr	0	1	1	0.1	0.3
Orca Creek	tr	2	2	0	2.0	0.0
Orca Inlet	0.91	0	4	4	1.9	1.5
Otter Cove	tr	2	2	0	2.0	0.0
Outpost Island	tr	4	4	0	4.0	0.0
Outside Bay	0.06	0	2	2	1.5	0.5
Paddy Bay	0.04	1	3	2	1.7	0.5
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	0	0	0	0.0	0.0
Parshas Bay	0.02	2	4	2	3.0	0.3
Passage Anchorage	0.01	2	2	0	2.0	0.0
Passage Canal	0.50	0	0	0	0.0	0.0
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	0	0	0	0.0	0.0
Peak Island	0.01	2	3	1	2.8	0.4
Perry Island Rest	tr	2	2	0	2.0	0.0
Picturesque Cove	tr	3	3	0	3.0	0.0
Pigot Bay	0.07	0	0	0	0.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	2	2	0	2.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0
Pleiades Islands	tr	3	4	1	3.7	0.5
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	4	4	0	4.0	0.0
Porpoise Rocks	0.01	4	4	0	4.0	0.0
Port Audrey	0.01	1	2	1	1.0	0.2
Port Bainbridge	0.74	0	4	4	1.4	0.9
Port Chalmers	0.11	2	4	2	3.5	0.5
Port Etches	0.41	0	4	4	2.5	1.5
Port Fidalgo	1.51	0	4	4	1.3	1.6
Port Gravina	1.16	0	4	4	3.2	1.0
Port Nellie Juan	0.92	0	4	4	1.0	1.2
Port Valdez	0.82	0	1	1	0.0	0.2
Prince of Wales Passage	0.52	1	4	3	3.5	1.0
Pt Nowell	tr	1	1	0	1.0	0.0
Puffin Cove	0.02	1	2	1	1.3	0.5
Quayarnaq Cove	tr	3	3	0	3.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	2	4	2	2.7	0.6
Raging Creek	0.01	0	0	0	0.0	0.0
Red Head	tr	0	1	1	0.0	0.2
Reef Island	tr	0	0	0	0.0	0.0
Rocky Bay	0.13	3	4	1	3.9	0.3
Rocky Point (Lethcoe)	0.01	0	0	0	0.0	0.0
Sahlin Lagoon	tr	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	2	3	1	2.3	0.5
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	2	3	1	2.3	0.5
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	2	4	2	3.6	0.6
Schrader Island	tr	0	0	0	0.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	4	4	0	4.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	4	4	3.0	1.3
Sheep Point	tr	4	4	0	4.0	0.0
Shelter Bay Evans Island	0.02	3	4	1	3.8	0.4
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	0	1	1	0.2	0.4
Shoestring Cove	0.01	0	0	0	0.0	0.0
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	0	4	4	1.3	1.3
Simpson Bay southeast arm	0.06	0	2	2	0.5	0.6
Siwash Bay	0.03	0	0	0	0.0	0.0
Siwash Island	tr	0	0	0	0.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	3	4	1	4.0	0.2
Snug Corner Cove	0.09	1	4	3	3.4	0.9
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	4	4	0	4.0	0.0
South Bay Perry Island	0.05	2	4	2	3.4	0.5
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	4	4	0	4.0	0.0
South Twin Bay	0.04	0	1	1	0.3	0.5
Southern tip Culross Island	tr	3	3	0	3.0	0.0
Sphinx Island	tr	3	3	0	3.0	0.0
Squaw Bay	0.03	0	1	1	0.2	0.4
Squire Island	0.01	2	4	2	3.2	0.7
Squire Island Anchorage	tr	4	4	0	4.0	0.0
Squirrel Bay	0.02	0	1	1	0.3	0.5
Squirrel Cove	tr	0	0	0	0.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	3	4	1	3.7	0.5
Storey Island	0.01	2	4	2	3.0	0.7
Sunny Cove (Lethcoe)	0.05	1	3	2	2.5	0.6
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	2	2	0.9	0.5
Swanson Bay	0.08	3	4	1	3.7	0.5
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	0	0	0	0.0	0.0
Tatitlek Narrows	0.09	0	0	0	0.0	0.0
The Keyhole	tr	0	1	1	0.5	0.5
The Narrows	0.25	0	2	2	0.4	0.6
The Nub	tr	3	3	0	3.0	0.0
Three Fingers Cove	0.02	0	0	0	0.0	0.0
Three Mile Bay	0.01	1	2	1	1.1	0.3
Thumb Bay	0.01	0	0	0	0.0	0.0
Tiger Bight	0.01	2	2	0	2.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	4	4	0	4.0	0.0
Two Moon Bay	0.10	0	1	1	0.1	0.3
Unakwik Inlet	0.82	0	4	4	1.4	1.5
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	4	4	1.1	1.4
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	4	4	1.1	1.2
UnNamed466031	2.68	0	4	4	0.6	1.0
UnNamed466032	5.11	0	4	4	0.1	0.6
UnNamed466033	3.59	0	4	4	0.4	1.1
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	3	3	0.2	0.5
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	0	0	0.0	0.0
UnNamed476003	4.67	0	4	4	0.5	1.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	0	4	4	1.7	1.7
UnNamed476005	0.62	0	4	4	1.2	1.4
UnNamed476006	1.45	0	4	4	1.9	0.9
UnNamed476007	4.40	0	4	4	1.9	1.4
UnNamed476008	3.29	0	4	4	0.9	1.1
UnNamed476009	1.24	0	4	4	3.0	1.1
UnNamed476031	3.36	0	4	4	0.5	1.0
UnNamed476032	5.49	0	4	4	1.5	1.3
UnNamed476033	2.45	0	4	4	2.4	1.3
UnNamed476034	2.91	0	4	4	1.4	1.3
UnNamed476035	5.03	0	3	3	0.1	0.4
UnNamed476036	0.66	1	4	3	3.4	1.0
UnNamed485932	1.98	0	4	4	1.8	1.5
UnNamed486004	0.31	1	4	3	3.2	0.9
UnNamed486005	0.70	0	3	3	0.7	0.8
UnNamed486031	0.70	0	4	4	1.3	1.2
UnNamed486033	1.28	0	1	1	0.0	0.1
UnNamed486034	2.07	0	0	0	0.0	0.0
Upper Passage	0.05	3	4	1	3.0	0.2
Useless Cove	0.01	0	0	0	0.0	0.0
Valdez	0.16	0	0	0	0.0	0.0
Valdez Arm	1.15	0	2	2	0.1	0.3
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	2	2	0.9	0.5
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	0	0	0	0.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	0	1	1	0.1	0.2
Wells Bay	0.21	0	4	4	3.5	1.0
West Bay Bligh Island	0.03	0	0	0	0.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	0	0	0	0.0	0.0

Table A12. Population density index (0 – 4) statistics for harbor seal, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	0	1	1	0.3	0.4
Whale Bay	0.24	0	4	4	0.6	1.1
Whalen Bay	0.02	2	3	1	2.9	0.3
Whiskey Cove	0.01	3	4	1	3.8	0.4
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	1	4	3	2.3	1.0
Windy Bay	0.03	2	3	1	2.1	0.3
Winter Anchorage Unakwik	tr	0	1	1	0.8	0.4
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	2	4	2	3.5	0.6
Yelper Cove	tr	2	2	0	2.0	0.0
Zaikof Bay	0.29	0	4	4	1.7	1.3
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	4	4	2.6	1.7
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	3	3	0.9	1.1
06-03C Sheep Bay	0.01	0	0	0	0.0	0.0
06-03D Gravina Bay	0.07	0	4	4	0.4	0.9
06-03E Fidalgo Bay	0.84	0	4	4	0.1	0.5
06-03F Valdez Arm	0.06	0	0	0	0.0	0.0
06DU000605	0.33	0	0	0	0.0	0.0
06DU000606	0.15	0	2	2	0.4	0.5
06DU000607	0.21	1	4	3	3.1	1.1
06DU000608	0.82	0	4	4	1.4	1.6
06DU000618	0.10	1	4	3	3.8	0.6
06DU000619	0.10	4	4	0	4.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	4	4	0	4.0	0.0
AA01 West Port Wells	tr	0	4	4	0.8	1.3
AA02 Harriman Fjord/Barry Arm	0.10	0	0	0	0.0	0.0
AA03 College Fjord	0.05	0	0	0	0.0	0.0
AA04 Esther Island/Passage	0.04	0	4	4	0.3	0.9
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	0.8	1.2
AA06 Columbia Bay	0.04	0	4	4	0.9	1.5
AA07 Perry Island	0.02	0	0	0	0.0	0.0
AA09 Culross Island/Passage	tr	0	4	4	3.2	0.8
AA10 Cochrane Bay	0.02	0	4	4	2.0	1.4
AA11 Blackstone Bay	0.02	0	0	0	0.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	4	4	0.7	1.2
AA13 West Knight Island Passage	0.03	0	4	4	2.3	1.3
AA14 West Knight Island	0.10	0	4	4	1.2	1.2
AA15 East Knight Island	0.03	0	4	4	0.8	1.3
AA16 Icy/Whale Bay	0.03	0	0	0	0.0	0.0
AA17 Port Bainbridge	0.02	0	0	0	0.0	0.0
AA18 Passage Canal	0.01	0	4	4	0.3	0.9
Agayuut Bay	tr	0	1	1	0.0	0.2

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Agayuut Island	tr	0	0	0	0.0	0.0
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	2	2	0.7	0.5
Anderson Bay Valdez	0.02	0	0	0	0.0	0.0
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	tr	0	0	0	0.0	0.0
Bainbridge Island	0.03	0	0	0	0.0	0.0
Bainbridge Passage	0.26	0	0	0	0.0	0.0
Bald Head Chris	tr	0	1	1	0.3	0.4
Barnes Cove	tr	1	1	0	1.0	0.0
Barry Arm	0.31	0	0	0	0.0	0.0
Bass Harbor	0.05	0	0	0	0.0	0.0
Bay of Isles	0.15	2	4	2	3.1	0.5
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	2	3	1	2.2	0.4
Beartrap Bay	0.03	0	0	0	0.0	0.0
Bettles Bay	0.08	0	0	0	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	0	0	0	0.0	0.0
Billings Point Perry Island	tr	0	0	0	0.0	0.0
Billy's Hole	tr	4	4	0	4.0	0.0
Blackstone Bay	0.54	0	1	1	0.0	0.0
Bligh Island	0.02	0	0	0	0.0	0.0
Block Island Cedar Bay	tr	2	2	0	2.0	0.0
Block Island Eleanor Island	tr	0	0	0	0.0	0.0
Blue Fjord	0.11	0	4	4	2.5	1.4
Bomb Point	tr	1	2	1	1.1	0.3
Boswell Bay	0.05	3	4	1	4.0	0.1
Boswell Bay SMP	tr	3	4	1	3.1	0.3
Boulder Bay	0.07	0	0	0	0.0	0.0
Brave Harbor	tr	2	2	0	2.0	0.0
Bull Head	0.01	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Busby Island	0.01	0	0	0	0.0	0.0
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	1	2	1	1.3	0.5
Cabin Bay	0.07	0	0	0	0.0	0.0
Campbell Bay	0.02	0	0	0	0.0	0.0
Cannery Creek	0.04	1	3	2	2.3	0.7
Canoe Passage	0.04	3	4	1	3.5	0.5
Canoe Passage SMP	tr	3	4	1	3.5	0.5
Canoe Passage Trail	tr	3	3	0	3.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	0	0	0.0	0.0
Cedar Bay Hawkins Island	0.02	1	2	1	1.4	0.5
Cedar Bay Wells Bay	0.04	0	1	1	0.4	0.5
Cedar Lake anchorage	tr	1	1	0	1.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	4	4	0	4.0	0.0
Channel Islands The Narrows	0.01	2	3	1	2.7	0.4
Chenega Island	0.02	0	1	1	0.1	0.2
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	0	0	0	0.0	0.0
Cochrane Bay	0.51	0	3	3	1.1	1.2
Coghill	0.07	0	0	0	0.0	0.0
Coghill Lake Tr	tr	0	0	0	0.0	0.0
College Fjord	1.09	0	0	0	0.0	0.0
Columbia Bay	0.46	0	0	0	0.0	0.0
Comfort Cove	0.01	0	0	0	0.0	0.0
Constantine Harbor	0.05	0	2	2	0.4	0.6
Copper Bay	0.02	0	0	0	0.0	0.0
Cordova	0.01	1	3	2	2.3	0.5
Cow Pens	0.01	4	4	0	4.0	0.0
Crab Bay	tr	0	0	0	0.0	0.0
Crafton Island	tr	2	3	1	2.6	0.5

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Bay	0.02	0	0	0	0.0	0.0
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	2	2	0.4	0.6
Culross Passage	0.22	0	3	3	0.8	0.9
Dalli Bay	tr	0	0	0	0.0	0.0
Dan Bay	0.02	0	1	1	0.8	0.4
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	0	2	2	0.6	0.6
Day Care Cove	tr	0	0	0	0.0	0.0
DECISION POINT SMP	tr	1	1	0	1.0	0.0
Deep Bay	0.03	1	2	1	1.5	0.5
Deep Water Bay	0.03	0	0	0	0.0	0.0
Deer Cove Hinchinbrook	0.01	1	3	2	2.1	0.5
Deer Cove Knight	0.01	0	0	0	0.0	0.0
Derickson Bay Eaglek	0.03	1	3	2	1.7	0.5
Derickson Bay Nellie Juan	0.07	0	1	1	0.0	0.2
Disk Island	tr	0	1	1	0.0	0.2
Disk Island Anchorage	tr	0	0	0	0.0	0.0
Double Bay	0.04	0	0	0	0.0	0.0
Drier Bay	0.11	0	2	2	0.7	0.7
Dual Head	tr	0	0	0	0.0	0.0
Dutch Group	tr	0	0	0	0.0	0.0
Eagle Bay	0.02	0	0	0	0.0	0.0
Eaglek Bay	0.38	0	1	1	0.1	0.3
Eaglek Island	tr	0	0	0	0.0	0.0
East Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
East Finger Inlet	0.01	0	1	1	0.0	0.2
East Flank Island	tr	2	2	0	2.0	0.0
East Twin Bay	0.03	0	0	0	0.0	0.0
Eickelberg Bay	0.02	1	2	1	1.5	0.5
Elder Bay	0.01	0	0	0	0.0	0.0
Eleanor Island	0.02	0	0	0	0.0	0.0
Ellamar	tr	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Island	0.04	0	0	0	0.0	0.0
Elrington Passage	0.24	0	0	0	0.0	0.0
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	0	0	0	0.0	0.0
English Bay	tr	0	0	0	0.0	0.0
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	1	1	0	1.0	0.0
ENTRY COVE SMP	tr	1	2	1	1.1	0.3
Eshamy Bay	0.12	2	4	2	3.4	0.5
Esther Bay	0.03	0	1	1	0.4	0.5
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	4	4	2.3	1.1
Esther Passage S CS #1	tr	2	2	0	2.0	0.0
Evans Island	0.03	0	0	0	0.0	0.0
Ewan Bay	0.05	1	4	3	2.3	1.1
Fairmount Bay	0.02	0	0	0	0.0	0.0
Fairmount Island	tr	0	0	0	0.0	0.0
Falls Bay	0.02	2	3	1	2.2	0.4
Finski Bay	0.01	0	0	0	0.0	0.0
Fish Bay Hinchinbrook	0.01	1	2	1	1.3	0.5
Fish Bay Port Fidalgo	0.05	0	0	0	0.0	0.0
Fish Hook Anchorage	tr	0	0	0	0.0	0.0
Fish Island	tr	1	1	0	1.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	0	0	0	0.0	0.0
Fool Island	tr	0	0	0	0.0	0.0
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	0	0	0	0.0	0.0
Fox Point	tr	0	0	0	0.0	0.0
Gaamaak Cove	0.01	0	0	0	0.0	0.0
Galena Bay	0.10	0	0	0	0.0	0.0
Garden Cove	0.01	0	0	0	0.0	0.0
Garden Island	tr	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gibbon Anchorage	0.04	4	4	0	4.0	0.0
Gilmour Bight	0.01	4	4	0	4.0	0.0
Glacier Island	0.03	0	0	0	0.0	0.0
Glacier Water Cove	0.01	0	0	0	0.0	0.0
Gold Creek/Camp Bowie	0.01	0	0	0	0.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	1	1	1.0	0.2
Goose Island	tr	1	1	0	1.0	0.0
Granite Bay (Dangerous Passage)	0.02	1	2	1	1.3	0.5
Granite Bay (Eaglek)	0.03	0	1	1	0.1	0.3
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	0	1	1	0.5	0.5
Granite Point	tr	0	0	0	0.0	0.0
Gravina Island	tr	0	0	0	0.0	0.0
Gravina Point	tr	0	0	0	0.0	0.0
Gravina Rocks	tr	0	0	0	0.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	0	0	0	0.0	0.0
Green Island	0.02	2	4	2	3.5	0.7
Greystone Bay	0.02	0	0	0	0.0	0.0
Grommet Cove	tr	3	3	0	3.0	0.0
Growler Bay	0.04	0	0	0	0.0	0.0
Growler Island	tr	0	0	0	0.0	0.0
Gulf of Alaska	0.74	0	4	4	2.2	1.1
Gull Island	tr	1	1	0	1.0	0.0
Hanning Bay	0.10	4	4	0	4.0	0.0
Harriman Fjord	0.36	0	0	0	0.0	0.0
Harriman south shore complex	0.01	0	0	0	0.0	0.0
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	4	4	0	4.0	0.0
Harvard Arm	0.21	0	0	0	0.0	0.0
Hawkins Island	0.06	0	4	4	2.7	1.5

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Hawkins Island Cutoff	0.70	0	4	4	2.7	1.2
Head of Barry Arm	0.04	0	0	0	0.0	0.0
Head of Cedar Bay	0.02	1	3	2	1.9	0.5
Head of Eaglek Bay	0.02	0	0	0	0.0	0.0
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	0	0	0	0.0	0.0
Head of Pigot Bay	0.03	4	4	0	4.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	2	1	1.1	0.4
Heather Bay	0.17	0	0	0	0.0	0.0
Heather Island	0.01	0	0	0	0.0	0.0
Hells Hole	0.01	1	1	0	1.0	0.0
Herring Bay	0.21	0	3	3	2.0	0.9
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	4	4	1.6	1.7
Hinge Beach (Doran Straight)	tr	0	0	0	0.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	0	0	0	0.0	0.0
Hogg Bay	0.13	0	0	0	0.0	0.0
Hole-in-the-wall	tr	1	2	1	1.9	0.2
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	0	0	0	0.0	0.0
Horseshoe Bay SMP	0.01	0	0	0	0.0	0.0
Hummer Bay	0.03	0	1	1	0.2	0.4
Humpback Cove	0.01	0	0	0	0.0	0.0
Humpback/Shepard	0.01	0	1	1	0.9	0.3
Icy Bay	0.25	0	0	0	0.0	0.0
Iktua Bay	0.03	0	0	0	0.0	0.0
Ingot Cove	tr	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Ingot Island	0.01	0	1	1	0.0	0.1
Irish Cove Glacier Island	0.01	0	0	0	0.0	0.0
Irish Cove Port Fidalgo	0.01	1	2	1	1.9	0.3
Italian Bay	tr	0	0	0	0.0	0.0
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	tr	0	0	0	0.0	0.0
Jackpot Bay	0.09	1	4	3	3.2	0.8
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	0	0	0.0	0.0
Jeanie Cove	0.14	2	4	2	3.1	0.5
Jenny Island	tr	0	0	0	0.0	0.0
Johnson Bay	0.04	1	2	1	1.7	0.5
Jonah Bay	0.05	0	1	1	0.2	0.4
Junction Island	tr	0	0	0	0.0	0.0
Kake Cove	tr	0	0	0	0.0	0.0
Kelly's Cove	0.02	0	0	0	0.0	0.0
Kenny Cove	0.02	4	4	0	4.0	0.0
Kings Bay	0.62	0	1	1	0.1	0.3
Kiniklik anchorage	tr	0	0	0	0.0	0.0
Kiniklik Island	tr	0	0	0	0.0	0.0
Knight Island Pass CS #1	tr	1	2	1	1.6	0.5
Knowles Bay	0.09	2	4	2	3.7	0.5
Knowles Head	tr	3	3	0	3.0	0.0
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	0	0	0	0.0	0.0
Latouche Island	0.04	0	0	0	0.0	0.0
LaTouche Passage	0.49	0	0	0	0.0	0.0
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	0	0	0	0.0	0.0
Little Axel Lind Island	tr	0	0	0	0.0	0.0
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	0	0	0	0.0	0.0
Little Green Island	tr	0	1	1	0.6	0.5
Little Smith Island	tr	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logging Camp Bay	tr	4	4	0	4.0	0.0
Logjam Bay	0.01	4	4	0	4.0	0.0
Lone Island	0.01	0	0	0	0.0	0.0
Long Bay Culross	0.01	2	4	2	2.9	0.6
Long Bay Unakwik	0.22	0	4	4	2.9	1.2
Louis Bay	0.02	1	2	1	1.5	0.5
Lower Herring Bay	0.05	2	4	2	2.8	0.6
Lower Passage	0.11	0	1	1	0.3	0.4
Lucky Bay	0.01	0	0	0	0.0	0.0
MacLeod Harbor	0.13	0	4	4	3.0	1.1
Main Bay	0.07	0	1	1	0.6	0.5
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	0	2	2	0.7	0.5
Masked Bay	0.02	0	0	0	0.0	0.0
McClure Bay	0.09	0	3	3	0.4	0.6
McPherson Bay	0.07	0	0	0	0.0	0.0
McPherson Passage	0.06	0	0	0	0.0	0.0
Meares Point	tr	0	0	0	0.0	0.0
Middle Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
Miners Bay	0.03	3	4	1	3.9	0.3
Mink Island	0.01	0	1	1	0.0	0.1
Minke Cove	tr	0	0	0	0.0	0.0
Montague Island	0.17	0	4	4	1.8	1.8
Mud Bay	tr	2	2	0	2.0	0.0
Mueller Cove	0.01	0	0	0	0.0	0.0
Mummy Bay	0.07	0	0	0	0.0	0.0
Mummy Island Cordova	0.01	3	3	0	3.0	0.0
Mummy Island Knight	0.01	0	0	0	0.0	0.0
Naked Island	0.02	0	0	0	0.0	0.0
Nassau Fjord	0.13	0	0	0	0.0	0.0
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0
Nelson Bay	0.10	0	1	1	0.1	0.3
New Year Islands	tr	0	0	0	0.0	0.0
North Island	tr	2	2	0	2.0	0.0
North Twin Bay	0.03	0	0	0	0.0	0.0
Northeast Arm Mummy Bay	0.01	0	0	0	0.0	0.0
Northeast Cove Drier Bay	0.01	1	1	0	1.0	0.0
Northwest Arm Lower Herring Bay	0.01	3	3	0	3.0	0.0
Northwest Bay	0.04	0	0	0	0.0	0.0
Nuchek	0.01	0	0	0	0.0	0.0
Observation Island	0.01	1	2	1	1.1	0.3
Old Chenega site	tr	0	0	0	0.0	0.0
Olsen Bay	0.07	0	0	0	0.0	0.0
Olsen Cove	tr	0	0	0	0.0	0.0
Olsen Island	tr	0	0	0	0.0	0.0
Orca Bay	1.73	0	4	4	1.0	1.4
Orca Cove	tr	0	0	0	0.0	0.0
Orca Creek	tr	0	0	0	0.0	0.0
Orca Inlet	0.91	0	4	4	2.7	1.3
Otter Cove	tr	0	0	0	0.0	0.0
Outpost Island	tr	0	0	0	0.0	0.0
Outside Bay	0.06	0	0	0	0.0	0.0
Paddy Bay	0.04	1	4	3	1.9	0.9
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	2	2	0	2.0	0.0
Parshas Bay	0.02	0	0	0	0.0	0.0
Passage Anchorage	0.01	0	0	0	0.0	0.0
Passage Canal	0.50	0	4	4	0.9	1.1
Patton Bay	0.28	0	4	4	2.5	1.3
Paulson Bay	tr	1	2	1	1.2	0.4
Peak Island	0.01	0	0	0	0.0	0.0
Perry Island Rest	tr	0	0	0	0.0	0.0
Picturesque Cove	tr	0	1	1	0.9	0.3

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pigot Bay	0.07	2	4	2	2.9	0.7
Pinnacle Rock	tr	2	2	0	2.0	0.0
Pirate Cove	0.01	1	2	1	1.0	0.1
Pleiades Islands	tr	0	0	0	0.0	0.0
Poe Bay	0.01	1	2	1	1.9	0.3
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	0	0	0	0.0	0.0
Porpoise Rocks	0.01	0	0	0	0.0	0.0
Port Audrey	0.01	2	3	1	2.1	0.2
Port Bainbridge	0.74	0	0	0	0.0	0.0
Port Chalmers	0.11	3	4	1	3.9	0.3
Port Etches	0.41	0	0	0	0.0	0.0
Port Fidalgo	1.51	0	3	3	0.5	0.7
Port Gravina	1.16	0	2	2	0.1	0.3
Port Nellie Juan	0.92	0	1	1	0.0	0.2
Port Valdez	0.82	0	4	4	0.8	1.4
Prince of Wales Passage	0.52	0	0	0	0.0	0.0
Pt Nowell	tr	1	1	0	1.0	0.0
Puffin Cove	0.02	0	0	0	0.0	0.0
Quayarnaq Cove	tr	3	3	0	3.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	0	0	0	0.0	0.0
Raging Creek	0.01	2	3	1	2.8	0.4
Red Head	tr	2	3	1	2.2	0.4
Reef Island	tr	0	0	0	0.0	0.0
Rocky Bay	0.13	0	0	0	0.0	0.0
Rocky Point (Lethcoe)	0.01	0	0	0	0.0	0.0
Sahlin Lagoon	tr	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	0	0	0	0.0	0.0
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	0	0	0	0.0	0.0
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Schrader Island	tr	4	4	0	4.0	0.0
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0
Shady Cove	tr	1	1	0	1.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	0	0	0.0	0.0
Sheep Point	tr	0	0	0	0.0	0.0
Shelter Bay Evans Island	0.02	0	0	0	0.0	0.0
Shelter Bay Hinchinbrook Island	0.02	4	4	0	4.0	0.0
Shipyard Bay	0.01	0	1	1	0.5	0.5
Shoestring Cove	0.01	2	3	1	2.6	0.5
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	1	2	1	1.2	0.4
Simpson Bay southeast arm	0.06	1	3	2	2.3	0.5
Siwash Bay	0.03	0	0	0	0.0	0.0
Siwash Island	tr	0	0	0	0.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	1	4	3	2.9	0.7
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	3	4	1	3.7	0.5
South Bay Perry Island	0.05	0	0	0	0.0	0.0
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	0	0	0	0.0	0.0
South Twin Bay	0.04	0	0	0	0.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	1	2	1	1.9	0.3
Squire Island	0.01	0	0	0	0.0	0.0
Squire Island Anchorage	tr	0	0	0	0.0	0.0
Squirrel Bay	0.02	0	0	0	0.0	0.0

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Cove	tr	1	2	1	1.2	0.4
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	0	3	3	1.0	0.7
Storey Island	0.01	0	0	0	0.0	0.0
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	0	0	0	0.0	0.0
Tanker Island	tr	2	3	1	2.5	0.5
Tatitlek	tr	0	0	0	0.0	0.0
Tatitlek Narrows	0.09	0	0	0	0.0	0.0
The Keyhole	tr	0	1	1	0.7	0.4
The Narrows	0.25	0	3	3	1.7	0.6
The Nub	tr	0	0	0	0.0	0.0
Three Fingers Cove	0.02	3	4	1	3.5	0.5
Three Mile Bay	0.01	4	4	0	4.0	0.0
Thumb Bay	0.01	0	0	0	0.0	0.0
Tiger Bight	0.01	0	0	0	0.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	0	0	0	0.0	0.0
Two Moon Bay	0.10	3	4	1	3.7	0.5
Unakwik Inlet	0.82	0	4	4	1.1	1.4
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	4	4	0.4	1.0
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	0	0	0.0	0.0
UnNamed466031	2.68	0	4	4	0.5	1.1
UnNamed466032	5.11	0	4	4	0.2	0.6
UnNamed466033	3.59	0	3	3	0.1	0.3
UnNamed475932	1.55	0	4	4	1.3	1.3
UnNamed475933	1.83	0	4	4	0.6	1.1
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.1

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476003	4.67	0	4	4	0.2	0.6
UnNamed476004	1.18	0	0	0	0.0	0.0
UnNamed476005	0.62	0	1	1	0.0	0.0
UnNamed476006	1.45	0	3	3	0.7	0.9
UnNamed476007	4.40	0	4	4	0.7	1.1
UnNamed476008	3.29	0	3	3	0.1	0.3
UnNamed476009	1.24	0	4	4	2.8	1.1
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	3	3	0.1	0.3
UnNamed476033	2.45	0	2	2	0.1	0.3
UnNamed476034	2.91	0	0	0	0.0	0.0
UnNamed476035	5.03	0	1	1	0.0	0.1
UnNamed476036	0.66	0	0	0	0.0	0.0
UnNamed485932	1.98	0	0	0	0.0	0.0
UnNamed486004	0.31	0	0	0	0.0	0.0
UnNamed486005	0.70	0	1	1	0.0	0.0
UnNamed486031	0.70	0	1	1	0.0	0.1
UnNamed486033	1.28	0	1	1	0.0	0.1
UnNamed486034	2.07	0	2	2	0.1	0.2
Upper Passage	0.05	0	0	0	0.0	0.0
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	0	4	4	1.8	1.5
Valdez Arm	1.15	0	0	0	0.0	0.0
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	0	0	0.0	0.0
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	0	0	0	0.0	0.0
Waterfall Cove	0.01	2	2	0	2.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	1	3	2	2.2	0.7
Wells Bay	0.21	0	1	1	0.0	0.2
West Bay Bligh Island	0.03	0	0	0	0.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	1	2	1	1.7	0.4

Table A13. Population density index (0 – 4) statistics for Dolly Varden, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Flank Island	tr	1	1	0	1.0	0.0
West Twin Bay	0.06	0	0	0	0.0	0.0
Whale Bay	0.24	0	0	0	0.0	0.0
Whalen Bay	0.02	0	0	0	0.0	0.0
Whiskey Cove	0.01	2	3	1	2.9	0.3
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	0	0	0	0.0	0.0
Windy Bay	0.03	0	1	1	0.2	0.4
Winter Anchorage Unakwik	tr	0	1	1	0.6	0.5
Wooded Island	tr	3	4	1	3.3	0.4
Yale Arm	0.15	0	0	0	0.0	0.0
Yelper Cove	tr	2	3	1	2.5	0.5
Zaikof Bay	0.29	0	3	3	0.5	0.8
Ziegler Cove	tr	2	2	0	2.0	0.0
Ziegler Cove SMP	tr	1	3	2	1.3	0.6
	100					

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	4	4	2.6	1.7
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	3	3	0.9	1.0
06-03C Sheep Bay	0.01	0	1	1	0.2	0.4
06-03D Gravina Bay	0.07	0	4	4	1.0	1.6
06-03E Fidalgo Bay	0.84	0	4	4	0.1	0.7
06-03F Valdez Arm	0.06	0	0	0	0.0	0.0
06DU000605	0.33	0	0	0	0.0	0.0
06DU000606	0.15	0	0	0	0.0	0.0
06DU000607	0.21	0	0	0	0.0	0.0
06DU000608	0.82	0	0	0	0.0	0.0
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	0	0	0	0.0	0.0
AA01 West Port Wells	tr	0	0	0	0.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	0	0	0.0	0.0
AA03 College Fjord	0.05	0	0	0	0.0	0.0
AA04 Esther Island/Passage	0.04	0	3	3	0.3	0.8
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	0.8	1.2
AA06 Columbia Bay	0.04	0	3	3	0.6	1.0
AA07 Perry Island	0.02	0	0	0	0.0	0.0
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	0	0	0.0	0.0
AA11 Blackstone Bay	0.02	0	0	0	0.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	3	3	0.3	0.7
AA13 West Knight Island Passage	0.03	0	4	4	1.3	1.3
AA14 West Knight Island	0.10	0	3	3	0.8	1.0
AA15 East Knight Island	0.03	0	3	3	0.8	1.2
AA16 Icy/Whale Bay	0.03	0	0	0	0.0	0.0
AA17 Port Bainbridge	0.02	0	0	0	0.0	0.0
AA18 Passage Canal	0.01	0	0	0	0.0	0.0
Agayuut Bay	tr	0	1	1	0.0	0.2
Agayuut Island	tr	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	3	3	0	3.0	0.0
Anderson Bay Valdez	0.02	0	0	0	0.0	0.0
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	tr	0	0	0	0.0	0.0
Bainbridge Island	0.03	0	0	0	0.0	0.0
Bainbridge Passage	0.26	0	0	0	0.0	0.0
Bald Head Chris	tr	0	1	1	0.3	0.4
Barnes Cove	tr	1	1	0	1.0	0.0
Barry Arm	0.31	0	0	0	0.0	0.0
Bass Harbor	0.05	0	0	0	0.0	0.0
Bay of Isles	0.15	2	4	2	3.0	0.4
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	1	2	1	1.3	0.5
Beartrap Bay	0.03	0	0	0	0.0	0.0
Bettles Bay	0.08	0	0	0	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	0	0	0	0.0	0.0
Billings Point Perry Island	tr	0	0	0	0.0	0.0
Billy's Hole	tr	4	4	0	4.0	0.0
Blackstone Bay	0.54	0	0	0	0.0	0.0
Bligh Island	0.02	0	0	0	0.0	0.0
Block Island Cedar Bay	tr	1	2	1	1.5	0.5
Block Island Eleanor Island	tr	0	0	0	0.0	0.0
Blue Fjord	0.11	0	2	2	1.0	0.5
Bomb Point	tr	2	2	0	2.0	0.0
Boswell Bay	0.05	4	4	0	4.0	0.0
Boswell Bay SMP	tr	3	4	1	3.6	0.5
Boulder Bay	0.07	0	0	0	0.0	0.0
Brave Harbor	tr	1	2	1	1.6	0.5
Bull Head	0.01	0	0	0	0.0	0.0
Busby Island	0.01	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	1	2	1	1.8	0.4
Cabin Bay	0.07	0	0	0	0.0	0.0
Campbell Bay	0.02	0	1	1	0.0	0.1
Cannery Creek	0.04	1	3	2	2.2	0.7
Canoe Passage	0.04	3	4	1	3.6	0.5
Canoe Passage SMP	tr	3	4	1	3.7	0.5
Canoe Passage Trail	tr	3	3	0	3.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	0	0	0.0	0.0
Cedar Bay Hawkins Island	0.02	2	3	1	2.9	0.2
Cedar Bay Wells Bay	0.04	0	1	1	0.4	0.5
Cedar Lake anchorage	tr	1	1	0	1.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	4	4	0	4.0	0.0
Channel Islands The Narrows	0.01	2	2	0	2.0	0.0
Chenega Island	0.02	0	0	0	0.0	0.0
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	0	0	0	0.0	0.0
Cochrane Bay	0.51	0	0	0	0.0	0.0
Coghill	0.07	0	0	0	0.0	0.0
Coghill Lake Tr	tr	0	0	0	0.0	0.0
College Fjord	1.09	0	0	0	0.0	0.0
Columbia Bay	0.46	0	0	0	0.0	0.0
Comfort Cove	0.01	0	0	0	0.0	0.0
Constantine Harbor	0.05	0	1	1	0.3	0.5
Copper Bay	0.02	0	0	0	0.0	0.0
Cordova	0.01	1	3	2	2.1	0.4
Cow Pens	0.01	4	4	0	4.0	0.0
Crab Bay	tr	0	0	0	0.0	0.0
Crafton Island	tr	2	3	1	2.8	0.4
Culross Bay	0.02	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	0	0	0.0	0.0
Culross Passage	0.22	0	0	0	0.0	0.0
Dalli Bay	tr	0	0	0	0.0	0.0
Dan Bay	0.02	0	1	1	0.9	0.3
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	0	1	1	0.0	0.1
Day Care Cove	tr	0	0	0	0.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	1	2	1	1.3	0.5
Deep Water Bay	0.03	0	0	0	0.0	0.0
Deer Cove Hinchinbrook	0.01	1	3	2	1.9	0.4
Deer Cove Knight	0.01	0	0	0	0.0	0.0
Derickson Bay Eaglek	0.03	1	2	1	1.6	0.5
Derickson Bay Nellie Juan	0.07	0	0	0	0.0	0.0
Disk Island	tr	0	1	1	0.1	0.2
Disk Island Anchorage	tr	0	0	0	0.0	0.0
Double Bay	0.04	1	2	1	1.7	0.5
Drier Bay	0.11	0	2	2	0.7	0.6
Dual Head	tr	0	0	0	0.0	0.0
Dutch Group	tr	0	0	0	0.0	0.0
Eagle Bay	0.02	0	0	0	0.0	0.0
Eaglek Bay	0.38	0	1	1	0.1	0.3
Eaglek Island	tr	0	0	0	0.0	0.0
East Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
East Finger Inlet	0.01	0	0	0	0.0	0.0
East Flank Island	tr	2	2	0	2.0	0.0
East Twin Bay	0.03	0	0	0	0.0	0.0
Eickelberg Bay	0.02	1	2	1	1.7	0.5
Elder Bay	0.01	0	0	0	0.0	0.0
Eleanor Island	0.02	0	0	0	0.0	0.0
Ellamar	tr	0	0	0	0.0	0.0
Elrington Island	0.04	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	0	0	0	0.0	0.0
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	0	0	0	0.0	0.0
English Bay	tr	0	0	0	0.0	0.0
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	2	4	2	3.4	0.5
Esther Bay	0.03	0	1	1	0.4	0.5
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	3	3	2.3	1.1
Esther Passage S CS #1	tr	2	2	0	2.0	0.0
Evans Island	0.03	0	0	0	0.0	0.0
Ewan Bay	0.05	0	2	2	0.3	0.5
Fairmount Bay	0.02	0	0	0	0.0	0.0
Fairmount Island	tr	0	0	0	0.0	0.0
Falls Bay	0.02	2	3	1	2.5	0.5
Finski Bay	0.01	0	0	0	0.0	0.0
Fish Bay Hinchinbrook	0.01	1	2	1	1.3	0.5
Fish Bay Port Fidalgo	0.05	0	1	1	0.7	0.5
Fish Hook Anchorage	tr	0	0	0	0.0	0.0
Fish Island	tr	1	1	0	1.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	0	0	0	0.0	0.0
Fool Island	tr	0	0	0	0.0	0.0
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	0	0	0	0.0	0.0
Fox Point	tr	4	4	0	4.0	0.0
Gaamaak Cove	0.01	0	0	0	0.0	0.0
Galena Bay	0.10	0	0	0	0.0	0.0
Garden Cove	0.01	0	0	0	0.0	0.0
Garden Island	tr	0	0	0	0.0	0.0
Gibbon Anchorage	0.04	4	4	0	4.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	3	3	0	3.0	0.0
Glacier Island	0.03	0	1	1	0.1	0.3
Glacier Water Cove	0.01	0	0	0	0.0	0.0
Gold Creek/Camp Bowie	0.01	0	0	0	0.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	1	2	1	2.0	0.2
Granite Bay (Dangerous Passage)	0.02	1	2	1	1.1	0.2
Granite Bay (Eaglek)	0.03	0	1	1	0.1	0.3
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	0	1	1	0.6	0.5
Granite Point	tr	0	0	0	0.0	0.0
Gravina Island	tr	0	0	0	0.0	0.0
Gravina Point	tr	0	0	0	0.0	0.0
Gravina Rocks	tr	0	0	0	0.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	0	0	0	0.0	0.0
Green Island	0.02	2	4	2	3.4	0.7
Greystone Bay	0.02	0	0	0	0.0	0.0
Grommet Cove	tr	3	3	0	3.0	0.0
Growler Bay	0.04	0	0	0	0.0	0.0
Growler Island	tr	0	0	0	0.0	0.0
Gulf of Alaska	0.74	0	4	4	2.5	1.1
Gull Island	tr	3	3	0	3.0	0.0
Hanning Bay	0.10	0	0	0	0.0	0.0
Harriman Fjord	0.36	0	0	0	0.0	0.0
Harriman south shore complex	0.01	0	0	0	0.0	0.0
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	4	4	0	4.0	0.0
Harvard Arm	0.21	0	0	0	0.0	0.0
Hawkins Island	0.06	1	4	3	3.3	1.0
Hawkins Island Cutoff	0.70	1	4	3	2.7	1.2

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	0	0	0	0.0	0.0
Head of Cedar Bay	0.02	1	2	1	1.6	0.5
Head of Eaglek Bay	0.02	0	0	0	0.0	0.0
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	0	0	0	0.0	0.0
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	0	0	0.0	0.0
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	2	1	1.1	0.2
Heather Bay	0.17	0	0	0	0.0	0.0
Heather Island	0.01	0	0	0	0.0	0.0
Hells Hole	0.01	4	4	0	4.0	0.0
Herring Bay	0.21	0	2	2	0.5	0.6
Herring Point	tr	0	0	0	0.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	4	4	2.0	1.7
Hinge Beach (Doran Straight)	tr	0	0	0	0.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	0	0	0	0.0	0.0
Hogg Bay	0.13	0	0	0	0.0	0.0
Hole-in-the-wall	tr	2	2	0	2.0	0.0
Hook Point	0.03	3	4	1	4.0	0.2
Horseshoe Bay	tr	0	0	0	0.0	0.0
Horseshoe Bay SMP	0.01	0	0	0	0.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	0	0	0	0.0	0.0
Humpback/Shepard	0.01	0	1	1	0.9	0.3
Icy Bay	0.25	0	0	0	0.0	0.0
Iktua Bay	0.03	0	0	0	0.0	0.0
Ingot Cove	tr	0	0	0	0.0	0.0
Ingot Island	0.01	0	1	1	0.0	0.2

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	0	0	0	0.0	0.0
Irish Cove Port Fidalgo	0.01	4	4	0	4.0	0.0
Italian Bay	tr	0	0	0	0.0	0.0
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	tr	0	0	0	0.0	0.0
Jackpot Bay	0.09	0	0	0	0.0	0.0
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	0	0	0.0	0.0
Jeanie Cove	0.14	2	4	2	3.5	0.7
Jenny Island	tr	0	0	0	0.0	0.0
Johnson Bay	0.04	1	2	1	1.6	0.5
Jonah Bay	0.05	0	1	1	0.2	0.4
Junction Island	tr	0	0	0	0.0	0.0
Kake Cove	tr	0	0	0	0.0	0.0
Kelly's Cove	0.02	0	0	0	0.0	0.0
Kenny Cove	0.02	4	4	0	4.0	0.0
Kings Bay	0.62	0	0	0	0.0	0.0
Kiniklik anchorage	tr	0	0	0	0.0	0.0
Kiniklik Island	tr	0	0	0	0.0	0.0
Knight Island Pass CS #1	tr	0	0	0	0.0	0.0
Knowles Bay	0.09	4	4	0	4.0	0.0
Knowles Head	tr	4	4	0	4.0	0.0
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	0	0	0	0.0	0.0
Latouche Island	0.04	0	0	0	0.0	0.0
LaTouche Passage	0.49	0	0	0	0.0	0.0
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	0	0	0	0.0	0.0
Little Axel Lind Island	tr	0	0	0	0.0	0.0
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	0	0	0	0.0	0.0
Little Green Island	tr	0	1	1	0.6	0.5
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	4	4	0	4.0	0.0
Lone Island	0.01	0	0	0	0.0	0.0
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	1	4	3	2.4	0.8
Louis Bay	0.02	1	2	1	1.4	0.5
Lower Herring Bay	0.05	2	3	1	2.6	0.5
Lower Passage	0.11	0	1	1	0.3	0.4
Lucky Bay	0.01	0	0	0	0.0	0.0
MacLeod Harbor	0.13	0	0	0	0.0	0.0
Main Bay	0.07	0	1	1	0.8	0.4
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	0	1	1	0.7	0.5
Masked Bay	0.02	0	0	0	0.0	0.0
McClure Bay	0.09	0	3	3	0.4	0.7
McPherson Bay	0.07	0	0	0	0.0	0.0
McPherson Passage	0.06	0	0	0	0.0	0.0
Meares Point	tr	0	0	0	0.0	0.0
Middle Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
Miners Bay	0.03	3	4	1	3.7	0.5
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	0	0	0	0.0	0.0
Montague Island	0.17	0	4	4	0.8	1.2
Mud Bay	tr	3	3	0	3.0	0.0
Mueller Cove	0.01	0	0	0	0.0	0.0
Mummy Bay	0.07	0	0	0	0.0	0.0
Mummy Island Cordova	0.01	2	3	1	2.9	0.2
Mummy Island Knight	0.01	0	0	0	0.0	0.0
Naked Island	0.02	0	0	0	0.0	0.0
Nassau Fjord	0.13	0	0	0	0.0	0.0
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	0	1	1	0.1	0.3
New Year Islands	tr	0	0	0	0.0	0.0
North Island	tr	1	2	1	2.0	0.2
North Twin Bay	0.03	0	0	0	0.0	0.0
Northeast Arm Mummy Bay	0.01	0	0	0	0.0	0.0
Northeast Cove Drier Bay	0.01	1	1	0	1.0	0.0
Northwest Arm Lower Herring Bay	0.01	2	3	1	2.8	0.4
Northwest Bay	0.04	0	0	0	0.0	0.0
Nuchek	0.01	0	0	0	0.0	0.0
Observation Island	0.01	1	1	0	1.0	0.0
Old Chenega site	tr	0	0	0	0.0	0.0
Olsen Bay	0.07	0	0	0	0.0	0.0
Olsen Cove	tr	0	0	0	0.0	0.0
Olsen Island	tr	0	0	0	0.0	0.0
Orca Bay	1.73	0	4	4	1.6	1.5
Orca Cove	tr	0	0	0	0.0	0.0
Orca Creek	tr	4	4	0	4.0	0.0
Orca Inlet	0.91	0	4	4	2.6	1.3
Otter Cove	tr	0	0	0	0.0	0.0
Outpost Island	tr	0	0	0	0.0	0.0
Outside Bay	0.06	0	0	0	0.0	0.0
Paddy Bay	0.04	0	3	3	1.0	0.8
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	2	2	0	2.0	0.0
Parshas Bay	0.02	0	0	0	0.0	0.0
Passage Anchorage	0.01	0	0	0	0.0	0.0
Passage Canal	0.50	0	0	0	0.0	0.0
Patton Bay	0.28	0	4	4	2.6	1.4
Paulson Bay	tr	0	0	0	0.0	0.0
Peak Island	0.01	0	0	0	0.0	0.0
Perry Island Rest	tr	0	0	0	0.0	0.0
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	2	2	0	2.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0
Pleiades Islands	tr	0	0	0	0.0	0.0
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	0	0	0	0.0	0.0
Porpoise Rocks	0.01	0	0	0	0.0	0.0
Port Audrey	0.01	2	3	1	2.0	0.2
Port Bainbridge	0.74	0	0	0	0.0	0.0
Port Chalmers	0.11	1	3	2	1.9	0.7
Port Etches	0.41	0	0	0	0.0	0.0
Port Fidalgo	1.51	0	4	4	1.0	1.2
Port Gravina	1.16	0	4	4	1.3	1.6
Port Nellie Juan	0.92	0	0	0	0.0	0.0
Port Valdez	0.82	0	0	0	0.0	0.0
Prince of Wales Passage	0.52	0	0	0	0.0	0.0
Pt Nowell	tr	1	1	0	1.0	0.0
Puffin Cove	0.02	0	0	0	0.0	0.0
Quayarnaq Cove	tr	3	3	0	3.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	0	0	0	0.0	0.0
Raging Creek	0.01	2	2	0	2.0	0.0
Red Head	tr	4	4	0	4.0	0.0
Reef Island	tr	0	0	0	0.0	0.0
Rocky Bay	0.13	1	4	3	3.3	0.7
Rocky Point (Lethcoe)	0.01	0	0	0	0.0	0.0
Sahlin Lagoon	tr	0	0	0	0.0	0.0
Saint Matthews Bay	0.09	1	4	3	3.1	0.8
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	0	0	0	0.0	0.0
Sawmill Bay SMP	tr	0	0	0	0.0	0.0
Sawmill Bay Valdez Arm	0.03	0	0	0	0.0	0.0
Schoppe Bay	0.06	0	0	0	0.0	0.0
Schrader Island	tr	3	3	0	3.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	1	1	0.1	0.2
Sheep Point	tr	1	1	0	1.0	0.0
Shelter Bay Evans Island	0.02	0	0	0	0.0	0.0
Shelter Bay Hinchinbrook Island	0.02	4	4	0	4.0	0.0
Shipyard Bay	0.01	1	1	0	1.0	0.0
Shoestring Cove	0.01	2	3	1	2.3	0.5
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	1	2	1	1.1	0.3
Simpson Bay southeast arm	0.06	2	3	1	2.1	0.3
Siwash Bay	0.03	0	0	0	0.0	0.0
Siwash Island	tr	0	0	0	0.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	2	4	2	3.4	0.6
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	2	3	1	2.2	0.4
South Bay Perry Island	0.05	0	0	0	0.0	0.0
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	0	0	0	0.0	0.0
South Twin Bay	0.04	0	0	0	0.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	1	2	1	1.7	0.5
Squire Island	0.01	0	0	0	0.0	0.0
Squire Island Anchorage	tr	0	0	0	0.0	0.0
Squirrel Bay	0.02	0	0	0	0.0	0.0
Squirrel Cove	tr	0	0	0	0.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	2	4	2	2.7	0.6
Storey Island	0.01	0	0	0	0.0	0.0
Sunny Cove (Lethcoe)	0.05	0	0	0	0.0	0.0
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	0	0	0	0.0	0.0
Tanker Island	tr	2	2	0	2.0	0.0
Tatitlek	tr	0	0	0	0.0	0.0
Tatitlek Narrows	0.09	0	0	0	0.0	0.0
The Keyhole	tr	0	1	1	0.7	0.4
The Narrows	0.25	1	4	3	2.1	0.6
The Nub	tr	0	0	0	0.0	0.0
Three Fingers Cove	0.02	0	0	0	0.0	0.0
Three Mile Bay	0.01	3	4	1	4.0	0.1
Thumb Bay	0.01	0	0	0	0.0	0.0
Tiger Bight	0.01	0	0	0	0.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	0	0	0	0.0	0.0
Two Moon Bay	0.10	2	4	2	3.7	0.5
Unakwik Inlet	0.82	0	4	4	1.0	1.3
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	4	4	0.6	1.1
UnNamed466004	0.58	0	4	4	0.8	1.3
UnNamed466005	0.71	0	0	0	0.0	0.0
UnNamed466031	2.68	0	4	4	0.9	1.2
UnNamed466032	5.11	0	4	4	0.3	0.8
UnNamed466033	3.59	0	4	4	0.2	0.6
UnNamed475932	1.55	0	4	4	1.5	1.6
UnNamed475933	1.83	0	0	0	0.0	0.0
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	0	0	0.0	0.0
UnNamed476003	4.67	0	2	2	0.0	0.2

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	0	0	0	0.0	0.0
UnNamed476005	0.62	0	1	1	0.0	0.0
UnNamed476006	1.45	0	3	3	0.6	0.9
UnNamed476007	4.40	0	4	4	0.7	1.2
UnNamed476008	3.29	0	4	4	0.3	0.7
UnNamed476009	1.24	0	4	4	2.1	1.2
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	3	3	0.1	0.3
UnNamed476033	2.45	0	2	2	0.1	0.3
UnNamed476034	2.91	0	0	0	0.0	0.0
UnNamed476035	5.03	0	1	1	0.0	0.2
UnNamed476036	0.66	0	0	0	0.0	0.0
UnNamed485932	1.98	0	0	0	0.0	0.0
UnNamed486004	0.31	0	0	0	0.0	0.0
UnNamed486005	0.70	0	0	0	0.0	0.0
UnNamed486031	0.70	0	1	1	0.0	0.1
UnNamed486033	1.28	0	0	0	0.0	0.0
UnNamed486034	2.07	0	0	0	0.0	0.0
Upper Passage	0.05	0	0	0	0.0	0.0
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	0	0	0	0.0	0.0
Valdez Arm	1.15	0	0	0	0.0	0.0
Valdez Arm west side CRD	0.25	0	0	0	0.0	0.0
Valdez Narrows	0.10	0	0	0	0.0	0.0
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	0	0	0	0.0	0.0
Waterfall Cove	0.01	2	2	0	2.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	1	3	2	2.0	0.7
Wells Bay	0.21	0	1	1	0.0	0.2
West Bay Bligh Island	0.03	0	0	0	0.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	1	1	0	1.0	0.0

Table A14. Population density index (0 – 4) statistics for cutthroat trout, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	0	0	0	0.0	0.0
Whale Bay	0.24	0	0	0	0.0	0.0
Whalen Bay	0.02	0	0	0	0.0	0.0
Whiskey Cove	0.01	2	3	1	2.9	0.3
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	0	0	0	0.0	0.0
Windy Bay	0.03	3	4	1	4.0	0.1
Winter Anchorage Unakwik	tr	0	1	1	0.6	0.5
Wooded Island	tr	3	4	1	3.6	0.5
Yale Arm	0.15	0	0	0	0.0	0.0
Yelper Cove	tr	2	3	1	2.4	0.5
Zaikof Bay	0.29	0	3	3	1.1	0.7
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	0	0	0.0	0.0
06-03A Nelson Bay	0.01	0	0	0	0.0	0.0
06-03B Simpson Bay	0.03	0	2	2	0.7	0.8
06-03C Sheep Bay	0.01	1	3	2	2.6	0.5
06-03D Gravina Bay	0.07	0	4	4	2.8	0.8
06-03E Fidalgo Bay	0.84	0	4	4	0.2	0.8
06-03F Valdez Arm	0.06	0	4	4	2.8	1.7
06DU000605	0.33	0	2	2	1.3	0.5
06DU000606	0.15	1	2	1	1.4	0.5
06DU000607	0.21	0	1	1	0.2	0.4
06DU000608	0.82	0	2	2	0.1	0.3
06DU000618	0.10	0	0	0	0.0	0.0
06DU000619	0.10	0	0	0	0.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	0	0	0	0.0	0.0
AA01 West Port Wells	tr	0	0	0	0.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	0	0	0.0	0.0
AA03 College Fjord	0.05	0	0	0	0.0	0.0
AA04 Esther Island/Passage	0.04	0	2	2	0.4	0.5
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	2.2	1.4
AA06 Columbia Bay	0.04	0	4	4	1.7	0.9
AA07 Perry Island	0.02	0	1	1	0.7	0.5
AA09 Culross Island/Passage	tr	0	0	0	0.0	0.0
AA10 Cochrane Bay	0.02	0	0	0	0.0	0.0
AA11 Blackstone Bay	0.02	0	0	0	0.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	0	0	0.0	0.0
AA13 West Knight Island Passage	0.03	0	0	0	0.0	0.0
AA14 West Knight Island	0.10	0	2	2	1.0	0.3
AA15 East Knight Island	0.03	0	2	2	0.7	0.5
AA16 Icy/Whale Bay	0.03	0	0	0	0.0	0.0
AA17 Port Bainbridge	0.02	0	0	0	0.0	0.0
AA18 Passage Canal	0.01	0	0	0	0.0	0.0
Agayuut Bay	tr	2	3	1	2.1	0.3
Agayuut Island	tr	2	2	0	2.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	1	1	1.0	0.1
Anderson Bay Valdez	0.02	1	2	1	1.4	0.5
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	tr	2	3	1	2.9	0.3
Bainbridge Island	0.03	0	0	0	0.0	0.0
Bainbridge Passage	0.26	0	0	0	0.0	0.0
Bald Head Chris	tr	2	2	0	2.0	0.0
Barnes Cove	tr	2	2	0	2.0	0.0
Barry Arm	0.31	0	0	0	0.0	0.0
Bass Harbor	0.05	4	4	0	4.0	0.0
Bay of Isles	0.15	1	2	1	1.0	0.1
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	1	1	0	1.0	0.0
Beartrap Bay	0.03	1	2	1	1.8	0.4
Bettles Bay	0.08	0	0	0	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	0	0	0	0.0	0.0
Billings Point Perry Island	tr	1	1	0	1.0	0.0
Billy's Hole	tr	2	2	0	2.0	0.0
Blackstone Bay	0.54	0	0	0	0.0	0.0
Bligh Island	0.02	2	4	2	3.5	0.6
Block Island Cedar Bay	tr	2	3	1	2.7	0.4
Block Island Eleanor Island	tr	1	1	0	1.0	0.0
Blue Fjord	0.11	0	0	0	0.0	0.0
Bomb Point	tr	1	1	0	1.0	0.0
Boswell Bay	0.05	0	0	0	0.0	0.0
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	4	4	0	4.0	0.0
Brave Harbor	tr	2	2	0	2.0	0.0
Bull Head	0.01	2	3	1	2.3	0.5
Busby Island	0.01	4	4	0	4.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	3	3	0	3.0	0.0
Cabin Bay	0.07	4	4	0	4.0	0.0
Campbell Bay	0.02	3	3	0	3.0	0.0
Cannery Creek	0.04	1	1	0	1.0	0.0
Canoe Passage	0.04	2	3	1	2.0	0.1
Canoe Passage SMP	tr	1	3	2	2.3	0.7
Canoe Passage Trail	tr	2	2	0	2.0	0.0
Cascade Bay	0.02	0	1	1	0.2	0.4
Cat Head	tr	1	1	0	1.0	0.0
Cathead Bay	0.01	1	1	0	1.0	0.0
Cedar Bay Hawkins Island	0.02	1	1	0	1.0	0.0
Cedar Bay Wells Bay	0.04	3	4	1	4.0	0.1
Cedar Lake anchorage	tr	4	4	0	4.0	0.0
Chamberlain Bay	0.03	3	3	0	3.0	0.0
Channel Island south of Green Island	tr	3	3	0	3.0	0.0
Channel Islands The Narrows	0.01	1	1	0	1.0	0.0
Chenega Island	0.02	0	0	0	0.0	0.0
Clam Island	tr	1	1	0	1.0	0.0
Cloudman Bay	0.01	4	4	0	4.0	0.0
Cochrane Bay	0.51	0	0	0	0.0	0.0
Coghill	0.07	0	0	0	0.0	0.0
Coghill Lake Tr	tr	0	0	0	0.0	0.0
College Fjord	1.09	0	0	0	0.0	0.0
Columbia Bay	0.46	1	2	1	1.3	0.4
Comfort Cove	0.01	2	3	1	2.1	0.4
Constantine Harbor	0.05	2	2	0	2.0	0.0
Copper Bay	0.02	1	1	0	1.0	0.0
Cordova	0.01	0	0	0	0.0	0.0
Cow Pens	0.01	0	0	0	0.0	0.0
Crab Bay	tr	0	0	0	0.0	0.0
Crafton Island	tr	0	0	0	0.0	0.0
Culross Bay	0.02	0	1	1	0.5	0.5

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	1	1	0.1	0.3
Culross Passage	0.22	0	0	0	0.0	0.0
Dalli Bay	tr	2	2	0	2.0	0.0
Dan Bay	0.02	1	1	0	1.0	0.0
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	0	0	0	0.0	0.0
Day Care Cove	tr	1	1	0	1.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	0	0	0	0.0	0.0
Deep Water Bay	0.03	0	0	0	0.0	0.0
Deer Cove Hinchinbrook	0.01	1	1	0	1.0	0.0
Deer Cove Knight	0.01	1	1	0	1.0	0.0
Derickson Bay Eaglek	0.03	1	2	1	1.2	0.4
Derickson Bay Nellie Juan	0.07	0	0	0	0.0	0.0
Disk Island	tr	1	1	0	1.0	0.0
Disk Island Anchorage	tr	1	1	0	1.0	0.0
Double Bay	0.04	1	1	0	1.0	0.0
Drier Bay	0.11	1	2	1	1.5	0.5
Dual Head	tr	0	0	0	0.0	0.0
Dutch Group	tr	1	2	1	1.3	0.5
Eagle Bay	0.02	2	3	1	2.8	0.4
Eaglek Bay	0.38	0	3	3	1.9	0.9
Eaglek Island	tr	3	3	0	3.0	0.0
East Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
East Finger Inlet	0.01	0	0	0	0.0	0.0
East Flank Island	tr	2	2	0	2.0	0.0
East Twin Bay	0.03	1	1	0	1.0	0.0
Eickelberg Bay	0.02	3	4	1	3.7	0.5
Elder Bay	0.01	2	2	0	2.0	0.0
Eleanor Island	0.02	1	1	0	1.0	0.0
Ellamar	tr	4	4	0	4.0	0.0
Elrington Island	0.04	0	0	0	0.0	0.0
Elrington Passage	0.24	0	0	0	0.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	2	2	0	2.0	0.0
English Bay	tr	1	1	0	1.0	0.0
Entrance Island	tr	1	1	0	1.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	0	0	0	0.0	0.0
Esther Bay	0.03	1	1	0	1.0	0.0
Esther Bight	0.01	1	1	0	1.0	0.0
Esther Passage	0.17	0	2	2	0.9	0.7
Esther Passage S CS #1	tr	2	2	0	2.0	0.0
Evans Island	0.03	0	0	0	0.0	0.0
Ewan Bay	0.05	0	0	0	0.0	0.0
Fairmount Bay	0.02	4	4	0	4.0	0.0
Fairmount Island	tr	4	4	0	4.0	0.0
Falls Bay	0.02	0	0	0	0.0	0.0
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	2	2	0	2.0	0.0
Fish Bay Port Fidalgo	0.05	3	3	0	3.0	0.0
Fish Hook Anchorage	tr	4	4	0	4.0	0.0
Fish Island	tr	1	1	0	1.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	0	0	0	0.0	0.0
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	1	1	0	1.0	0.0
Fox Farm Bay	0.01	0	0	0	0.0	0.0
Fox Point	tr	1	1	0	1.0	0.0
Gaamaak Cove	0.01	0	0	0	0.0	0.0
Galena Bay	0.10	4	4	0	4.0	0.0
Garden Cove	0.01	1	1	0	1.0	0.0
Garden Island	tr	1	1	0	1.0	0.0
Gibbon Anchorage	0.04	3	4	1	3.5	0.5
Gilmour Bight	0.01	4	4	0	4.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Glacier Island	0.03	1	4	3	2.7	0.6
Glacier Water Cove	0.01	0	0	0	0.0	0.0
Gold Creek/Camp Bowie	0.01	2	2	0	2.0	0.0
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	0	0	0.0	0.0
Goose Island	tr	2	3	1	2.8	0.4
Granite Bay (Dangerous Passage)	0.02	0	0	0	0.0	0.0
Granite Bay (Eaglek)	0.03	4	4	0	4.0	0.0
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	2	2	0	2.0	0.0
Granite Point	tr	4	4	0	4.0	0.0
Gravina Island	tr	3	3	0	3.0	0.0
Gravina Point	tr	3	3	0	3.0	0.0
Gravina Rocks	tr	3	3	0	3.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	3	3	0	3.0	0.0
Green Island	0.02	2	4	2	3.0	0.5
Greystone Bay	0.02	0	0	0	0.0	0.0
Grommet Cove	tr	1	1	0	1.0	0.0
Growler Bay	0.04	1	3	2	2.2	0.4
Growler Island	tr	2	2	0	2.0	0.0
Gulf of Alaska	0.74	0	1	1	0.0	0.1
Gull Island	tr	3	3	0	3.0	0.0
Hanning Bay	0.10	0	1	1	1.0	0.1
Harriman Fjord	0.36	0	0	0	0.0	0.0
Harriman south shore complex	0.01	0	0	0	0.0	0.0
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	0	0	0.0	0.0
Hawkins Island	0.06	0	3	3	1.3	0.7
Hawkins Island Cutoff	0.70	0	2	2	0.9	0.7
Head of Barry Arm	0.04	0	0	0	0.0	0.0
Head of Cedar Bay	0.02	2	4	2	2.8	0.5

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Eaglek Bay	0.02	0	1	1	0.9	0.3
Head of Galena Bay	0.09	3	4	1	3.9	0.2
Head of Harriman Fjord	0.05	0	0	0	0.0	0.0
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	0	2	2	1.2	0.5
Head of Port Gravina;Gravina River	0.05	1	2	1	1.3	0.5
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	1	0	1.0	0.0
Heather Bay	0.17	1	2	1	1.6	0.5
Heather Island	0.01	1	2	1	1.8	0.4
Hells Hole	0.01	4	4	0	4.0	0.0
Herring Bay	0.21	1	1	0	1.0	0.0
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	4	4	0	4.0	0.0
Hinchinbrook Island	0.09	0	2	2	0.6	0.6
Hinge Beach (Doran Straight)	tr	0	0	0	0.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	1	1	0	1.0	0.0
Hogg Bay	0.13	0	0	0	0.0	0.0
Hole-in-the-wall	tr	1	1	0	1.0	0.0
Hook Point	0.03	0	0	0	0.0	0.0
Horseshoe Bay	tr	0	0	0	0.0	0.0
Horseshoe Bay SMP	0.01	0	0	0	0.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	0	0	0	0.0	0.0
Humpback/Shepard	0.01	0	0	0	0.0	0.0
Icy Bay	0.25	0	0	0	0.0	0.0
Iktua Bay	0.03	0	0	0	0.0	0.0
Ingot Cove	tr	1	1	0	1.0	0.0
Ingot Island	0.01	1	1	0	1.0	0.0
Irish Cove Glacier Island	0.01	3	4	1	3.8	0.4
Irish Cove Port Fidalgo	0.01	3	3	0	3.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Italian Bay	tr	0	1	1	0.4	0.5
Jack Bay	0.15	1	4	3	3.1	0.6
Jack Bay SMP	tr	3	3	0	3.0	0.0
Jackpot Bay	0.09	0	0	0	0.0	0.0
Jackson Cove	tr	3	3	0	3.0	0.0
Jackson Hole	0.01	3	3	0	3.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	3	3	0	3.0	0.0
Johnson Bay	0.04	1	1	0	1.0	0.0
Jonah Bay	0.05	0	1	1	0.6	0.5
Junction Island	tr	0	0	0	0.0	0.0
Kake Cove	tr	0	0	0	0.0	0.0
Kelly's Cove	0.02	0	0	0	0.0	0.0
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	0	0	0.0	0.0
Kiniklik anchorage	tr	3	4	1	3.2	0.4
Kiniklik Island	tr	3	3	0	3.0	0.0
Knight Island Pass CS #1	tr	1	1	0	1.0	0.0
Knowles Bay	0.09	3	4	1	3.4	0.5
Knowles Head	tr	3	3	0	3.0	0.0
Lake Bay	0.01	1	1	0	1.0	0.0
Landlocked Bay	0.13	3	4	1	4.0	0.1
Latouche Island	0.04	0	0	0	0.0	0.0
LaTouche Passage	0.49	0	0	0	0.0	0.0
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	3	4	1	3.8	0.4
Little Axel Lind Island	tr	3	3	0	3.0	0.0
Little Bay	0.02	0	1	1	0.1	0.3
Little Fairmount Island	tr	4	4	0	4.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0
Little Smith Island	tr	1	1	0	1.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0
Logjam Bay	0.01	1	1	0	1.0	0.0
Lone Island	0.01	1	1	0	1.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Long Bay Culross	0.01	0	0	0	0.0	0.0
Long Bay Unakwik	0.22	2	3	1	2.5	0.5
Louis Bay	0.02	1	1	0	1.0	0.0
Lower Herring Bay	0.05	1	1	0	1.0	0.0
Lower Passage	0.11	1	1	0	1.0	0.0
Lucky Bay	0.01	0	1	1	0.3	0.5
MacLeod Harbor	0.13	0	0	0	0.0	0.0
Main Bay	0.07	0	0	0	0.0	0.0
Mallard Bay	0.02	1	1	0	1.0	0.0
Mallard Head	tr	1	1	0	1.0	0.0
Marsha Bay	0.03	1	2	1	1.6	0.5
Masked Bay	0.02	0	0	0	0.0	0.0
McClure Bay	0.09	0	0	0	0.0	0.0
McPherson Bay	0.07	3	4	1	3.7	0.4
McPherson Passage	0.06	3	4	1	3.5	0.5
Meares Point	tr	1	1	0	1.0	0.0
Middle Bight Lower Herring Bay	tr	1	1	0	1.0	0.0
Miners Bay	0.03	0	0	0	0.0	0.0
Mink Island	0.01	0	0	0	0.0	0.0
Minke Cove	tr	0	0	0	0.0	0.0
Montague Island	0.17	0	4	4	2.3	1.5
Mud Bay	tr	0	0	0	0.0	0.0
Mueller Cove	0.01	4	4	0	4.0	0.0
Mummy Bay	0.07	0	1	1	0.7	0.5
Mummy Island Cordova	0.01	0	1	1	0.8	0.4
Mummy Island Knight	0.01	1	1	0	1.0	0.0
Naked Island	0.02	3	4	1	3.9	0.4
Nassau Fjord	0.13	0	0	0	0.0	0.0
NE Galena Coves (Lethcoe)	0.01	4	4	0	4.0	0.0
Nellie Juan Glacier and spit	0.01	0	0	0	0.0	0.0
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0
Nelson Bay	0.10	0	0	0	0.0	0.0
New Year Islands	tr	1	1	0	1.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
North Island	tr	0	0	0	0.0	0.0
North Twin Bay	0.03	0	0	0	0.0	0.0
Northeast Arm Mummy Bay	0.01	1	1	0	1.0	0.0
Northeast Cove Drier Bay	0.01	2	2	0	2.0	0.0
Northwest Arm Lower Herring Bay	0.01	1	1	0	1.0	0.0
Northwest Bay	0.04	1	1	0	1.0	0.0
Nuchek	0.01	2	2	0	2.0	0.0
Observation Island	0.01	0	0	0	0.0	0.0
Old Chenega site	tr	0	0	0	0.0	0.0
Olsen Bay	0.07	2	3	1	3.0	0.1
Olsen Cove	tr	4	4	0	4.0	0.0
Olsen Island	tr	4	4	0	4.0	0.0
Orca Bay	1.73	1	3	2	1.8	0.6
Orca Cove	tr	0	0	0	0.0	0.0
Orca Creek	tr	1	1	0	1.0	0.0
Orca Inlet	0.91	0	1	1	0.3	0.4
Otter Cove	tr	0	0	0	0.0	0.0
Outpost Island	tr	3	3	0	3.0	0.0
Outside Bay	0.06	3	4	1	3.9	0.3
Paddy Bay	0.04	0	0	0	0.0	0.0
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	2	2	0	2.0	0.0
Parshas Bay	0.02	3	3	0	3.0	0.0
Passage Anchorage	0.01	4	4	0	4.0	0.0
Passage Canal	0.50	0	0	0	0.0	0.0
Patton Bay	0.28	0	1	1	1.0	0.1
Paulson Bay	tr	0	0	0	0.0	0.0
Peak Island	0.01	3	4	1	3.6	0.5
Perry Island Rest	tr	0	1	1	0.7	0.5
Picturesque Cove	tr	0	0	0	0.0	0.0
Pigot Bay	0.07	0	0	0	0.0	0.0
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pleiades Islands	tr	0	0	0	0.0	0.0
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	3	3	0	3.0	0.0
Porpoise Rocks	0.01	1	1	0	1.0	0.0
Port Audrey	0.01	2	2	0	2.0	0.0
Port Bainbridge	0.74	0	0	0	0.0	0.0
Port Chalmers	0.11	4	4	0	4.0	0.0
Port Etches	0.41	0	2	2	1.2	0.4
Port Fidalgo	1.51	2	4	2	3.3	0.7
Port Gravina	1.16	2	4	2	3.2	0.6
Port Nellie Juan	0.92	0	0	0	0.0	0.0
Port Valdez	0.82	0	2	2	1.2	0.5
Prince of Wales Passage	0.52	0	0	0	0.0	0.0
Pt Nowell	tr	0	0	0	0.0	0.0
Puffin Cove	0.02	0	0	0	0.0	0.0
Quayarnaq Cove	tr	1	1	0	1.0	0.0
Quillian Bay	0.01	1	1	0	1.0	0.0
Ragged Bay	0.02	3	3	0	3.0	0.0
Raging Creek	0.01	1	1	0	1.0	0.0
Red Head	tr	4	4	0	4.0	0.0
Reef Island	tr	3	4	1	3.5	0.5
Rocky Bay	0.13	4	4	0	4.0	0.0
Rocky Point (Lethcoe)	0.01	4	4	0	4.0	0.0
Sahlin Lagoon	tr	1	2	1	1.9	0.3
Saint Matthews Bay	0.09	3	4	1	3.8	0.4
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	0	0	0	0.0	0.0
Sawmill Bay SMP	tr	2	3	1	2.7	0.5
Sawmill Bay Valdez Arm	0.03	3	3	0	3.0	0.0
Schoppe Bay	0.06	2	3	1	2.8	0.4
Schrader Island	tr	2	2	0	2.0	0.0
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shady Cove	tr	0	0	0	0.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	2	3	1	2.6	0.5
Sheep Point	tr	2	2	0	2.0	0.0
Shelter Bay Evans Island	0.02	0	0	0	0.0	0.0
Shelter Bay Hinchinbrook Island	0.02	0	1	1	0.0	0.2
Shipyard Bay	0.01	0	0	0	0.0	0.0
Shoestring Cove	0.01	0	1	1	1.0	0.1
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	1	1	0	1.0	0.0
Shoup Bay SMP	0.13	0	1	1	0.8	0.4
Simpson Bay northwest arm	0.12	1	2	1	2.0	0.2
Simpson Bay southeast arm	0.06	1	2	1	1.3	0.4
Siwash Bay	0.03	1	2	1	1.0	0.2
Siwash Island	tr	1	1	0	1.0	0.0
Sleepy Bay	0.01	0	0	0	0.0	0.0
Smith Island	0.01	1	2	1	1.4	0.5
Snug Corner Cove	0.09	3	4	1	3.7	0.5
Snug Harbor	0.05	1	1	0	1.0	0.0
Solf Cove	0.02	1	1	0	1.0	0.0
South Bay Perry Island	0.05	1	1	0	1.0	0.0
South Esther SMP	0.01	1	1	0	1.0	0.0
South Olsen Island	tr	4	4	0	4.0	0.0
South Twin Bay	0.04	0	0	0	0.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	1	1	0	1.0	0.0
Squaw Bay	0.03	2	3	1	2.1	0.3
Squire Island	0.01	0	1	1	0.8	0.4
Squire Island Anchorage	tr	0	1	1	0.5	0.5
Squirrel Bay	0.02	0	0	0	0.0	0.0
Squirrel Cove	tr	0	0	0	0.0	0.0
Squirrel Island	tr	1	1	0	1.0	0.0
Stockdale Harbor	0.10	4	4	0	4.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Storey Island	0.01	3	4	1	3.2	0.4
Sunny Cove (Lethcoe)	0.05	1	2	1	1.0	0.1
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	0	0	0	0.0	0.0
Tanker Island	tr	1	1	0	1.0	0.0
Tatitlek	tr	4	4	0	4.0	0.0
Tatitlek Narrows	0.09	4	4	0	4.0	0.0
The Keyhole	tr	1	2	1	1.7	0.5
The Narrows	0.25	0	1	1	0.6	0.5
The Nub	tr	0	0	0	0.0	0.0
Three Fingers Cove	0.02	0	0	0	0.0	0.0
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	1	1	0	1.0	0.0
Tiger Bight	0.01	0	0	0	0.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	0	0	0	0.0	0.0
Two Moon Bay	0.10	3	4	1	4.0	0.2
Unakwik Inlet	0.82	0	4	4	1.8	1.6
Unnamed north of Galena	0.01	4	4	0	4.0	0.0
UnNamed466003	4.33	0	4	4	0.5	0.8
UnNamed466004	0.58	0	0	0	0.0	0.0
UnNamed466005	0.71	0	2	2	0.6	0.7
UnNamed466031	2.68	0	4	4	0.9	0.9
UnNamed466032	5.11	0	4	4	0.4	0.8
UnNamed466033	3.59	0	4	4	1.2	1.3
UnNamed475932	1.55	0	1	1	0.4	0.5
UnNamed475933	1.83	0	1	1	0.1	0.3
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.2
UnNamed476003	4.67	0	3	3	0.8	0.8
UnNamed476004	1.18	0	1	1	0.0	0.1
UnNamed476005	0.62	0	1	1	0.6	0.5
UnNamed476006	1.45	0	1	1	0.6	0.5

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476007	4.40	0	4	4	0.9	0.9
UnNamed476008	3.29	0	4	4	1.6	1.7
UnNamed476009	1.24	1	4	3	3.2	0.7
UnNamed476031	3.36	0	3	3	0.5	0.7
UnNamed476032	5.49	0	4	4	0.8	0.8
UnNamed476033	2.45	1	3	2	1.4	0.7
UnNamed476034	2.91	0	4	4	1.8	0.9
UnNamed476035	5.03	0	4	4	0.8	1.0
UnNamed476036	0.66	3	4	1	3.8	0.4
UnNamed485932	1.98	0	0	0	0.0	0.0
UnNamed486004	0.31	0	0	0	0.0	0.0
UnNamed486005	0.70	0	0	0	0.0	0.0
UnNamed486031	0.70	0	0	0	0.0	0.0
UnNamed486033	1.28	0	1	1	0.5	0.5
UnNamed486034	2.07	0	1	1	0.0	0.2
Upper Passage	0.05	1	1	0	1.0	0.0
Useless Cove	0.01	2	3	1	2.2	0.4
Valdez	0.16	0	2	2	1.3	0.5
Valdez Arm	1.15	2	4	2	3.5	0.7
Valdez Arm west side CRD	0.25	1	3	2	1.6	0.5
Valdez Narrows	0.10	2	4	2	2.8	0.6
Verdant Island	tr	0	0	0	0.0	0.0
Virgin Bay	0.01	4	4	0	4.0	0.0
Waterfall Cove	0.01	0	0	0	0.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	1	4	3	3.7	0.7
West Bay Bligh Island	0.03	4	4	0	4.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	0	0	0	0.0	0.0
West Flank Island	tr	2	2	0	2.0	0.0
West Twin Bay	0.06	0	1	1	0.9	0.4
Whale Bay	0.24	0	0	0	0.0	0.0
Whalen Bay	0.02	2	2	0	2.0	0.0

Table A15. Population density index (0 – 4) statistics for Pacific herring spawn, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Whiskey Cove	0.01	2	2	0	2.0	0.0
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	0	0	0	0.0	0.0
Windy Bay	0.03	1	1	0	1.0	0.0
Winter Anchorage Unakwik	tr	1	2	1	1.4	0.5
Wooded Island	tr	1	1	0	1.0	0.0
Yale Arm	0.15	0	0	0	0.0	0.0
Yelper Cove	tr	1	2	1	2.0	0.2
Zaikof Bay	0.29	2	4	2	3.8	0.4
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	4	4	3.0	1.2
06-03A Nelson Bay	0.01	0	3	3	1.4	1.1
06-03B Simpson Bay	0.03	0	4	4	1.8	1.9
06-03C Sheep Bay	0.01	2	4	2	2.8	0.8
06-03D Gravina Bay	0.07	0	4	4	2.8	1.2
06-03E Fidalgo Bay	0.84	0	4	4	0.2	0.8
06-03F Valdez Arm	0.06	0	4	4	2.1	1.7
06DU000605	0.33	0	4	4	1.4	1.4
06DU000606	0.15	4	4	0	4.0	0.0
06DU000607	0.21	2	4	2	3.8	0.5
06DU000608	0.82	0	4	4	1.2	1.3
06DU000618	0.10	0	4	4	2.8	1.0
06DU000619	0.10	3	4	1	3.9	0.3
3 Finger-Shrode Lake Tr	tr[b]	3	3	0	3.0	0.0
AA01 West Port Wells	tr	3	4	1	3.9	0.3
AA02 Harriman Fjord/Barry Arm	0.10	0	2	2	0.1	0.4
AA03 College Fjord	0.05	0	4	4	1.1	1.4
AA04 Esther Island/Passage	0.04	0	4	4	1.6	1.6
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	2.7	1.3
AA06 Columbia Bay	0.04	0	4	4	2.6	1.1
AA07 Perry Island	0.02	0	0	0	0.0	0.0
AA09 Culross Island/Passage	tr	3	4	1	3.0	0.2
AA10 Cochrane Bay	0.02	2	4	2	3.7	0.5
AA11 Blackstone Bay	0.02	0	4	4	1.1	1.5
AA12 Kings Bay/Nellie Juan	0.06	0	4	4	1.8	1.5
AA13 West Knight Island Passage	0.03	1	4	3	3.6	0.8
AA14 West Knight Island	0.10	0	4	4	1.9	1.0
AA15 East Knight Island	0.03	0	3	3	2.0	0.9
AA16 Icy/Whale Bay	0.03	0	4	4	2.7	1.2
AA17 Port Bainbridge	0.02	0	3	3	1.3	1.3
AA18 Passage Canal	0.01	0	4	4	0.8	1.1
Agayuut Bay	tr	1	1	0	1.0	0.0
Agayuut Island	tr	1	1	0	1.0	0.0

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	4	4	0	4.0	0.0
Anderson Bay Valdez	0.02	2	3	1	2.8	0.4
Applegate Island	tr	3	4	1	4.0	0.2
Auk Bay	0.03	0	0	0	0.0	0.0
Axel Lind Island	tr	0	0	0	0.0	0.0
Bainbridge Island	0.03	0	4	4	2.6	1.5
Bainbridge Passage	0.26	1	4	3	3.3	0.7
Bald Head Chris	tr	0	0	0	0.0	0.0
Barnes Cove	tr	3	3	0	3.0	0.0
Barry Arm	0.31	0	3	3	0.8	0.8
Bass Harbor	0.05	0	0	0	0.0	0.0
Bay of Isles	0.15	0	3	3	0.7	1.0
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	1	1	0	1.0	0.0
Beartrap Bay	0.03	3	4	1	4.0	0.2
Bettles Bay	0.08	3	4	1	4.0	0.1
Bettles Bay SMP	tr	4	4	0	4.0	0.0
Bettles Island	tr	4	4	0	4.0	0.0
Billings Point Perry Island	tr	0	0	0	0.0	0.0
Billy's Hole	tr	4	4	0	4.0	0.0
Blackstone Bay	0.54	0	4	4	1.2	1.5
Bligh Island	0.02	0	3	3	0.6	0.9
Block Island Cedar Bay	tr	4	4	0	4.0	0.0
Block Island Eleanor Island	tr	0	0	0	0.0	0.0
Blue Fjord	0.11	0	4	4	2.4	0.8
Bomb Point	tr	3	3	0	3.0	0.0
Boswell Bay	0.05	0	1	1	0.0	0.1
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	1	3	2	1.5	0.6
Brave Harbor	tr	1	2	1	1.8	0.4
Bull Head	0.01	0	0	0	0.0	0.0
Busby Island	0.01	1	3	2	2.1	0.4

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	3	3	0	3.0	0.0
Cabin Bay	0.07	0	0	0	0.0	0.0
Campbell Bay	0.02	1	2	1	1.2	0.4
Cannery Creek	0.04	1	3	2	1.7	0.5
Canoe Passage	0.04	4	4	0	4.0	0.0
Canoe Passage SMP	tr	3	4	1	3.9	0.3
Canoe Passage Trail	tr	4	4	0	4.0	0.0
Cascade Bay	0.02	4	4	0	4.0	0.0
Cat Head	tr	3	3	0	3.0	0.0
Cathead Bay	0.01	3	3	0	3.0	0.0
Cedar Bay Hawkins Island	0.02	4	4	0	4.0	0.0
Cedar Bay Wells Bay	0.04	2	4	2	3.2	0.5
Cedar Lake anchorage	tr	3	3	0	3.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	1	2	1	1.7	0.5
Channel Islands The Narrows	0.01	4	4	0	4.0	0.0
Chenega Island	0.02	1	4	3	3.0	0.8
Clam Island	tr	1	2	1	1.4	0.5
Cloudman Bay	0.01	0	1	1	0.9	0.3
Cochrane Bay	0.51	2	4	2	3.6	0.6
Coghill	0.07	2	3	1	2.5	0.5
Coghill Lake Tr	tr	3	3	0	3.0	0.0
College Fjord	1.09	0	4	4	1.4	1.1
Columbia Bay	0.46	0	4	4	2.0	0.9
Comfort Cove	0.01	4	4	0	4.0	0.0
Constantine Harbor	0.05	2	4	2	2.8	0.5
Copper Bay	0.02	2	3	1	2.7	0.5
Cordova	0.01	4	4	0	4.0	0.0
Cow Pens	0.01	3	4	1	3.1	0.3
Crab Bay	tr	4	4	0	4.0	0.0
Crafton Island	tr	3	4	1	3.0	0.1
Culross Bay	0.02	0	2	2	1.0	0.7

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	2	3	1	3.0	0.1
Culross Island	0.02	0	4	4	2.3	1.2
Culross Passage	0.22	2	4	2	3.5	0.7
Dalli Bay	tr	2	2	0	2.0	0.0
Dan Bay	0.02	4	4	0	4.0	0.0
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	2	4	2	3.4	0.6
Day Care Cove	tr	0	0	0	0.0	0.0
DECISION POINT SMP	tr	2	3	1	2.8	0.4
Deep Bay	0.03	3	3	0	3.0	0.0
Deep Water Bay	0.03	0	1	1	0.1	0.3
Deer Cove Hinchinbrook	0.01	4	4	0	4.0	0.0
Deer Cove Knight	0.01	1	1	0	1.0	0.0
Derickson Bay Eaglek	0.03	2	3	1	2.7	0.4
Derickson Bay Nellie Juan	0.07	0	2	2	0.9	0.7
Disk Island	tr	0	0	0	0.0	0.0
Disk Island Anchorage	tr	0	0	0	0.0	0.0
Double Bay	0.04	4	4	0	4.0	0.0
Drier Bay	0.11	2	4	2	2.9	0.4
Dual Head	tr	1	3	2	1.6	0.6
Dutch Group	tr	0	0	0	0.0	0.0
Eagle Bay	0.02	1	2	1	1.4	0.5
Eaglek Bay	0.38	0	4	4	2.3	1.5
Eaglek Island	tr	0	0	0	0.0	0.0
East Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
East Finger Inlet	0.01	2	3	1	2.5	0.5
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	0	0	0	0.0	0.0
Eickelberg Bay	0.02	3	4	1	3.5	0.5
Elder Bay	0.01	1	2	1	1.2	0.4
Eleanor Island	0.02	0	0	0	0.0	0.0
Ellamar	tr	4	4	0	4.0	0.0
Elrington Island	0.04	0	4	4	1.2	1.3

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Elrington Passage	0.24	0	4	4	1.5	1.4
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0
English Bay	tr	2	3	1	2.6	0.5
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	2	2	0	2.0	0.0
ENTRY COVE SMP	tr	1	3	2	1.9	0.5
Eshamy Bay	0.12	3	4	1	4.0	0.2
Esther Bay	0.03	0	1	1	0.4	0.5
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	1	4	3	3.1	0.9
Esther Passage S CS #1	tr	1	2	1	1.5	0.5
Evans Island	0.03	0	4	4	2.6	1.5
Ewan Bay	0.05	4	4	0	4.0	0.0
Fairmount Bay	0.02	3	4	1	3.4	0.5
Fairmount Island	tr	1	2	1	1.4	0.5
Falls Bay	0.02	3	4	1	3.3	0.5
Finski Bay	0.01	0	0	0	0.0	0.0
Fish Bay Hinchinbrook	0.01	4	4	0	4.0	0.0
Fish Bay Port Fidalgo	0.05	4	4	0	4.0	0.0
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	3	4	1	3.3	0.5
Flemming Island	0.01	3	3	0	3.0	0.0
Fool Island	tr	0	0	0	0.0	0.0
Foul Bay	0.01	2	3	1	2.8	0.4
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	0	0	0	0.0	0.0
Fox Point	tr	4	4	0	4.0	0.0
Gaamaak Cove	0.01	1	1	0	1.0	0.0
Galena Bay	0.10	2	4	2	3.4	0.7
Garden Cove	0.01	4	4	0	4.0	0.0
Garden Island	tr	4	4	0	4.0	0.0
Gibbon Anchorage	0.04	2	3	1	2.5	0.5

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Gilmour Bight	0.01	4	4	0	4.0	0.0
Glacier Island	0.03	0	2	2	1.1	0.8
Glacier Water Cove	0.01	4	4	0	4.0	0.0
Gold Creek/Camp Bowie	0.01	3	4	1	3.6	0.5
Golden	0.03	4	4	0	4.0	0.0
Goose Bay	0.01	3	3	0	3.0	0.0
Goose Island	tr	0	0	0	0.0	0.0
Granite Bay (Dangerous Passage)	0.02	2	4	2	2.9	0.8
Granite Bay (Eaglek)	0.03	2	4	2	3.3	0.5
Granite Bay Esther Island	0.04	0	2	2	1.0	0.5
Granite Bay SMP	tr	0	2	2	1.0	0.7
Granite Cove	0.02	4	4	0	4.0	0.0
Granite Point	tr	2	3	1	2.6	0.5
Gravina Island	tr	1	1	0	1.0	0.0
Gravina Point	tr	1	1	0	1.0	0.0
Gravina Rocks	tr	3	3	0	3.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	3	3	0	3.0	0.0
Green Island	0.02	0	3	3	1.3	1.3
Greystone Bay	0.02	0	1	1	0.9	0.3
Grommet Cove	tr	2	3	1	2.9	0.3
Growler Bay	0.04	0	1	1	0.1	0.3
Growler Island	tr	1	1	0	1.0	0.0
Gulf of Alaska	0.74	0	1	1	0.0	0.2
Gull Island	tr	0	0	0	0.0	0.0
Hanning Bay	0.10	3	4	1	3.5	0.5
Harriman Fjord	0.36	0	2	2	0.2	0.5
Harriman south shore complex	0.01	0	0	0	0.0	0.0
Harrison Lagoon	0.02	3	3	0	3.0	0.0
Hartney Bay	0.03	2	3	1	2.5	0.5
Harvard Arm	0.21	0	0	0	0.0	0.0
Hawkins Island	0.06	2	4	2	3.7	0.5
Hawkins Island Cutoff	0.70	0	4	4	2.0	1.5

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Barry Arm	0.04	0	0	0	0.0	0.0
Head of Cedar Bay	0.02	4	4	0	4.0	0.0
Head of Eaglek Bay	0.02	4	4	0	4.0	0.0
Head of Galena Bay	0.09	4	4	0	4.0	0.0
Head of Harriman Fjord	0.05	1	2	1	1.1	0.3
Head of Pigot Bay	0.03	4	4	0	4.0	0.0
Head of Port Fidalgo	0.18	0	4	4	3.6	0.9
Head of Port Gravina;Gravina River	0.05	1	3	2	2.7	0.4
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	4	4	0	4.0	0.0
Heather Bay	0.17	1	3	2	2.2	0.7
Heather Island	0.01	1	2	1	1.7	0.5
Hells Hole	0.01	1	2	1	1.0	0.2
Herring Bay	0.21	0	3	3	1.9	0.8
Herring Point	tr	2	2	0	2.0	0.0
Hidden Bay	0.02	0	1	1	0.5	0.5
Hidey Hole	tr	2	2	0	2.0	0.0
Hinchinbrook Island	0.09	0	4	4	3.0	1.3
Hinge Beach (Doran Straight)	tr	0	0	0	0.0	0.0
Hobo Bay	0.01	3	4	1	3.1	0.2
Hogan Bay	0.01	2	3	1	2.9	0.3
Hogg Bay	0.13	1	3	2	1.8	0.7
Hole-in-the-wall	tr	3	4	1	3.8	0.4
Hook Point	0.03	0	1	1	0.0	0.1
Horseshoe Bay	tr	4	4	0	4.0	0.0
Horseshoe Bay SMP	0.01	4	4	0	4.0	0.0
Hummer Bay	0.03	4	4	0	4.0	0.0
Humpback Cove	0.01	3	3	0	3.0	0.0
Humpback/Shepard	0.01	3	4	1	3.7	0.5
Icy Bay	0.25	1	3	2	1.6	0.6
Iktua Bay	0.03	4	4	0	4.0	0.0
Ingot Cove	tr	0	0	0	0.0	0.0
Ingot Island	0.01	0	0	0	0.0	0.0

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Irish Cove Glacier Island	0.01	2	2	0	2.0	0.0
Irish Cove Port Fidalgo	0.01	3	4	1	3.2	0.4
Italian Bay	tr	0	1	1	0.1	0.3
Jack Bay	0.15	3	4	1	3.9	0.3
Jack Bay SMP	tr	4	4	0	4.0	0.0
Jackpot Bay	0.09	4	4	0	4.0	0.0
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	2	2	1.2	0.5
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	0	0	0	0.0	0.0
Johnson Bay	0.04	1	3	2	2.5	0.7
Jonah Bay	0.05	3	4	1	4.0	0.2
Junction Island	tr	3	3	0	3.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	0	1	1	0.6	0.5
Kenny Cove	0.02	0	0	0	0.0	0.0
Kings Bay	0.62	0	2	2	0.1	0.4
Kiniklik anchorage	tr	1	1	0	1.0	0.0
Kiniklik Island	tr	0	1	1	0.3	0.5
Knight Island Pass CS #1	tr	3	3	0	3.0	0.0
Knowles Bay	0.09	1	2	1	1.4	0.5
Knowles Head	tr	1	1	0	1.0	0.0
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	1	3	2	1.7	0.7
Latouche Island	0.04	1	4	3	3.5	0.9
LaTouche Passage	0.49	1	4	3	3.7	0.7
Lighthouse Reserve	tr	1	1	0	1.0	0.0
Liljegren Passage	0.14	0	0	0	0.0	0.0
Little Axel Lind Island	tr	0	0	0	0.0	0.0
Little Bay	0.02	1	2	1	1.8	0.4
Little Fairmount Island	tr	1	1	0	1.0	0.0
Little Green Island	tr	0	0	0	0.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	4	4	0	4.0	0.0

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	0	0	0	0.0	0.0
Long Bay Culross	0.01	3	3	0	3.0	0.0
Long Bay Unakwik	0.22	3	4	1	3.9	0.2
Louis Bay	0.02	0	1	1	0.3	0.4
Lower Herring Bay	0.05	1	3	2	2.2	0.6
Lower Passage	0.11	0	0	0	0.0	0.0
Lucky Bay	0.01	1	1	0	1.0	0.0
MacLeod Harbor	0.13	1	4	3	3.5	0.7
Main Bay	0.07	3	4	1	3.7	0.5
Mallard Bay	0.02	3	3	0	3.0	0.0
Mallard Head	tr	3	3	0	3.0	0.0
Marsha Bay	0.03	1	3	2	1.8	0.5
Masked Bay	0.02	3	4	1	3.2	0.4
McClure Bay	0.09	1	4	3	2.9	1.0
McPherson Bay	0.07	0	0	0	0.0	0.0
McPherson Passage	0.06	0	0	0	0.0	0.0
Meares Point	tr	0	0	0	0.0	0.0
Middle Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
Miners Bay	0.03	3	4	1	3.8	0.4
Mink Island	0.01	3	4	1	3.8	0.4
Minke Cove	tr	4	4	0	4.0	0.0
Montague Island	0.17	0	4	4	3.0	1.3
Mud Bay	tr	3	3	0	3.0	0.0
Mueller Cove	0.01	2	4	2	2.5	0.5
Mummy Bay	0.07	1	3	2	2.1	0.7
Mummy Island Cordova	0.01	1	1	0	1.0	0.0
Mummy Island Knight	0.01	1	2	1	1.9	0.3
Naked Island	0.02	0	0	0	0.0	0.0
Nassau Fjord	0.13	0	2	2	0.5	0.6
NE Galena Coves (Lethcoe)	0.01	3	4	1	3.0	0.2
Nellie Juan Glacier and spit	0.01	0	1	1	0.0	0.2
Nellie Juan Lagoon	0.02	0	0	0	0.0	0.0

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Nelson Bay	0.10	0	3	3	1.5	0.7
New Year Islands	tr	1	1	0	1.0	0.0
North Island	tr	3	4	1	3.6	0.5
North Twin Bay	0.03	0	0	0	0.0	0.0
Northeast Arm Mummy Bay	0.01	3	3	0	3.0	0.0
Northeast Cove Drier Bay	0.01	3	3	0	3.0	0.0
Northwest Arm Lower Herring Bay	0.01	2	2	0	2.0	0.0
Northwest Bay	0.04	0	0	0	0.0	0.0
Nuchek	0.01	2	4	2	2.9	0.5
Observation Island	0.01	3	4	1	3.1	0.2
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	4	4	0	4.0	0.0
Olsen Cove	tr	1	2	1	1.8	0.4
Olsen Island	tr	1	1	0	1.0	0.0
Orca Bay	1.73	0	4	4	2.2	1.5
Orca Cove	tr	3	3	0	3.0	0.0
Orca Creek	tr	4	4	0	4.0	0.0
Orca Inlet	0.91	0	4	4	2.7	1.1
Otter Cove	tr	3	3	0	3.0	0.0
Outpost Island	tr	0	0	0	0.0	0.0
Outside Bay	0.06	0	0	0	0.0	0.0
Paddy Bay	0.04	4	4	0	4.0	0.0
Pakenham Point	0.01	1	2	1	1.0	0.2
Papoose Cove	tr	2	2	0	2.0	0.0
Parshas Bay	0.02	4	4	0	4.0	0.0
Passage Anchorage	0.01	0	0	0	0.0	0.0
Passage Canal	0.50	0	4	4	1.7	1.4
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	4	4	0	4.0	0.0
Peak Island	0.01	0	0	0	0.0	0.0
Perry Island Rest	tr	0	0	0	0.0	0.0
Picturesque Cove	tr	4	4	0	4.0	0.0
Pigot Bay	0.07	3	4	1	3.8	0.4

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	4	4	0	4.0	0.0
Pleiades Islands	tr	1	1	0	1.0	0.0
Poe Bay	0.01	2	2	0	2.0	0.0
Point Helen	tr	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	1	2	1	1.5	0.5
Porpoise Rocks	0.01	2	2	0	2.0	0.0
Port Audrey	0.01	4	4	0	4.0	0.0
Port Bainbridge	0.74	0	3	3	0.4	0.7
Port Chalmers	0.11	4	4	0	4.0	0.0
Port Etches	0.41	1	4	3	3.1	1.0
Port Fidalgo	1.51	0	4	4	1.5	1.5
Port Gravina	1.16	0	4	4	2.1	1.3
Port Nellie Juan	0.92	1	4	3	2.4	0.8
Port Valdez	0.82	0	4	4	3.0	1.4
Prince of Wales Passage	0.52	0	4	4	2.7	1.4
Pt Nowell	tr	1	2	1	1.3	0.4
Puffin Cove	0.02	1	2	1	1.8	0.4
Quayarnaq Cove	tr	3	3	0	3.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	0	1	1	0.1	0.3
Raging Creek	0.01	4	4	0	4.0	0.0
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	0	0	0	0.0	0.0
Rocky Bay	0.13	1	4	3	2.8	0.9
Rocky Point (Lethcoe)	0.01	2	2	0	2.0	0.0
Sahlin Lagoon	tr	4	4	0	4.0	0.0
Saint Matthews Bay	0.09	2	4	2	2.8	0.5
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	2	4	2	2.9	0.7
Sawmill Bay SMP	tr	3	4	1	3.4	0.5
Sawmill Bay Valdez Arm	0.03	3	4	1	3.7	0.5
Schoppe Bay	0.06	2	4	2	3.4	0.7
Schrader Island	tr	4	4	0	4.0	0.0

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0
Shady Cove	tr	2	3	1	2.3	0.5
Shallow Cove	tr	4	4	0	4.0	0.0
Sheep Bay	0.36	1	4	3	2.2	0.8
Sheep Point	tr	1	2	1	1.4	0.5
Shelter Bay Evans Island	0.02	3	4	1	4.0	0.2
Shelter Bay Hinchinbrook Island	0.02	3	4	1	3.9	0.3
Shipyard Bay	0.01	3	3	0	3.0	0.0
Shoestring Cove	0.01	3	3	0	3.0	0.0
Shotgun Cove	0.02	1	2	1	1.0	0.2
Shoup Bay	0.05	0	1	1	0.1	0.3
Shoup Bay SMP	0.13	0	1	1	0.1	0.2
Simpson Bay northwest arm	0.12	1	4	3	3.1	0.9
Simpson Bay southeast arm	0.06	3	4	1	3.9	0.3
Siwash Bay	0.03	4	4	0	4.0	0.0
Siwash Island	tr	4	4	0	4.0	0.0
Sleepy Bay	0.01	3	4	1	3.1	0.3
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	0	3	3	1.6	0.6
Snug Harbor	0.05	2	3	1	2.8	0.4
Solf Cove	0.02	2	2	0	2.0	0.0
South Bay Perry Island	0.05	0	0	0	0.0	0.0
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	0	0	0	0.0	0.0
Southern tip Culross Island	tr	4	4	0	4.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	1	2	1	1.6	0.5
Squire Island	0.01	0	2	2	0.7	0.6
Squire Island Anchorage	tr	0	1	1	0.0	0.2
Squirrel Bay	0.02	0	0	0	0.0	0.0
Squirrel Cove	tr	2	3	1	2.9	0.3

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Squirrel Island	tr	1	1	0	1.0	0.0
Stockdale Harbor	0.10	4	4	0	4.0	0.0
Storey Island	0.01	0	0	0	0.0	0.0
Sunny Cove (Lethcoe)	0.05	4	4	0	4.0	0.0
Surprise Cove	0.02	2	4	2	2.9	0.3
Surprise Cove SMP	0.01	2	4	2	2.4	0.5
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	0	1	1	0.4	0.5
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	2	2	0	2.0	0.0
Tatitlek Narrows	0.09	1	4	3	2.5	0.7
The Keyhole	tr	4	4	0	4.0	0.0
The Narrows	0.25	2	4	2	3.6	0.6
The Nub	tr	4	4	0	4.0	0.0
Three Fingers Cove	0.02	3	4	1	3.1	0.2
Three Mile Bay	0.01	4	4	0	4.0	0.0
Thumb Bay	0.01	2	3	1	2.3	0.4
Tiger Bight	0.01	2	2	0	2.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	0	1	1	0.4	0.5
Two Moon Bay	0.10	3	4	1	3.7	0.4
Unakwik Inlet	0.82	0	4	4	2.5	1.0
Unnamed north of Galena	0.01	3	3	0	3.0	0.0
UnNamed466003	4.33	0	4	4	0.9	1.2
UnNamed466004	0.58	0	2	2	0.3	0.5
UnNamed466005	0.71	0	2	2	0.4	0.6
UnNamed466031	2.68	0	3	3	0.5	0.9
UnNamed466032	5.11	0	2	2	0.0	0.1
UnNamed466033	3.59	0	4	4	0.2	0.6
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	3	3	0.7	0.8
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	2	2	0.0	0.2
UnNamed476003	4.67	0	4	4	1.2	1.3

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476004	1.18	0	4	4	1.6	1.0
UnNamed476005	0.62	0	3	3	0.9	0.7
UnNamed476006	1.45	0	4	4	1.7	0.8
UnNamed476007	4.40	0	3	3	0.3	0.6
UnNamed476008	3.29	0	4	4	0.3	0.7
UnNamed476009	1.24	0	4	4	2.7	1.2
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	3	3	0.1	0.5
UnNamed476033	2.45	0	2	2	0.0	0.2
UnNamed476034	2.91	0	1	1	0.0	0.1
UnNamed476035	5.03	0	4	4	0.2	0.7
UnNamed476036	0.66	0	3	3	1.0	0.9
UnNamed485932	1.98	0	2	2	0.0	0.2
UnNamed486004	0.31	0	3	3	1.4	1.2
UnNamed486005	0.70	0	3	3	1.6	0.7
UnNamed486031	0.70	0	4	4	0.9	1.1
UnNamed486033	1.28	0	3	3	0.4	0.7
UnNamed486034	2.07	0	4	4	1.6	1.1
Upper Passage	0.05	0	0	0	0.0	0.0
Useless Cove	0.01	4	4	0	4.0	0.0
Valdez	0.16	4	4	0	4.0	0.0
Valdez Arm	1.15	0	4	4	1.7	1.2
Valdez Arm west side CRD	0.25	1	4	3	2.4	0.6
Valdez Narrows	0.10	0	4	4	2.0	1.0
Verdant Island	tr	1	1	0	1.0	0.0
Virgin Bay	0.01	4	4	0	4.0	0.0
Waterfall Cove	0.01	4	4	0	4.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	3	4	1	3.1	0.3
Wells Bay	0.21	0	4	4	1.6	0.8
West Bay Bligh Island	0.03	1	2	1	1.5	0.5
West Culross Anchorage	tr	4	4	0	4.0	0.0
West Finger Inlet	0.01	2	4	2	3.2	0.6
West Flank Island	tr	1	1	0	1.0	0.0

Table A16. Population density index (0 – 4) statistics for salmon index streams, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
West Twin Bay	0.06	0	0	0	0.0	0.0
Whale Bay	0.24	3	4	1	3.5	0.5
Whalen Bay	0.02	3	3	0	3.0	0.0
Whiskey Cove	0.01	4	4	0	4.0	0.0
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	0	0	0	0.0	0.0
Windy Bay	0.03	4	4	0	4.0	0.0
Winter Anchorage Unakwik	tr	1	2	1	1.0	0.2
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	0	0	0	0.0	0.0
Yelper Cove	tr	4	4	0	4.0	0.0
Zaikof Bay	0.29	1	4	3	3.3	0.8
Ziegler Cove	tr	3	3	0	3.0	0.0
Ziegler Cove SMP	tr	2	4	2	3.0	0.5
	100					

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	1	1	0.0	0.2
06-03A Nelson Bay	0.01	3	4	1	3.9	0.3
06-03B Simpson Bay	0.03	0	1	1	0.1	0.3
06-03C Sheep Bay	0.01	0	2	2	0.8	0.8
06-03D Gravina Bay	0.07	0	4	4	0.4	0.9
06-03E Fidalgo Bay	0.84	0	4	4	0.0	0.3
06-03F Valdez Arm	0.06	0	0	0	0.0	0.0
06DU000605	0.33	0	4	4	0.7	1.1
06DU000606	0.15	4	4	0	4.0	0.0
06DU000607	0.21	3	4	1	4.0	0.1
06DU000608	0.82	0	4	4	1.4	1.5
06DU000618	0.10	1	4	3	3.8	0.6
06DU000619	0.10	4	4	0	4.0	0.0
3 Finger-Shrode Lake Tr	tr[b]	4	4	0	4.0	0.0
AA01 West Port Wells	tr	0	0	0	0.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	0	0	0.0	0.0
AA03 College Fjord	0.05	0	4	4	1.8	1.8
AA04 Esther Island/Passage	0.04	0	3	3	0.3	0.8
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	0.9	1.3
AA06 Columbia Bay	0.04	0	4	4	2.5	1.6
AA07 Perry Island	0.02	0	0	0	0.0	0.0
AA09 Culross Island/Passage	tr	0	4	4	3.1	0.8
AA10 Cochrane Bay	0.02	0	4	4	2.0	1.4
AA11 Blackstone Bay	0.02	0	0	0	0.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	4	4	1.1	1.3
AA13 West Knight Island Passage	0.03	0	4	4	2.8	1.5
AA14 West Knight Island	0.10	0	4	4	1.3	1.2
AA15 East Knight Island	0.03	0	4	4	0.9	1.4
AA16 Icy/Whale Bay	0.03	1	4	3	3.0	0.9
AA17 Port Bainbridge	0.02	0	4	4	1.7	1.3
AA18 Passage Canal	0.01	0	0	0	0.0	0.0
Agayuut Bay	tr	0	1	1	0.0	0.2
Agayuut Island	tr	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	1	1	0	1.0	0.0
Anderson Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Anderson Bay Valdez	0.02	0	0	0	0.0	0.0
Applegate Island	tr	0	0	0	0.0	0.0
Auk Bay	0.03	0	1	1	0.4	0.5
Axel Lind Island	tr	0	0	0	0.0	0.0
Bainbridge Island	0.03	0	3	3	1.1	1.1
Bainbridge Passage	0.26	0	3	3	2.2	1.0
Bald Head Chris	tr	0	1	1	0.3	0.4
Barnes Cove	tr	1	1	0	1.0	0.0
Barry Arm	0.31	0	0	0	0.0	0.0
Bass Harbor	0.05	0	0	0	0.0	0.0
Bay of Isles	0.15	2	4	2	3.5	0.5
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	2	3	1	2.3	0.5
Beartrap Bay	0.03	1	3	2	1.8	0.6
Bettles Bay	0.08	0	0	0	0.0	0.0
Bettles Bay SMP	tr	0	0	0	0.0	0.0
Bettles Island	tr	3	3	0	3.0	0.0
Billings Point Perry Island	tr	0	0	0	0.0	0.0
Billy's Hole	tr	4	4	0	4.0	0.0
Blackstone Bay	0.54	0	0	0	0.0	0.0
Bligh Island	0.02	0	0	0	0.0	0.0
Block Island Cedar Bay	tr	2	2	0	2.0	0.0
Block Island Eleanor Island	tr	0	0	0	0.0	0.0
Blue Fjord	0.11	0	4	4	2.5	1.4
Bomb Point	tr	0	0	0	0.0	0.0
Boswell Bay	0.05	0	4	4	4.0	0.3
Boswell Bay SMP	tr	3	4	1	3.6	0.5
Boulder Bay	0.07	0	0	0	0.0	0.0
Brave Harbor	tr	1	2	1	2.0	0.2
Bull Head	0.01	0	0	0	0.0	0.0
Busby Island	0.01	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	0	0	0	0.0	0.0
Buyers Cove	0.01	1	2	1	1.8	0.4
Cabin Bay	0.07	0	0	0	0.0	0.0
Campbell Bay	0.02	0	1	1	0.0	0.1
Cannery Creek	0.04	1	3	2	2.4	0.7
Canoe Passage	0.04	0	1	1	0.1	0.3
Canoe Passage SMP	tr	0	1	1	0.4	0.5
Canoe Passage Trail	tr	0	0	0	0.0	0.0
Cascade Bay	0.02	0	0	0	0.0	0.0
Cat Head	tr	0	0	0	0.0	0.0
Cathead Bay	0.01	0	0	0	0.0	0.0
Cedar Bay Hawkins Island	0.02	0	0	0	0.0	0.0
Cedar Bay Wells Bay	0.04	0	1	1	0.4	0.5
Cedar Lake anchorage	tr	1	1	0	1.0	0.0
Chamberlain Bay	0.03	0	0	0	0.0	0.0
Channel Island south of Green Island	tr	0	0	0	0.0	0.0
Channel Islands The Narrows	0.01	0	0	0	0.0	0.0
Chenega Island	0.02	1	2	1	1.6	0.5
Clam Island	tr	0	0	0	0.0	0.0
Cloudman Bay	0.01	0	0	0	0.0	0.0
Cochrane Bay	0.51	0	3	3	1.2	1.2
Coghill	0.07	2	4	2	3.7	0.5
Coghill Lake Tr	tr	4	4	0	4.0	0.0
College Fjord	1.09	0	4	4	2.0	1.5
Columbia Bay	0.46	0	4	4	1.5	1.4
Comfort Cove	0.01	0	0	0	0.0	0.0
Constantine Harbor	0.05	0	0	0	0.0	0.0
Copper Bay	0.02	0	0	0	0.0	0.0
Cordova	0.01	0	0	0	0.0	0.0
Cow Pens	0.01	4	4	0	4.0	0.0
Crab Bay	tr	3	3	0	3.0	0.0
Crafton Island	tr	2	3	1	2.9	0.2
Culross Bay	0.02	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	0	0	0	0.0	0.0
Culross Island	0.02	0	2	2	0.3	0.5
Culross Passage	0.22	0	3	3	0.8	0.9
Dalli Bay	tr	2	2	0	2.0	0.0
Dan Bay	0.02	0	1	1	0.8	0.4
Danger Island	tr	0	0	0	0.0	0.0
Dangerous Passage	0.34	1	4	3	2.2	0.6
Day Care Cove	tr	0	0	0	0.0	0.0
DECISION POINT SMP	tr	0	0	0	0.0	0.0
Deep Bay	0.03	0	0	0	0.0	0.0
Deep Water Bay	0.03	2	3	1	2.9	0.3
Deer Cove Hinchinbrook	0.01	0	0	0	0.0	0.0
Deer Cove Knight	0.01	0	0	0	0.0	0.0
Derickson Bay Eaglek	0.03	1	3	2	1.7	0.6
Derickson Bay Nellie Juan	0.07	1	2	1	1.5	0.5
Disk Island	tr	0	1	1	0.1	0.2
Disk Island Anchorage	tr	0	0	0	0.0	0.0
Double Bay	0.04	0	0	0	0.0	0.0
Drier Bay	0.11	0	2	2	0.8	0.7
Dual Head	tr	0	2	2	1.0	0.2
Dutch Group	tr	0	0	0	0.0	0.0
Eagle Bay	0.02	0	0	0	0.0	0.0
Eaglek Bay	0.38	0	1	1	0.1	0.3
Eaglek Island	tr	0	0	0	0.0	0.0
East Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
East Finger Inlet	0.01	1	2	1	1.5	0.5
East Flank Island	tr	2	2	0	2.0	0.0
East Twin Bay	0.03	0	0	0	0.0	0.0
Eickelberg Bay	0.02	1	3	2	1.8	0.5
Elder Bay	0.01	0	0	0	0.0	0.0
Eleanor Island	0.02	0	0	0	0.0	0.0
Ellamar	tr	0	0	0	0.0	0.0
Elrington Island	0.04	0	3	3	0.4	0.7
Elrington Passage	0.24	0	3	3	1.0	1.2

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Emerald Bay	tr	0	0	0	0.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0
English Bay	tr	0	0	0	0.0	0.0
Entrance Island	tr	0	0	0	0.0	0.0
Entry Cove	tr	0	0	0	0.0	0.0
ENTRY COVE SMP	tr	0	0	0	0.0	0.0
Eshamy Bay	0.12	3	4	1	3.6	0.5
Esther Bay	0.03	0	1	1	0.4	0.5
Esther Bight	0.01	0	0	0	0.0	0.0
Esther Passage	0.17	0	3	3	2.3	1.1
Esther Passage S CS #1	tr	2	2	0	2.0	0.0
Evans Island	0.03	0	3	3	1.3	1.1
Ewan Bay	0.05	2	4	2	3.0	0.8
Fairmount Bay	0.02	0	0	0	0.0	0.0
Fairmount Island	tr	0	0	0	0.0	0.0
Falls Bay	0.02	2	3	1	2.7	0.4
Finski Bay	0.01	0	0	0	0.0	0.0
Fish Bay Hinchinbrook	0.01	1	2	1	1.4	0.5
Fish Bay Port Fidalgo	0.05	0	0	0	0.0	0.0
Fish Hook Anchorage	tr	0	0	0	0.0	0.0
Fish Island	tr	1	1	0	1.0	0.0
Fisherman's Anchorage	tr	0	0	0	0.0	0.0
Flemming Island	0.01	1	1	0	1.0	0.0
Fool Island	tr	0	0	0	0.0	0.0
Foul Bay	0.01	0	0	0	0.0	0.0
Foul Pass	0.01	0	0	0	0.0	0.0
Fox Farm Bay	0.01	0	0	0	0.0	0.0
Fox Point	tr	0	0	0	0.0	0.0
Gaamaak Cove	0.01	2	3	1	2.3	0.5
Galena Bay	0.10	0	0	0	0.0	0.0
Garden Cove	0.01	0	0	0	0.0	0.0
Garden Island	tr	0	0	0	0.0	0.0
Gibbon Anchorage	0.04	0	0	0	0.0	0.0
Gilmour Bight	0.01	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Glacier Island	0.03	0	1	1	0.1	0.3
Glacier Water Cove	0.01	2	2	0	2.0	0.0
Gold Creek/Camp Bowie	0.01	1	3	2	2.1	0.6
Golden	0.03	0	0	0	0.0	0.0
Goose Bay	0.01	0	1	1	1.0	0.2
Goose Island	tr	0	0	0	0.0	0.0
Granite Bay (Dangerous Passage)	0.02	2	4	2	2.9	0.6
Granite Bay (Eaglek)	0.03	0	1	1	0.1	0.3
Granite Bay Esther Island	0.04	0	0	0	0.0	0.0
Granite Bay SMP	tr	0	0	0	0.0	0.0
Granite Cove	0.02	0	1	1	0.6	0.5
Granite Point	tr	0	0	0	0.0	0.0
Gravina Island	tr	0	0	0	0.0	0.0
Gravina Point	tr	0	0	0	0.0	0.0
Gravina Rocks	tr	0	0	0	0.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	0	0	0	0.0	0.0
Green Island	0.02	0	0	0	0.0	0.0
Greystone Bay	0.02	2	3	1	2.7	0.5
Grommet Cove	tr	3	3	0	3.0	0.0
Growler Bay	0.04	0	0	0	0.0	0.0
Growler Island	tr	0	0	0	0.0	0.0
Gulf of Alaska	0.74	0	4	4	1.3	1.4
Gull Island	tr	0	0	0	0.0	0.0
Hanning Bay	0.10	0	0	0	0.0	0.0
Harriman Fjord	0.36	0	0	0	0.0	0.0
Harriman south shore complex	0.01	0	0	0	0.0	0.0
Harrison Lagoon	0.02	0	0	0	0.0	0.0
Hartney Bay	0.03	0	0	0	0.0	0.0
Harvard Arm	0.21	0	0	0	0.0	0.0
Hawkins Island	0.06	0	4	4	1.8	1.9
Hawkins Island Cutoff	0.70	0	4	4	2.5	1.5
Head of Barry Arm	0.04	0	0	0	0.0	0.0
Head of Cedar Bay	0.02	1	3	2	1.9	0.5

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Eaglek Bay	0.02	0	0	0	0.0	0.0
Head of Galena Bay	0.09	0	0	0	0.0	0.0
Head of Harriman Fjord	0.05	0	0	0	0.0	0.0
Head of Pigot Bay	0.03	0	0	0	0.0	0.0
Head of Port Fidalgo	0.18	2	4	2	3.7	0.6
Head of Port Gravina;Gravina River	0.05	3	4	1	3.7	0.4
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	2	1	1.1	0.3
Heather Bay	0.17	0	4	4	2.9	1.2
Heather Island	0.01	1	3	2	1.9	0.8
Hells Hole	0.01	0	0	0	0.0	0.0
Herring Bay	0.21	0	3	3	2.0	0.9
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	0	0	0	0.0	0.0
Hidey Hole	tr	0	0	0	0.0	0.0
Hinchinbrook Island	0.09	0	4	4	0.6	1.3
Hinge Beach (Doran Straight)	tr	0	0	0	0.0	0.0
Hobo Bay	0.01	0	0	0	0.0	0.0
Hogan Bay	0.01	0	0	0	0.0	0.0
Hogg Bay	0.13	0	1	1	0.1	0.2
Hole-in-the-wall	tr	0	0	0	0.0	0.0
Hook Point	0.03	1	2	1	1.3	0.5
Horseshoe Bay	tr	1	1	0	1.0	0.0
Horseshoe Bay SMP	0.01	1	1	0	1.0	0.0
Hummer Bay	0.03	0	0	0	0.0	0.0
Humpback Cove	0.01	4	4	0	4.0	0.0
Humpback/Shepard	0.01	1	3	2	1.7	0.8
Icy Bay	0.25	1	4	3	2.9	1.1
Iktua Bay	0.03	1	2	1	1.5	0.5
Ingot Cove	tr	0	0	0	0.0	0.0
Ingot Island	0.01	0	1	1	0.0	0.2
Irish Cove Glacier Island	0.01	0	0	0	0.0	0.0
Irish Cove Port Fidalgo	0.01	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Italian Bay	tr	0	0	0	0.0	0.0
Jack Bay	0.15	0	0	0	0.0	0.0
Jack Bay SMP	tr	0	0	0	0.0	0.0
Jackpot Bay	0.09	3	4	1	3.9	0.3
Jackson Cove	tr	0	0	0	0.0	0.0
Jackson Hole	0.01	0	0	0	0.0	0.0
Jeanie Cove	0.14	0	3	3	1.0	0.8
Jenny Island	tr	0	0	0	0.0	0.0
Johnson Bay	0.04	1	3	2	1.9	0.5
Jonah Bay	0.05	0	1	1	0.2	0.4
Junction Island	tr	2	2	0	2.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	0	0	0	0.0	0.0
Kenny Cove	0.02	4	4	0	4.0	0.0
Kings Bay	0.62	0	1	1	0.2	0.4
Kiniklik anchorage	tr	0	0	0	0.0	0.0
Kiniklik Island	tr	0	0	0	0.0	0.0
Knight Island Pass CS #1	tr	1	2	1	1.4	0.5
Knowles Bay	0.09	0	0	0	0.0	0.0
Knowles Head	tr	0	0	0	0.0	0.0
Lake Bay	0.01	0	0	0	0.0	0.0
Landlocked Bay	0.13	0	0	0	0.0	0.0
Latouche Island	0.04	0	2	2	0.9	0.9
LaTouche Passage	0.49	0	3	3	1.4	0.9
Lighthouse Reserve	tr	0	0	0	0.0	0.0
Liljegren Passage	0.14	0	0	0	0.0	0.0
Little Axel Lind Island	tr	0	0	0	0.0	0.0
Little Bay	0.02	0	0	0	0.0	0.0
Little Fairmount Island	tr	0	0	0	0.0	0.0
Little Green Island	tr	0	0	0	0.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	0	0	0	0.0	0.0
Logjam Bay	0.01	4	4	0	4.0	0.0
Lone Island	0.01	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Long Bay Culross	0.01	2	4	2	2.8	0.5
Long Bay Unakwik	0.22	1	4	3	2.6	0.9
Louis Bay	0.02	1	3	2	1.7	0.6
Lower Herring Bay	0.05	2	4	2	3.0	0.5
Lower Passage	0.11	0	1	1	0.3	0.4
Lucky Bay	0.01	0	0	0	0.0	0.0
MacLeod Harbor	0.13	2	3	1	2.9	0.3
Main Bay	0.07	0	1	1	0.8	0.4
Mallard Bay	0.02	0	0	0	0.0	0.0
Mallard Head	tr	0	0	0	0.0	0.0
Marsha Bay	0.03	0	2	2	0.7	0.5
Masked Bay	0.02	1	2	1	1.1	0.4
McClure Bay	0.09	0	4	4	0.4	0.7
McPherson Bay	0.07	0	0	0	0.0	0.0
McPherson Passage	0.06	0	0	0	0.0	0.0
Meares Point	tr	0	0	0	0.0	0.0
Middle Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
Miners Bay	0.03	4	4	0	4.0	0.0
Mink Island	0.01	0	1	1	0.0	0.1
Minke Cove	tr	3	3	0	3.0	0.0
Montague Island	0.17	0	4	4	0.7	1.1
Mud Bay	tr	0	0	0	0.0	0.0
Mueller Cove	0.01	0	0	0	0.0	0.0
Mummy Bay	0.07	0	0	0	0.0	0.0
Mummy Island Cordova	0.01	0	0	0	0.0	0.0
Mummy Island Knight	0.01	0	0	0	0.0	0.0
Naked Island	0.02	0	0	0	0.0	0.0
Nassau Fjord	0.13	2	4	2	3.0	0.2
NE Galena Coves (Lethcoe)	0.01	0	0	0	0.0	0.0
Nellie Juan Glacier and spit	0.01	1	2	1	1.1	0.3
Nellie Juan Lagoon	0.02	1	2	1	1.2	0.4
Nelson Bay	0.10	3	4	1	3.8	0.4
New Year Islands	tr	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
North Island	tr	1	1	0	1.0	0.0
North Twin Bay	0.03	0	0	0	0.0	0.0
Northeast Arm Mummy Bay	0.01	0	0	0	0.0	0.0
Northeast Cove Drier Bay	0.01	1	2	1	1.1	0.3
Northwest Arm Lower Herring Bay	0.01	3	3	0	3.0	0.0
Northwest Bay	0.04	0	0	0	0.0	0.0
Nuchek	0.01	0	0	0	0.0	0.0
Observation Island	0.01	0	0	0	0.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	0	1	1	0.0	0.1
Olsen Cove	tr	0	0	0	0.0	0.0
Olsen Island	tr	0	0	0	0.0	0.0
Orca Bay	1.73	0	4	4	0.3	1.0
Orca Cove	tr	2	3	1	2.8	0.4
Orca Creek	tr	0	0	0	0.0	0.0
Orca Inlet	0.91	0	3	3	0.1	0.5
Otter Cove	tr	3	3	0	3.0	0.0
Outpost Island	tr	0	0	0	0.0	0.0
Outside Bay	0.06	0	0	0	0.0	0.0
Paddy Bay	0.04	3	4	1	3.7	0.5
Pakenham Point	0.01	0	0	0	0.0	0.0
Papoose Cove	tr	2	2	0	2.0	0.0
Parshas Bay	0.02	0	1	1	0.4	0.5
Passage Anchorage	0.01	0	0	0	0.0	0.0
Passage Canal	0.50	0	0	0	0.0	0.0
Patton Bay	0.28	0	4	4	2.5	1.3
Paulson Bay	tr	1	2	1	1.2	0.4
Peak Island	0.01	0	0	0	0.0	0.0
Perry Island Rest	tr	0	0	0	0.0	0.0
Picturesque Cove	tr	0	1	1	0.9	0.3
Pigot Bay	0.07	0	0	0	0.0	0.0
Pinnacle Rock	tr	0	0	0	0.0	0.0
Pirate Cove	0.01	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pleiades Islands	tr	0	0	0	0.0	0.0
Poe Bay	0.01	0	0	0	0.0	0.0
Point Helen	tr	0	0	0	0.0	0.0
Point Pellew Lagoon	0.01	0	0	0	0.0	0.0
Porpoise Rocks	0.01	0	0	0	0.0	0.0
Port Audrey	0.01	2	3	1	2.4	0.5
Port Bainbridge	0.74	0	4	4	0.5	1.0
Port Chalmers	0.11	0	0	0	0.0	0.0
Port Etches	0.41	0	0	0	0.0	0.0
Port Fidalgo	1.51	0	2	2	0.1	0.3
Port Gravina	1.16	0	3	3	0.1	0.4
Port Nellie Juan	0.92	0	3	3	0.6	0.8
Port Valdez	0.82	0	4	4	1.8	1.6
Prince of Wales Passage	0.52	0	3	3	1.1	0.8
Pt Nowell	tr	1	2	1	1.3	0.4
Puffin Cove	0.02	4	4	0	4.0	0.0
Quayarnaq Cove	tr	3	3	0	3.0	0.0
Quillian Bay	0.01	0	0	0	0.0	0.0
Ragged Bay	0.02	0	0	0	0.0	0.0
Raging Creek	0.01	0	0	0	0.0	0.0
Red Head	tr	0	0	0	0.0	0.0
Reef Island	tr	0	0	0	0.0	0.0
Rocky Bay	0.13	1	4	3	3.1	0.8
Rocky Point (Lethcoe)	0.01	0	0	0	0.0	0.0
Sahlin Lagoon	tr	2	2	0	2.0	0.0
Saint Matthews Bay	0.09	0	0	0	0.0	0.0
San Juan Bay	0.06	0	1	1	0.3	0.4
Sawmill Bay Evans Island	0.04	2	3	1	3.0	0.1
Sawmill Bay SMP	tr	0	1	1	0.3	0.5
Sawmill Bay Valdez Arm	0.03	0	1	1	0.2	0.4
Schoppe Bay	0.06	0	0	0	0.0	0.0
Schrader Island	tr	3	4	1	3.6	0.5
Seal Island	tr	0	0	0	0.0	0.0
Serpentine Cove	0.02	0	0	0	0.0	0.0

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shady Cove	tr	1	1	0	1.0	0.0
Shallow Cove	tr	0	0	0	0.0	0.0
Sheep Bay	0.36	0	2	2	0.2	0.5
Sheep Point	tr	0	0	0	0.0	0.0
Shelter Bay Evans Island	0.02	0	2	2	0.4	0.5
Shelter Bay Hinchinbrook Island	0.02	0	0	0	0.0	0.0
Shipyard Bay	0.01	0	0	0	0.0	0.0
Shoestring Cove	0.01	2	3	1	2.7	0.5
Shotgun Cove	0.02	0	0	0	0.0	0.0
Shoup Bay	0.05	0	0	0	0.0	0.0
Shoup Bay SMP	0.13	0	0	0	0.0	0.0
Simpson Bay northwest arm	0.12	0	1	1	0.5	0.5
Simpson Bay southeast arm	0.06	0	0	0	0.0	0.0
Siwash Bay	0.03	0	0	0	0.0	0.0
Siwash Island	tr	0	0	0	0.0	0.0
Sleepy Bay	0.01	2	2	0	2.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	0	0	0	0.0	0.0
Snug Harbor	0.05	0	0	0	0.0	0.0
Solf Cove	0.02	3	4	1	3.8	0.4
South Bay Perry Island	0.05	0	0	0	0.0	0.0
South Esther SMP	0.01	0	0	0	0.0	0.0
South Olsen Island	tr	0	0	0	0.0	0.0
South Twin Bay	0.04	0	0	0	0.0	0.0
Southern tip Culross Island	tr	0	0	0	0.0	0.0
Sphinx Island	tr	0	0	0	0.0	0.0
Squaw Bay	0.03	1	2	1	1.8	0.4
Squire Island	0.01	0	0	0	0.0	0.0
Squire Island Anchorage	tr	0	0	0	0.0	0.0
Squirrel Bay	0.02	0	0	0	0.0	0.0
Squirrel Cove	tr	0	0	0	0.0	0.0
Squirrel Island	tr	0	0	0	0.0	0.0
Stockdale Harbor	0.10	1	4	3	2.2	0.8

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Storey Island	0.01	0	0	0	0.0	0.0
Sunny Cove (Lethcoe)	0.05	2	4	2	3.0	0.5
Surprise Cove	0.02	0	0	0	0.0	0.0
Surprise Cove SMP	0.01	0	0	0	0.0	0.0
Surprise Inlet	0.07	0	0	0	0.0	0.0
Swanson Bay	0.08	0	0	0	0.0	0.0
Tanker Island	tr	2	3	1	2.5	0.5
Tatitlek	tr	0	0	0	0.0	0.0
Tatitlek Narrows	0.09	0	0	0	0.0	0.0
The Keyhole	tr	0	1	1	0.7	0.4
The Narrows	0.25	0	3	3	0.3	0.7
The Nub	tr	3	3	0	3.0	0.0
Three Fingers Cove	0.02	3	4	1	3.2	0.4
Three Mile Bay	0.01	0	0	0	0.0	0.0
Thumb Bay	0.01	0	0	0	0.0	0.0
Tiger Bight	0.01	4	4	0	4.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	3	2	2.0	0.8
Two Moon Bay	0.10	0	0	0	0.0	0.0
Unakwik Inlet	0.82	0	4	4	1.2	1.5
Unnamed north of Galena	0.01	0	0	0	0.0	0.0
UnNamed466003	4.33	0	4	4	0.1	0.6
UnNamed466004	0.58	0	1	1	0.1	0.3
UnNamed466005	0.71	0	0	0	0.0	0.0
UnNamed466031	2.68	0	4	4	0.5	1.1
UnNamed466032	5.11	0	0	0	0.0	0.0
UnNamed466033	3.59	0	0	0	0.0	0.0
UnNamed475932	1.55	0	4	4	1.2	1.4
UnNamed475933	1.83	0	3	3	0.6	0.9
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	0	0	0.0	0.0
UnNamed476003	4.67	0	2	2	0.1	0.3
UnNamed476004	1.18	0	2	2	0.2	0.5
UnNamed476005	0.62	0	1	1	0.1	0.3
UnNamed476006	1.45	0	3	3	0.8	0.9

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476007	4.40	0	4	4	0.3	0.8
UnNamed476008	3.29	0	3	3	0.2	0.5
UnNamed476009	1.24	0	2	2	0.1	0.2
UnNamed476031	3.36	0	0	0	0.0	0.0
UnNamed476032	5.49	0	3	3	0.1	0.3
UnNamed476033	2.45	0	2	2	0.1	0.3
UnNamed476034	2.91	0	0	0	0.0	0.0
UnNamed476035	5.03	0	1	1	0.0	0.2
UnNamed476036	0.66	0	0	0	0.0	0.0
UnNamed485932	1.98	0	0	0	0.0	0.0
UnNamed486004	0.31	0	2	2	0.4	0.5
UnNamed486005	0.70	0	3	3	0.8	0.8
UnNamed486031	0.70	0	1	1	0.0	0.1
UnNamed486033	1.28	0	0	0	0.0	0.0
UnNamed486034	2.07	0	0	0	0.0	0.0
Upper Passage	0.05	0	0	0	0.0	0.0
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	4	4	0	4.0	0.0
Valdez Arm	1.15	0	2	2	0.2	0.4
Valdez Arm west side CRD	0.25	0	2	2	0.2	0.4
Valdez Narrows	0.10	0	0	0	0.0	0.0
Verdant Island	tr	1	1	0	1.0	0.0
Virgin Bay	0.01	0	0	0	0.0	0.0
Waterfall Cove	0.01	2	2	0	2.0	0.0
Wellesley Glacier	tr	0	0	0	0.0	0.0
Wells Anchorage	0.01	1	3	2	2.2	0.7
Wells Bay	0.21	0	1	1	0.0	0.2
West Bay Bligh Island	0.03	0	0	0	0.0	0.0
West Culross Anchorage	tr	0	0	0	0.0	0.0
West Finger Inlet	0.01	1	3	2	1.8	0.5
West Flank Island	tr	1	1	0	1.0	0.0
West Twin Bay	0.06	0	0	0	0.0	0.0
Whale Bay	0.24	0	4	4	2.0	0.9
Whalen Bay	0.02	0	1	1	0.9	0.3

Table A17. Population density index (0 – 4) statistics for sockeye salmon, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Whiskey Cove	0.01	0	0	0	0.0	0.0
Whittier	0.05	0	0	0	0.0	0.0
Willard Island	0.01	0	0	0	0.0	0.0
Windy Bay	0.03	0	0	0	0.0	0.0
Winter Anchorage Unakwik	tr	0	1	1	0.6	0.5
Wooded Island	tr	3	4	1	3.5	0.5
Yale Arm	0.15	0	2	2	0.3	0.5
Yelper Cove	tr	2	3	1	2.5	0.5
Zaikof Bay	0.29	0	2	2	0.8	0.7
Ziegler Cove	tr	0	0	0	0.0	0.0
Ziegler Cove SMP	tr	0	0	0	0.0	0.0
	100					

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	0	3	3	1.6	0.9
06-03A Nelson Bay	0.01	1	3	2	1.9	0.7
06-03B Simpson Bay	0.03	0	4	4	1.7	1.9
06-03C Sheep Bay	0.01	1	3	2	2.8	0.5
06-03D Gravina Bay	0.07	0	4	4	1.9	1.1
06-03E Fidalgo Bay	0.84	0	3	3	0.1	0.4
06-03F Valdez Arm	0.06	0	4	4	1.9	1.6
06DU000605	0.33	2	4	2	3.5	0.5
06DU000606	0.15	3	4	1	3.9	0.3
06DU000607	0.21	1	4	3	2.6	0.9
06DU000608	0.82	0	4	4	1.4	1.4
06DU000618	0.10	0	2	2	1.0	0.4
06DU000619	0.10	1	3	2	1.6	0.6
3 Finger-Shrode Lake Tr	tr[b]	2	2	0	2.0	0.0
AA01 West Port Wells	tr	1	4	3	3.0	1.1
AA02 Harriman Fjord/Barry Arm	0.10	0	4	4	0.8	1.4
AA03 College Fjord	0.05	0	4	4	2.2	1.5
AA04 Esther Island/Passage	0.04	2	4	2	3.4	0.7
AA05 Eaglek/Unakwik Bay	0.07	0	4	4	2.2	1.1
AA06 Columbia Bay	0.04	0	4	4	2.8	1.3
AA07 Perry Island	0.02	3	4	1	3.7	0.5
AA09 Culross Island/Passage	tr	3	4	1	3.9	0.3
AA10 Cochrane Bay	0.02	2	4	2	3.1	0.9
AA11 Blackstone Bay	0.02	2	4	2	3.3	0.5
AA12 Kings Bay/Nellie Juan	0.06	2	4	2	3.9	0.4
AA13 West Knight Island Passage	0.03	1	4	3	2.2	1.0
AA14 West Knight Island	0.10	1	4	3	3.3	0.8
AA15 East Knight Island	0.03	1	4	3	1.8	0.9
AA16 Icy/Whale Bay	0.03	1	4	3	3.0	1.1
AA17 Port Bainbridge	0.02	2	4	2	3.6	0.5
AA18 Passage Canal	0.01	2	4	2	3.7	0.5
Agayuut Bay	tr	4	4	0	4.0	0.0
Agayuut Island	tr	4	4	0	4.0	0.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	2	2	0	2.0	0.0
Anderson Bay Hinchinbrook Island	0.02	2	3	1	2.9	0.2
Anderson Bay Valdez	0.02	4	4	0	4.0	0.0
Applegate Island	tr	4	4	0	4.0	0.0
Auk Bay	0.03	3	4	1	3.4	0.5
Axel Lind Island	tr	4	4	0	4.0	0.0
Bainbridge Island	0.03	1	4	3	2.9	0.8
Bainbridge Passage	0.26	2	4	2	3.2	0.6
Bald Head Chris	tr	3	3	0	3.0	0.0
Barnes Cove	tr	2	2	0	2.0	0.0
Barry Arm	0.31	2	4	2	3.7	0.5
Bass Harbor	0.05	0	1	1	0.4	0.5
Bay of Isles	0.15	2	4	2	2.8	0.5
Beach River	0.07	0	1	1	0.9	0.2
Bear Cove	0.01	4	4	0	4.0	0.0
Beartrap Bay	0.03	0	1	1	0.4	0.5
Bettles Bay	0.08	2	3	1	2.4	0.5
Bettles Bay SMP	tr	2	2	0	2.0	0.0
Bettles Island	tr	2	2	0	2.0	0.0
Billings Point Perry Island	tr	3	3	0	3.0	0.0
Billy's Hole	tr	4	4	0	4.0	0.0
Blackstone Bay	0.54	2	4	2	3.4	0.5
Bligh Island	0.02	2	4	2	3.2	0.7
Block Island Cedar Bay	tr	1	1	0	1.0	0.0
Block Island Eleanor Island	tr	3	3	0	3.0	0.0
Blue Fjord	0.11	2	4	2	3.7	0.5
Bomb Point	tr	4	4	0	4.0	0.0
Boswell Bay	0.05	0	1	1	0.8	0.4
Boswell Bay SMP	tr	0	0	0	0.0	0.0
Boulder Bay	0.07	0	1	1	1.0	0.1
Brave Harbor	tr	4	4	0	4.0	0.0
Bull Head	0.01	4	4	0	4.0	0.0
Busby Island	0.01	2	2	0	2.0	0.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	3	3	0	3.0	0.0
Buyers Cove	0.01	4	4	0	4.0	0.0
Cabin Bay	0.07	1	1	0	1.0	0.0
Campbell Bay	0.02	4	4	0	4.0	0.0
Cannery Creek	0.04	2	3	1	2.8	0.4
Canoe Passage	0.04	0	2	2	1.0	0.6
Canoe Passage SMP	tr	0	2	2	0.8	0.8
Canoe Passage Trail	tr	2	2	0	2.0	0.0
Cascade Bay	0.02	3	4	1	3.7	0.5
Cat Head	tr	3	4	1	3.8	0.4
Cathead Bay	0.01	3	4	1	3.5	0.5
Cedar Bay Hawkins Island	0.02	1	1	0	1.0	0.0
Cedar Bay Wells Bay	0.04	0	1	1	1.0	0.2
Cedar Lake anchorage	tr	0	0	0	0.0	0.0
Chamberlain Bay	0.03	4	4	0	4.0	0.0
Channel Island south of Green Island	tr	1	2	1	1.3	0.5
Channel Islands The Narrows	0.01	4	4	0	4.0	0.0
Chenega Island	0.02	1	2	1	1.4	0.5
Clam Island	tr	3	3	0	3.0	0.0
Cloudman Bay	0.01	2	3	1	2.3	0.4
Cochrane Bay	0.51	2	4	2	3.5	0.8
Coghill	0.07	4	4	0	4.0	0.0
Coghill Lake Tr	tr	4	4	0	4.0	0.0
College Fjord	1.09	1	4	3	3.3	0.9
Columbia Bay	0.46	0	4	4	1.8	0.9
Comfort Cove	0.01	1	1	0	1.0	0.0
Constantine Harbor	0.05	3	3	0	3.0	0.0
Copper Bay	0.02	4	4	0	4.0	0.0
Cordova	0.01	1	2	1	1.5	0.5
Cow Pens	0.01	2	2	0	2.0	0.0
Crab Bay	tr	2	2	0	2.0	0.0
Crafton Island	tr	3	3	0	3.0	0.0
Culross Bay	0.02	4	4	0	4.0	0.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	4	4	0	4.0	0.0
Culross Island	0.02	4	4	0	4.0	0.0
Culross Passage	0.22	4	4	0	4.0	0.0
Dalli Bay	tr	3	3	0	3.0	0.0
Dan Bay	0.02	1	2	1	1.0	0.1
Danger Island	tr	3	3	0	3.0	0.0
Dangerous Passage	0.34	1	2	1	1.5	0.5
Day Care Cove	tr	3	4	1	3.8	0.4
DECISION POINT SMP	tr	4	4	0	4.0	0.0
Deep Bay	0.03	4	4	0	4.0	0.0
Deep Water Bay	0.03	4	4	0	4.0	0.0
Deer Cove Hinchinbrook	0.01	1	2	1	1.8	0.4
Deer Cove Knight	0.01	4	4	0	4.0	0.0
Derickson Bay Eaglek	0.03	3	4	1	3.6	0.5
Derickson Bay Nellie Juan	0.07	4	4	0	4.0	0.0
Disk Island	tr	3	4	1	3.5	0.5
Disk Island Anchorage	tr	4	4	0	4.0	0.0
Double Bay	0.04	3	3	0	3.0	0.0
Drier Bay	0.11	1	4	3	2.2	0.6
Dual Head	tr	3	4	1	3.1	0.2
Dutch Group	tr	3	3	0	3.0	0.0
Eagle Bay	0.02	4	4	0	4.0	0.0
Eaglek Bay	0.38	3	4	1	3.9	0.3
Eaglek Island	tr	4	4	0	4.0	0.0
East Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
East Finger Inlet	0.01	4	4	0	4.0	0.0
East Flank Island	tr	2	3	1	2.7	0.5
East Twin Bay	0.03	4	4	0	4.0	0.0
Eickelberg Bay	0.02	3	4	1	3.4	0.5
Elder Bay	0.01	4	4	0	4.0	0.0
Eleanor Island	0.02	3	3	0	3.0	0.0
Ellamar	tr	1	1	0	1.0	0.0
Elrington Island	0.04	1	3	2	2.0	0.8
Elrington Passage	0.24	1	3	2	1.9	0.8

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Emerald Bay	tr	4	4	0	4.0	0.0
Emerald Cove (Heather Bay)	0.01	4	4	0	4.0	0.0
English Bay	tr	1	1	0	1.0	0.0
Entrance Island	tr	2	3	1	2.8	0.4
Entry Cove	tr	4	4	0	4.0	0.0
ENTRY COVE SMP	tr	4	4	0	4.0	0.0
Eshamy Bay	0.12	1	3	2	2.2	0.7
Esther Bay	0.03	2	3	1	2.6	0.5
Esther Bight	0.01	4	4	0	4.0	0.0
Esther Passage	0.17	2	4	2	2.3	0.7
Esther Passage S CS #1	tr	3	3	0	3.0	0.0
Evans Island	0.03	1	3	2	1.8	0.5
Ewan Bay	0.05	1	2	1	1.2	0.4
Fairmount Bay	0.02	3	4	1	3.9	0.3
Fairmount Island	tr	4	4	0	4.0	0.0
Falls Bay	0.02	3	4	1	3.4	0.5
Finski Bay	0.01	4	4	0	4.0	0.0
Fish Bay Hinchinbrook	0.01	2	3	1	2.8	0.4
Fish Bay Port Fidalgo	0.05	1	1	0	1.0	0.0
Fish Hook Anchorage	tr	2	2	0	2.0	0.0
Fish Island	tr	2	2	0	2.0	0.0
Fisherman's Anchorage	tr	4	4	0	4.0	0.0
Flemming Island	0.01	3	3	0	3.0	0.0
Fool Island	tr	3	4	1	3.7	0.5
Foul Bay	0.01	3	3	0	3.0	0.0
Foul Pass	0.01	3	3	0	3.0	0.0
Fox Farm Bay	0.01	3	3	0	3.0	0.0
Fox Point	tr	2	3	1	2.0	0.2
Gaamaak Cove	0.01	2	2	0	2.0	0.0
Galena Bay	0.10	1	3	2	1.9	0.4
Garden Cove	0.01	3	3	0	3.0	0.0
Garden Island	tr	3	3	0	3.0	0.0
Gibbon Anchorage	0.04	0	0	0	0.0	0.0
Gilmour Bight	0.01	1	1	0	1.0	0.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Glacier Island	0.03	4	4	0	4.0	0.0
Glacier Water Cove	0.01	2	2	0	2.0	0.0
Gold Creek/Camp Bowie	0.01	4	4	0	4.0	0.0
Golden	0.03	4	4	0	4.0	0.0
Goose Bay	0.01	4	4	0	4.0	0.0
Goose Island	tr	1	2	1	1.0	0.2
Granite Bay (Dangerous Passage)	0.02	1	2	1	1.6	0.5
Granite Bay (Eaglek)	0.03	1	3	2	2.2	0.5
Granite Bay Esther Island	0.04	4	4	0	4.0	0.0
Granite Bay SMP	tr	4	4	0	4.0	0.0
Granite Cove	0.02	3	4	1	3.7	0.4
Granite Point	tr	4	4	0	4.0	0.0
Gravina Island	tr	2	2	0	2.0	0.0
Gravina Point	tr	1	2	1	1.2	0.4
Gravina Rocks	tr	2	2	0	2.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	2	3	1	2.6	0.5
Green Island	0.02	0	0	0	0.0	0.0
Greystone Bay	0.02	4	4	0	4.0	0.0
Grommet Cove	tr	2	2	0	2.0	0.0
Growler Bay	0.04	4	4	0	4.0	0.0
Growler Island	tr	4	4	0	4.0	0.0
Gulf of Alaska	0.74	0	3	3	0.6	0.9
Gull Island	tr	2	2	0	2.0	0.0
Hanning Bay	0.10	3	4	1	3.5	0.5
Harriman Fjord	0.36	2	4	2	3.2	0.4
Harriman south shore complex	0.01	3	3	0	3.0	0.0
Harrison Lagoon	0.02	1	1	0	1.0	0.0
Hartney Bay	0.03	1	1	0	1.0	0.0
Harvard Arm	0.21	0	1	1	0.6	0.5
Hawkins Island	0.06	1	4	3	2.3	1.1
Hawkins Island Cutoff	0.70	0	3	3	1.3	0.6
Head of Barry Arm	0.04	2	3	1	2.5	0.5
Head of Cedar Bay	0.02	1	2	1	1.0	0.2

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Eaglek Bay	0.02	3	4	1	3.0	0.2
Head of Galena Bay	0.09	2	3	1	2.4	0.5
Head of Harriman Fjord	0.05	2	3	1	2.2	0.4
Head of Pigot Bay	0.03	4	4	0	4.0	0.0
Head of Port Fidalgo	0.18	0	1	1	0.8	0.4
Head of Port Gravina;Gravina River	0.05	0	0	0	0.0	0.0
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	1	0	1.0	0.0
Heather Bay	0.17	1	4	3	2.7	1.1
Heather Island	0.01	2	3	1	2.7	0.5
Hells Hole	0.01	3	4	1	3.9	0.3
Herring Bay	0.21	4	4	0	4.0	0.0
Herring Point	tr	4	4	0	4.0	0.0
Hidden Bay	0.02	4	4	0	4.0	0.0
Hidey Hole	tr	0	1	1	0.8	0.4
Hinchinbrook Island	0.09	0	3	3	1.8	0.9
Hinge Beach (Doran Straight)	tr	4	4	0	4.0	0.0
Hobo Bay	0.01	1	2	1	1.8	0.4
Hogan Bay	0.01	1	2	1	1.1	0.3
Hogg Bay	0.13	1	3	2	2.3	0.7
Hole-in-the-wall	tr	4	4	0	4.0	0.0
Hook Point	0.03	3	3	0	3.0	0.0
Horseshoe Bay	tr	1	2	1	1.8	0.4
Horseshoe Bay SMP	0.01	2	2	0	2.0	0.0
Hummer Bay	0.03	3	4	1	3.2	0.4
Humpback Cove	0.01	3	3	0	3.0	0.0
Humpback/Shepard	0.01	3	3	0	3.0	0.0
Icy Bay	0.25	1	3	2	2.2	0.6
Iktua Bay	0.03	2	3	1	2.0	0.1
Ingot Cove	tr	3	3	0	3.0	0.0
Ingot Island	0.01	2	3	1	2.9	0.2
Irish Cove Glacier Island	0.01	4	4	0	4.0	0.0
Irish Cove Port Fidalgo	0.01	2	3	1	2.0	0.2

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Italian Bay	tr	3	3	0	3.0	0.0
Jack Bay	0.15	1	4	3	3.1	1.1
Jack Bay SMP	tr	2	3	1	2.7	0.4
Jackpot Bay	0.09	1	2	1	1.7	0.5
Jackson Cove	tr	4	4	0	4.0	0.0
Jackson Hole	0.01	4	4	0	4.0	0.0
Jeanie Cove	0.14	2	3	1	2.3	0.5
Jenny Island	tr	4	4	0	4.0	0.0
Johnson Bay	0.04	2	2	0	2.0	0.0
Jonah Bay	0.05	1	2	1	1.3	0.5
Junction Island	tr	1	1	0	1.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	4	4	0	4.0	0.0
Kenny Cove	0.02	0	1	1	0.8	0.4
Kings Bay	0.62	2	4	2	4.0	0.2
Kiniklik anchorage	tr	3	3	0	3.0	0.0
Kiniklik Island	tr	3	4	1	3.9	0.3
Knight Island Pass CS #1	tr	4	4	0	4.0	0.0
Knowles Bay	0.09	1	3	2	2.0	0.8
Knowles Head	tr	3	3	0	3.0	0.0
Lake Bay	0.01	4	4	0	4.0	0.0
Landlocked Bay	0.13	0	1	1	0.3	0.4
Latouche Island	0.04	1	3	2	2.0	0.5
LaTouche Passage	0.49	1	3	2	2.0	0.6
Lighthouse Reserve	tr	3	4	1	3.6	0.5
Liljegren Passage	0.14	2	4	2	3.3	0.5
Little Axel Lind Island	tr	4	4	0	4.0	0.0
Little Bay	0.02	1	1	0	1.0	0.0
Little Fairmount Island	tr	4	4	0	4.0	0.0
Little Green Island	tr	0	0	0	0.0	0.0
Little Smith Island	tr	1	1	0	1.0	0.0
Logging Camp Bay	tr	4	4	0	4.0	0.0
Logjam Bay	0.01	4	4	0	4.0	0.0
Lone Island	0.01	2	3	1	2.9	0.3

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Long Bay Culross	0.01	3	4	1	4.0	0.1
Long Bay Unakwik	0.22	4	4	0	4.0	0.0
Louis Bay	0.02	4	4	0	4.0	0.0
Lower Herring Bay	0.05	2	4	2	3.0	0.6
Lower Passage	0.11	3	4	1	3.4	0.5
Lucky Bay	0.01	2	3	1	2.1	0.3
MacLeod Harbor	0.13	0	2	2	1.0	0.4
Main Bay	0.07	3	4	1	3.5	0.5
Mallard Bay	0.02	2	3	1	2.8	0.4
Mallard Head	tr	3	4	1	3.1	0.2
Marsha Bay	0.03	2	3	1	2.2	0.4
Masked Bay	0.02	1	1	0	1.0	0.0
McClure Bay	0.09	4	4	0	4.0	0.0
McPherson Bay	0.07	1	2	1	1.0	0.1
McPherson Passage	0.06	1	3	2	1.9	0.8
Meares Point	tr	2	3	1	2.6	0.5
Middle Bight Lower Herring Bay	tr	3	3	0	3.0	0.0
Miners Bay	0.03	1	2	1	1.2	0.4
Mink Island	0.01	4	4	0	4.0	0.0
Minke Cove	tr	4	4	0	4.0	0.0
Montague Island	0.17	0	4	4	1.4	1.2
Mud Bay	tr	1	2	1	1.8	0.4
Mueller Cove	0.01	3	3	0	3.0	0.0
Mummy Bay	0.07	1	2	1	1.4	0.5
Mummy Island Cordova	0.01	1	1	0	1.0	0.0
Mummy Island Knight	0.01	4	4	0	4.0	0.0
Naked Island	0.02	0	3	3	1.2	0.8
Nassau Fjord	0.13	0	2	2	0.9	0.4
NE Galena Coves (Lethcoe)	0.01	2	2	0	2.0	0.0
Nellie Juan Glacier and spit	0.01	3	4	1	3.8	0.4
Nellie Juan Lagoon	0.02	3	4	1	3.9	0.3
Nelson Bay	0.10	1	3	2	2.4	0.6
New Year Islands	tr	3	3	0	3.0	0.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
North Island	tr	4	4	0	4.0	0.0
North Twin Bay	0.03	2	3	1	2.2	0.4
Northeast Arm Mummy Bay	0.01	2	2	0	2.0	0.0
Northeast Cove Drier Bay	0.01	2	2	0	2.0	0.0
Northwest Arm Lower Herring Bay	0.01	3	4	1	3.2	0.4
Northwest Bay	0.04	3	3	0	3.0	0.0
Nuchek	0.01	3	3	0	3.0	0.0
Observation Island	0.01	4	4	0	4.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	1	2	1	1.8	0.4
Olsen Cove	tr	3	3	0	3.0	0.0
Olsen Island	tr	3	3	0	3.0	0.0
Orca Bay	1.73	0	4	4	1.2	1.1
Orca Cove	tr	3	4	1	3.9	0.3
Orca Creek	tr	3	3	0	3.0	0.0
Orca Inlet	0.91	1	4	3	2.1	1.0
Otter Cove	tr	4	4	0	4.0	0.0
Outpost Island	tr	4	4	0	4.0	0.0
Outside Bay	0.06	0	1	1	0.4	0.5
Paddy Bay	0.04	1	1	0	1.0	0.0
Pakenham Point	0.01	4	4	0	4.0	0.0
Papoose Cove	tr	3	4	1	3.3	0.4
Parshas Bay	0.02	1	2	1	1.1	0.3
Passage Anchorage	0.01	2	3	1	2.4	0.5
Passage Canal	0.50	3	4	1	4.0	0.2
Patton Bay	0.28	1	4	3	2.3	0.8
Paulson Bay	tr	3	3	0	3.0	0.0
Peak Island	0.01	2	3	1	2.8	0.4
Perry Island Rest	tr	3	3	0	3.0	0.0
Picturesque Cove	tr	4	4	0	4.0	0.0
Pigot Bay	0.07	4	4	0	4.0	0.0
Pinnacle Rock	tr	1	1	0	1.0	0.0
Pirate Cove	0.01	4	4	0	4.0	0.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pleiades Islands	tr	2	3	1	2.8	0.4
Poe Bay	0.01	4	4	0	4.0	0.0
Point Helen	tr	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	3	4	1	3.7	0.4
Porpoise Rocks	0.01	2	3	1	3.0	0.1
Port Audrey	0.01	1	2	1	1.3	0.4
Port Bainbridge	0.74	3	4	1	3.6	0.5
Port Chalmers	0.11	1	3	2	1.8	0.7
Port Etches	0.41	1	3	2	2.7	0.6
Port Fidalgo	1.51	0	4	4	1.4	0.6
Port Gravina	1.16	0	4	4	2.4	0.9
Port Nellie Juan	0.92	4	4	0	4.0	0.0
Port Valdez	0.82	2	4	2	4.0	0.2
Prince of Wales Passage	0.52	1	3	2	2.1	0.6
Pt Nowell	tr	2	2	0	2.0	0.0
Puffin Cove	0.02	3	4	1	3.5	0.5
Quayarnaq Cove	tr	2	3	1	2.7	0.5
Quillian Bay	0.01	4	4	0	4.0	0.0
Ragged Bay	0.02	4	4	0	4.0	0.0
Raging Creek	0.01	3	4	1	4.0	0.1
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	3	3	0	3.0	0.0
Rocky Bay	0.13	1	3	2	1.9	0.4
Rocky Point (Lethcoe)	0.01	2	2	0	2.0	0.0
Sahlin Lagoon	tr	2	2	0	2.0	0.0
Saint Matthews Bay	0.09	1	4	3	3.2	0.8
San Juan Bay	0.06	0	2	2	1.4	0.6
Sawmill Bay Evans Island	0.04	1	2	1	1.5	0.5
Sawmill Bay SMP	tr	3	4	1	3.7	0.5
Sawmill Bay Valdez Arm	0.03	3	4	1	4.0	0.2
Schoppe Bay	0.06	3	4	1	3.1	0.2
Schrader Island	tr	4	4	0	4.0	0.0
Seal Island	tr	2	2	0	2.0	0.0
Serpentine Cove	0.02	2	3	1	2.2	0.4

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shady Cove	tr	4	4	0	4.0	0.0
Shallow Cove	tr	3	3	0	3.0	0.0
Sheep Bay	0.36	1	3	2	2.2	0.7
Sheep Point	tr	3	3	0	3.0	0.0
Shelter Bay Evans Island	0.02	2	3	1	2.1	0.3
Shelter Bay Hinchinbrook Island	0.02	1	1	0	1.0	0.0
Shipyard Bay	0.01	3	3	0	3.0	0.0
Shoestring Cove	0.01	2	2	0	2.0	0.0
Shotgun Cove	0.02	4	4	0	4.0	0.0
Shoup Bay	0.05	3	4	1	4.0	0.0
Shoup Bay SMP	0.13	3	4	1	3.8	0.4
Simpson Bay northwest arm	0.12	1	4	3	3.6	0.6
Simpson Bay southeast arm	0.06	4	4	0	4.0	0.0
Siwash Bay	0.03	2	2	0	2.0	0.0
Siwash Island	tr	2	2	0	2.0	0.0
Sleepy Bay	0.01	2	2	0	2.0	0.0
Smith Island	0.01	1	1	0	1.0	0.0
Snug Corner Cove	0.09	1	3	2	2.0	0.3
Snug Harbor	0.05	3	3	0	3.0	0.0
Solf Cove	0.02	4	4	0	4.0	0.0
South Bay Perry Island	0.05	2	4	2	3.1	0.3
South Esther SMP	0.01	3	4	1	4.0	0.2
South Olsen Island	tr	3	3	0	3.0	0.0
South Twin Bay	0.04	2	3	1	2.3	0.5
Southern tip Culross Island	tr	4	4	0	4.0	0.0
Sphinx Island	tr	1	2	1	1.8	0.4
Squaw Bay	0.03	3	4	1	3.8	0.4
Squire Island	0.01	3	4	1	3.8	0.4
Squire Island Anchorage	tr	3	4	1	3.9	0.3
Squirrel Bay	0.02	2	3	1	2.0	0.1
Squirrel Cove	tr	4	4	0	4.0	0.0
Squirrel Island	tr	2	2	0	2.0	0.0
Stockdale Harbor	0.10	0	1	1	0.6	0.5

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Storey Island	0.01	3	4	1	3.8	0.4
Sunny Cove (Lethcoe)	0.05	1	1	0	1.0	0.0
Surprise Cove	0.02	4	4	0	4.0	0.0
Surprise Cove SMP	0.01	4	4	0	4.0	0.0
Surprise Inlet	0.07	1	3	2	1.8	0.4
Swanson Bay	0.08	3	4	1	3.8	0.4
Tanker Island	tr	3	3	0	3.0	0.0
Tatitlek	tr	1	1	0	1.0	0.0
Tatitlek Narrows	0.09	1	2	1	1.1	0.2
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	3	4	1	3.9	0.2
The Nub	tr	4	4	0	4.0	0.0
Three Fingers Cove	0.02	2	3	1	2.0	0.2
Three Mile Bay	0.01	1	1	0	1.0	0.0
Thumb Bay	0.01	1	1	0	1.0	0.0
Tiger Bight	0.01	2	2	0	2.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	2	1	1.1	0.2
Two Moon Bay	0.10	2	3	1	2.2	0.4
Unakwik Inlet	0.82	0	4	4	2.1	0.9
Unnamed north of Galena	0.01	3	3	0	3.0	0.0
UnNamed466003	4.33	0	4	4	1.0	1.0
UnNamed466004	0.58	2	4	2	3.0	0.3
UnNamed466005	0.71	0	4	4	2.5	1.2
UnNamed466031	2.68	0	3	3	0.7	0.8
UnNamed466032	5.11	0	3	3	0.3	0.7
UnNamed466033	3.59	0	4	4	1.3	1.2
UnNamed475932	1.55	0	4	4	2.3	0.9
UnNamed475933	1.83	0	3	3	1.4	1.0
UnNamed475934	0.05	1	3	2	2.2	0.5
UnNamed476002	1.33	0	4	4	2.5	1.2
UnNamed476003	4.67	0	3	3	0.5	0.7
UnNamed476004	1.18	1	4	3	1.8	0.8
UnNamed476005	0.62	1	4	3	3.1	0.9
UnNamed476006	1.45	1	4	3	2.2	1.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476007	4.40	0	4	4	1.0	0.9
UnNamed476008	3.29	0	3	3	0.3	0.5
UnNamed476009	1.24	0	3	3	1.2	0.9
UnNamed476031	3.36	0	1	1	0.1	0.3
UnNamed476032	5.49	0	4	4	1.3	0.9
UnNamed476033	2.45	1	4	3	3.0	0.8
UnNamed476034	2.91	0	4	4	1.8	1.1
UnNamed476035	5.03	0	4	4	1.4	1.6
UnNamed476036	0.66	2	4	2	3.5	0.7
UnNamed485932	1.98	0	4	4	1.7	1.1
UnNamed486004	0.31	2	4	2	3.2	0.5
UnNamed486005	0.70	1	4	3	2.2	0.7
UnNamed486031	0.70	1	4	3	2.7	0.8
UnNamed486033	1.28	2	4	2	3.9	0.3
UnNamed486034	2.07	1	4	3	2.8	0.8
Upper Passage	0.05	2	3	1	2.8	0.4
Useless Cove	0.01	4	4	0	4.0	0.0
Valdez	0.16	3	4	1	4.0	0.1
Valdez Arm	1.15	1	4	3	3.3	0.8
Valdez Arm west side CRD	0.25	1	4	3	2.1	1.0
Valdez Narrows	0.10	4	4	0	4.0	0.0
Verdant Island	tr	2	3	1	2.2	0.4
Virgin Bay	0.01	1	1	0	1.0	0.0
Waterfall Cove	0.01	2	3	1	2.8	0.4
Wellesley Glacier	tr	2	3	1	2.0	0.2
Wells Anchorage	0.01	2	2	0	2.0	0.0
Wells Bay	0.21	0	4	4	1.6	0.9
West Bay Bligh Island	0.03	2	3	1	2.4	0.5
West Culross Anchorage	tr	4	4	0	4.0	0.0
West Finger Inlet	0.01	2	4	2	3.8	0.4
West Flank Island	tr	2	2	0	2.0	0.0
West Twin Bay	0.06	4	4	0	4.0	0.0
Whale Bay	0.24	3	4	1	4.0	0.2
Whalen Bay	0.02	1	1	0	1.0	0.0

Table A18. Population density index (0 – 4) statistics for blue mussels, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Whiskey Cove	0.01	1	1	0	1.0	0.0
Whittier	0.05	2	3	1	2.8	0.4
Willard Island	0.01	4	4	0	4.0	0.0
Windy Bay	0.03	1	1	0	1.0	0.0
Winter Anchorage Unakwik	tr	2	2	0	2.0	0.0
Wooded Island	tr	3	3	0	3.0	0.0
Yale Arm	0.15	0	2	2	1.2	0.6
Yelper Cove	tr	3	3	0	3.0	0.0
Zaikof Bay	0.29	2	4	2	3.3	0.7
Ziegler Cove	tr	4	4	0	4.0	0.0
Ziegler Cove SMP	tr	4	4	0	4.0	0.0
	100.0					

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.03	1	1	0	1.0	0.0
06-03A Nelson Bay	0.01	1	1	0	1.0	0.0
06-03B Simpson Bay	0.03	0	3	3	1.0	1.2
06-03C Sheep Bay	0.01	1	3	2	2.3	0.8
06-03D Gravina Bay	0.07	0	2	2	1.3	0.5
06-03E Fidalgo Bay	0.84	0	1	1	0.1	0.3
06-03F Valdez Arm	0.06	0	3	3	0.8	0.6
06DU000605	0.33	0	1	1	1.0	0.2
06DU000606	0.15	1	1	0	1.0	0.0
06DU000607	0.21	1	1	0	1.0	0.0
06DU000608	0.82	0	1	1	0.6	0.5
06DU000618	0.10	0	1	1	0.3	0.5
06DU000619	0.10	0	1	1	0.7	0.4
3 Finger-Shrode Lake Tr	tr[b]	1	1	0	1.0	0.0
AA01 West Port Wells	tr	1	1	0	1.0	0.0
AA02 Harriman Fjord/Barry Arm	0.10	0	1	1	0.4	0.5
AA03 College Fjord	0.05	0	1	1	0.6	0.5
AA04 Esther Island/Passage	0.04	1	1	0	1.0	0.0
AA05 Eaglek/Unakwik Bay	0.07	0	3	3	1.3	0.8
AA06 Columbia Bay	0.04	0	1	1	0.8	0.4
AA07 Perry Island	0.02	1	1	0	1.0	0.0
AA09 Culross Island/Passage	tr	1	2	1	1.6	0.5
AA10 Cochrane Bay	0.02	1	2	1	1.1	0.3
AA11 Blackstone Bay	0.02	1	1	0	1.0	0.0
AA12 Kings Bay/Nellie Juan	0.06	0	2	2	1.0	0.3
AA13 West Knight Island Passage	0.03	1	4	3	1.9	1.0
AA14 West Knight Island	0.10	1	3	2	1.8	0.5
AA15 East Knight Island	0.03	1	2	1	1.1	0.3
AA16 Icy/Whale Bay	0.03	1	1	0	1.0	0.0
AA17 Port Bainbridge	0.02	1	2	1	1.0	0.1
AA18 Passage Canal	0.01	1	1	0	1.0	0.0
Agayuut Bay	tr	2	2	0	2.0	0.0
Agayuut Island	tr	2	2	0	2.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Aguliak Island	tr	2	2	0	2.0	0.0
Anderson Bay Hinchinbrook Island	0.02	1	1	0	1.0	0.0
Anderson Bay Valdez	0.02	1	1	0	1.0	0.0
Applegate Island	tr	1	2	1	1.9	0.2
Auk Bay	0.03	1	1	0	1.0	0.0
Axel Lind Island	tr	1	1	0	1.0	0.0
Bainbridge Island	0.03	1	2	1	1.0	0.2
Bainbridge Passage	0.26	1	2	1	1.3	0.4
Bald Head Chris	tr	1	1	0	1.0	0.0
Barnes Cove	tr	1	1	0	1.0	0.0
Barry Arm	0.31	1	1	0	1.0	0.0
Bass Harbor	0.05	1	1	0	1.0	0.0
Bay of Isles	0.15	1	2	1	1.0	0.2
Beach River	0.07	0	0	0	0.0	0.0
Bear Cove	0.01	2	2	0	2.0	0.0
Beartrap Bay	0.03	1	2	1	1.7	0.5
Bettles Bay	0.08	1	1	0	1.0	0.0
Bettles Bay SMP	tr	1	1	0	1.0	0.0
Bettles Island	tr	1	1	0	1.0	0.0
Billings Point Perry Island	tr	1	1	0	1.0	0.0
Billy's Hole	tr	1	1	0	1.0	0.0
Blackstone Bay	0.54	1	1	0	1.0	0.0
Bligh Island	0.02	1	3	2	1.5	0.7
Block Island Cedar Bay	tr	1	1	0	1.0	0.0
Block Island Eleanor Island	tr	1	1	0	1.0	0.0
Blue Fjord	0.11	1	1	0	1.0	0.0
Bomb Point	tr	1	2	1	1.4	0.5
Boswell Bay	0.05	1	1	0	1.0	0.0
Boswell Bay SMP	tr	1	1	0	1.0	0.0
Boulder Bay	0.07	1	2	1	1.8	0.4
Brave Harbor	tr	2	2	0	2.0	0.0
Bull Head	0.01	1	1	0	1.0	0.0
Busby Island	0.01	1	2	1	1.4	0.5

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	1	1	0	1.0	0.0
Buyers Cove	0.01	1	1	0	1.0	0.0
Cabin Bay	0.07	1	1	0	1.0	0.0
Campbell Bay	0.02	1	1	0	1.0	0.0
Cannery Creek	0.04	1	1	0	1.0	0.0
Canoe Passage	0.04	1	1	0	1.0	0.0
Canoe Passage SMP	tr	1	1	0	1.0	0.0
Canoe Passage Trail	tr	1	1	0	1.0	0.0
Cascade Bay	0.02	1	2	1	1.7	0.5
Cat Head	tr	2	2	0	2.0	0.0
Cathead Bay	0.01	1	2	1	1.6	0.5
Cedar Bay Hawkins Island	0.02	1	1	0	1.0	0.0
Cedar Bay Wells Bay	0.04	1	1	0	1.0	0.0
Cedar Lake anchorage	tr	1	1	0	1.0	0.0
Chamberlain Bay	0.03	1	1	0	1.0	0.0
Channel Island south of Green Island	tr	1	1	0	1.0	0.0
Channel Islands The Narrows	0.01	1	1	0	1.0	0.0
Chenega Island	0.02	1	4	3	2.2	1.1
Clam Island	tr	2	2	0	2.0	0.0
Cloudman Bay	0.01	2	2	0	2.0	0.0
Cochrane Bay	0.51	1	2	1	1.0	0.1
Coghill	0.07	1	1	0	1.0	0.0
Coghill Lake Tr	tr	1	1	0	1.0	0.0
College Fjord	1.09	0	1	1	1.0	0.0
Columbia Bay	0.46	0	1	1	0.8	0.4
Comfort Cove	0.01	1	2	1	1.8	0.4
Constantine Harbor	0.05	1	1	0	1.0	0.0
Copper Bay	0.02	1	2	1	1.9	0.2
Cordova	0.01	1	1	0	1.0	0.0
Cow Pens	0.01	1	1	0	1.0	0.0
Crab Bay	tr	1	1	0	1.0	0.0
Crafton Island	tr	1	1	0	1.0	0.0
Culross Bay	0.02	1	2	1	1.0	0.2

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	2	2	0	2.0	0.0
Culross Island	0.02	1	3	2	1.7	0.8
Culross Passage	0.22	1	3	2	1.9	0.5
Dalli Bay	tr	1	1	0	1.0	0.0
Dan Bay	0.02	1	1	0	1.0	0.0
Danger Island	tr	1	1	0	1.0	0.0
Dangerous Passage	0.34	1	4	3	2.8	1.0
Day Care Cove	tr	1	1	0	1.0	0.0
DECISION POINT SMP	tr	1	1	0	1.0	0.0
Deep Bay	0.03	1	1	0	1.0	0.0
Deep Water Bay	0.03	1	1	0	1.0	0.0
Deer Cove Hinchinbrook	0.01	1	1	0	1.0	0.0
Deer Cove Knight	0.01	2	2	0	2.0	0.0
Derickson Bay Eaglek	0.03	1	2	1	1.8	0.4
Derickson Bay Nellie Juan	0.07	1	1	0	1.0	0.0
Disk Island	tr	1	1	0	1.0	0.0
Disk Island Anchorage	tr	1	1	0	1.0	0.0
Double Bay	0.04	1	1	0	1.0	0.0
Drier Bay	0.11	1	2	1	1.7	0.4
Dual Head	tr	1	1	0	1.0	0.0
Dutch Group	tr	1	1	0	1.0	0.0
Eagle Bay	0.02	1	1	0	1.0	0.0
Eaglek Bay	0.38	1	3	2	2.4	0.6
Eaglek Island	tr	1	1	0	1.0	0.0
East Bight Lower Herring Bay	tr	2	2	0	2.0	0.0
East Finger Inlet	0.01	1	1	0	1.0	0.0
East Flank Island	tr	1	1	0	1.0	0.0
East Twin Bay	0.03	1	1	0	1.0	0.0
Eickelberg Bay	0.02	1	1	0	1.0	0.0
Elder Bay	0.01	1	1	0	1.0	0.0
Eleanor Island	0.02	1	1	0	1.0	0.0
Ellamar	tr	2	2	0	2.0	0.0
Elrington Island	0.04	1	1	0	1.0	0.0
Elrington Passage	0.24	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Emerald Bay	tr	1	1	0	1.0	0.0
Emerald Cove (Heather Bay)	0.01	1	1	0	1.0	0.0
English Bay	tr	1	1	0	1.0	0.0
Entrance Island	tr	1	1	0	1.0	0.0
Entry Cove	tr	1	1	0	1.0	0.0
ENTRY COVE SMP	tr	1	1	0	1.0	0.0
Eshamy Bay	0.12	1	3	2	2.3	0.6
Esther Bay	0.03	1	1	0	1.0	0.0
Esther Bight	0.01	1	1	0	1.0	0.0
Esther Passage	0.17	1	1	0	1.0	0.0
Esther Passage S CS #1	tr	1	1	0	1.0	0.0
Evans Island	0.03	1	1	0	1.0	0.0
Ewan Bay	0.05	1	4	3	3.3	0.8
Fairmount Bay	0.02	1	1	0	1.0	0.0
Fairmount Island	tr	1	1	0	1.0	0.0
Falls Bay	0.02	1	1	0	1.0	0.0
Finski Bay	0.01	1	1	0	1.0	0.0
Fish Bay Hinchinbrook	0.01	1	1	0	1.0	0.0
Fish Bay Port Fidalgo	0.05	1	1	0	1.0	0.0
Fish Hook Anchorage	tr	1	1	0	1.0	0.0
Fish Island	tr	0	0	0	0.0	0.0
Fisherman's Anchorage	tr	1	1	0	1.0	0.0
Flemming Island	0.01	1	1	0	1.0	0.0
Fool Island	tr	1	1	0	1.0	0.0
Foul Bay	0.01	1	1	0	1.0	0.0
Foul Pass	0.01	1	1	0	1.0	0.0
Fox Farm Bay	0.01	1	1	0	1.0	0.0
Fox Point	tr	1	1	0	1.0	0.0
Gaamaak Cove	0.01	1	1	0	1.0	0.0
Galena Bay	0.10	1	1	0	1.0	0.0
Garden Cove	0.01	1	1	0	1.0	0.0
Garden Island	tr	1	1	0	1.0	0.0
Gibbon Anchorage	0.04	1	1	0	1.0	0.0
Gilmour Bight	0.01	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Glacier Island	0.03	1	1	0	1.0	0.0
Glacier Water Cove	0.01	3	3	0	3.0	0.0
Gold Creek/Camp Bowie	0.01	1	1	0	1.0	0.0
Golden	0.03	1	1	0	1.0	0.0
Goose Bay	0.01	3	3	0	3.0	0.0
Goose Island	tr	1	1	0	1.0	0.0
Granite Bay (Dangerous Passage)	0.02	2	3	1	2.8	0.4
Granite Bay (Eaglek)	0.03	1	1	0	1.0	0.0
Granite Bay Esther Island	0.04	1	1	0	1.0	0.0
Granite Bay SMP	tr	1	1	0	1.0	0.0
Granite Cove	0.02	1	1	0	1.0	0.0
Granite Point	tr	1	1	0	1.0	0.0
Gravina Island	tr	1	1	0	1.0	0.0
Gravina Point	tr	1	1	0	1.0	0.0
Gravina Rocks	tr	1	1	0	1.0	0.0
Gravina Rocks anchorage (Lethcoe)	0.02	1	1	0	1.0	0.0
Green Island	0.02	1	1	0	1.0	0.0
Greystone Bay	0.02	1	1	0	1.0	0.0
Grommet Cove	tr	1	1	0	1.0	0.0
Growler Bay	0.04	1	1	0	1.0	0.0
Growler Island	tr	1	1	0	1.0	0.0
Gulf of Alaska	0.74	1	1	0	1.0	0.0
Gull Island	tr	1	1	0	1.0	0.0
Hanning Bay	0.10	1	1	0	1.0	0.0
Harriman Fjord	0.36	1	1	0	1.0	0.0
Harriman south shore complex	0.01	1	1	0	1.0	0.0
Harrison Lagoon	0.02	1	1	0	1.0	0.0
Hartney Bay	0.03	1	1	0	1.0	0.0
Harvard Arm	0.21	0	1	1	0.1	0.3
Hawkins Island	0.06	1	1	0	1.0	0.0
Hawkins Island Cutoff	0.70	1	1	0	1.0	0.0
Head of Barry Arm	0.04	1	1	0	1.0	0.0
Head of Cedar Bay	0.02	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Eaglek Bay	0.02	2	3	1	2.1	0.2
Head of Galena Bay	0.09	1	1	0	1.0	0.0
Head of Harriman Fjord	0.05	1	1	0	1.0	0.0
Head of Pigot Bay	0.03	1	1	0	1.0	0.0
Head of Port Fidalgo	0.18	1	1	0	1.0	0.0
Head of Port Gravina;Gravina River	0.05	1	2	1	1.5	0.5
Head of Unakwik Inlet	0.04	0	0	0	0.0	0.0
Head of Wells Bay	0.03	1	1	0	1.0	0.0
Heather Bay	0.17	0	1	1	0.9	0.3
Heather Island	0.01	1	1	0	1.0	0.0
Hells Hole	0.01	1	1	0	1.0	0.0
Herring Bay	0.21	1	3	2	1.8	0.6
Herring Point	tr	1	1	0	1.0	0.0
Hidden Bay	0.02	1	2	1	1.1	0.4
Hidey Hole	tr	1	1	0	1.0	0.0
Hinchinbrook Island	0.09	0	1	1	0.9	0.3
Hinge Beach (Doran Straight)	tr	1	1	0	1.0	0.0
Hobo Bay	0.01	1	1	0	1.0	0.0
Hogan Bay	0.01	1	1	0	1.0	0.0
Hogg Bay	0.13	1	1	0	1.0	0.0
Hole-in-the-wall	tr	1	2	1	1.4	0.5
Hook Point	0.03	0	1	1	0.5	0.5
Horseshoe Bay	tr	1	1	0	1.0	0.0
Horseshoe Bay SMP	0.01	1	1	0	1.0	0.0
Hummer Bay	0.03	1	1	0	1.0	0.0
Humpback Cove	0.01	1	1	0	1.0	0.0
Humpback/Shepard	0.01	1	1	0	1.0	0.0
Icy Bay	0.25	1	1	0	1.0	0.0
Iktua Bay	0.03	1	1	0	1.0	0.0
Ingot Cove	tr	1	1	0	1.0	0.0
Ingot Island	0.01	1	1	0	1.0	0.0
Irish Cove Glacier Island	0.01	1	1	0	1.0	0.0
Irish Cove Port Fidalgo	0.01	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Italian Bay	tr	1	2	1	1.2	0.4
Jack Bay	0.15	1	1	0	1.0	0.0
Jack Bay SMP	tr	1	1	0	1.0	0.0
Jackpot Bay	0.09	1	2	1	1.5	0.5
Jackson Cove	tr	1	1	0	1.0	0.0
Jackson Hole	0.01	1	1	0	1.0	0.0
Jeanie Cove	0.14	0	0	0	0.0	0.0
Jenny Island	tr	1	1	0	1.0	0.0
Johnson Bay	0.04	2	3	1	2.5	0.5
Jonah Bay	0.05	1	1	0	1.0	0.0
Junction Island	tr	3	3	0	3.0	0.0
Kake Cove	tr	1	1	0	1.0	0.0
Kelly's Cove	0.02	1	1	0	1.0	0.0
Kenny Cove	0.02	1	1	0	1.0	0.0
Kings Bay	0.62	0	1	1	0.9	0.2
Kiniklik anchorage	tr	1	1	0	1.0	0.0
Kiniklik Island	tr	1	1	0	1.0	0.0
Knight Island Pass CS #1	tr	2	2	0	2.0	0.0
Knowles Bay	0.09	1	1	0	1.0	0.0
Knowles Head	tr	1	1	0	1.0	0.0
Lake Bay	0.01	1	1	0	1.0	0.0
Landlocked Bay	0.13	1	2	1	1.0	0.1
Latouche Island	0.04	1	1	0	1.0	0.0
LaTouche Passage	0.49	1	1	0	1.0	0.0
Lighthouse Reserve	tr	1	1	0	1.0	0.0
Liljegren Passage	0.14	1	1	0	1.0	0.0
Little Axel Lind Island	tr	1	1	0	1.0	0.0
Little Bay	0.02	1	1	0	1.0	0.0
Little Fairmount Island	tr	1	1	0	1.0	0.0
Little Green Island	tr	1	1	0	1.0	0.0
Little Smith Island	tr	0	0	0	0.0	0.0
Logging Camp Bay	tr	1	1	0	1.0	0.0
Logjam Bay	0.01	0	0	0	0.0	0.0
Lone Island	0.01	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Long Bay Culross	0.01	1	2	1	1.9	0.4
Long Bay Unakwik	0.22	1	1	0	1.0	0.0
Louis Bay	0.02	1	1	0	1.0	0.0
Lower Herring Bay	0.05	2	3	1	2.2	0.4
Lower Passage	0.11	1	1	0	1.0	0.0
Lucky Bay	0.01	1	1	0	1.0	0.0
MacLeod Harbor	0.13	1	1	0	1.0	0.0
Main Bay	0.07	1	2	1	1.1	0.3
Mallard Bay	0.02	1	2	1	1.0	0.2
Mallard Head	tr	1	2	1	1.4	0.5
Marsha Bay	0.03	1	1	0	1.0	0.0
Masked Bay	0.02	2	4	2	3.2	0.7
McClure Bay	0.09	1	2	1	1.4	0.5
McPherson Bay	0.07	1	1	0	1.0	0.0
McPherson Passage	0.06	1	1	0	1.0	0.0
Meares Point	tr	1	1	0	1.0	0.0
Middle Bight Lower Herring Bay	tr	2	3	1	2.4	0.5
Miners Bay	0.03	1	1	0	1.0	0.0
Mink Island	0.01	1	1	0	1.0	0.0
Minke Cove	tr	1	1	0	1.0	0.0
Montague Island	0.17	0	1	1	0.9	0.3
Mud Bay	tr	1	1	0	1.0	0.0
Mueller Cove	0.01	2	3	1	2.2	0.4
Mummy Bay	0.07	1	1	0	1.0	0.0
Mummy Island Cordova	0.01	1	1	0	1.0	0.0
Mummy Island Knight	0.01	1	2	1	1.9	0.3
Naked Island	0.02	1	1	0	1.0	0.0
Nassau Fjord	0.13	1	1	0	1.0	0.0
NE Galena Coves (Lethcoe)	0.01	1	1	0	1.0	0.0
Nellie Juan Glacier and spit	0.01	1	1	0	1.0	0.0
Nellie Juan Lagoon	0.02	1	1	0	1.0	0.0
Nelson Bay	0.10	1	1	0	1.0	0.0
New Year Islands	tr	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
North Island	tr	1	1	0	1.0	0.0
North Twin Bay	0.03	1	1	0	1.0	0.0
Northeast Arm Mummy Bay	0.01	1	1	0	1.0	0.0
Northeast Cove Drier Bay	0.01	1	1	0	1.0	0.0
Northwest Arm Lower Herring Bay	0.01	2	3	1	2.2	0.4
Northwest Bay	0.04	1	1	0	1.0	0.0
Nuchek	0.01	1	1	0	1.0	0.0
Observation Island	0.01	1	1	0	1.0	0.0
Old Chenega site	tr	1	1	0	1.0	0.0
Olsen Bay	0.07	1	2	1	1.2	0.4
Olsen Cove	tr	2	2	0	2.0	0.0
Olsen Island	tr	1	1	0	1.0	0.0
Orca Bay	1.73	1	2	1	1.0	0.1
Orca Cove	tr	1	1	0	1.0	0.0
Orca Creek	tr	1	1	0	1.0	0.0
Orca Inlet	0.91	1	1	0	1.0	0.0
Otter Cove	tr	1	2	1	1.8	0.4
Outpost Island	tr	1	1	0	1.0	0.0
Outside Bay	0.06	1	1	0	1.0	0.0
Paddy Bay	0.04	3	4	1	3.8	0.4
Pakenham Point	0.01	1	1	0	1.0	0.0
Papoose Cove	tr	2	2	0	2.0	0.0
Parshas Bay	0.02	2	2	0	2.0	0.0
Passage Anchorage	0.01	1	1	0	1.0	0.0
Passage Canal	0.50	1	1	0	1.0	0.0
Patton Bay	0.28	0	0	0	0.0	0.0
Paulson Bay	tr	1	1	0	1.0	0.0
Peak Island	0.01	1	1	0	1.0	0.0
Perry Island Rest	tr	1	1	0	1.0	0.0
Picturesque Cove	tr	2	2	0	2.0	0.0
Pigot Bay	0.07	1	1	0	1.0	0.0
Pinnacle Rock	tr	1	1	0	1.0	0.0
Pirate Cove	0.01	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pleiades Islands	tr	1	1	0	1.0	0.0
Poe Bay	0.01	1	1	0	1.0	0.0
Point Helen	tr	1	1	0	1.0	0.0
Point Pellew Lagoon	0.01	2	3	1	2.3	0.4
Porpoise Rocks	0.01	1	1	0	1.0	0.0
Port Audrey	0.01	1	2	1	1.6	0.5
Port Bainbridge	0.74	0	1	1	1.0	0.1
Port Chalmers	0.11	1	1	0	1.0	0.0
Port Etches	0.41	1	1	0	1.0	0.0
Port Fidalgo	1.51	1	2	1	1.0	0.2
Port Gravina	1.16	1	2	1	1.1	0.3
Port Nellie Juan	0.92	1	2	1	1.0	0.2
Port Valdez	0.82	1	1	0	1.0	0.0
Prince of Wales Passage	0.52	1	1	0	1.0	0.0
Pt Nowell	tr	1	1	0	1.0	0.0
Puffin Cove	0.02	1	1	0	1.0	0.0
Quayarnaq Cove	tr	2	3	1	2.9	0.3
Quillian Bay	0.01	1	1	0	1.0	0.0
Ragged Bay	0.02	1	2	1	1.5	0.5
Raging Creek	0.01	1	2	1	1.7	0.4
Red Head	tr	1	1	0	1.0	0.0
Reef Island	tr	1	1	0	1.0	0.0
Rocky Bay	0.13	1	1	0	1.0	0.0
Rocky Point (Lethcoe)	0.01	1	1	0	1.0	0.0
Sahlin Lagoon	tr	1	2	1	1.8	0.4
Saint Matthews Bay	0.09	1	1	0	1.0	0.0
San Juan Bay	0.06	0	0	0	0.0	0.0
Sawmill Bay Evans Island	0.04	1	1	0	1.0	0.0
Sawmill Bay SMP	tr	1	1	0	1.0	0.0
Sawmill Bay Valdez Arm	0.03	1	1	0	1.0	0.0
Schoppe Bay	0.06	2	4	2	3.1	0.3
Schrader Island	tr	1	1	0	1.0	0.0
Seal Island	tr	1	1	0	1.0	0.0
Serpentine Cove	0.02	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Shady Cove	tr	1	1	0	1.0	0.0
Shallow Cove	tr	1	1	0	1.0	0.0
Sheep Bay	0.36	1	3	2	1.6	0.8
Sheep Point	tr	1	1	0	1.0	0.0
Shelter Bay Evans Island	0.02	1	1	0	1.0	0.0
Shelter Bay Hinchinbrook Island	0.02	1	1	0	1.0	0.0
Shipyard Bay	0.01	1	1	0	1.0	0.0
Shoestring Cove	0.01	1	1	0	1.0	0.0
Shotgun Cove	0.02	1	1	0	1.0	0.0
Shoup Bay	0.05	0	1	1	0.9	0.2
Shoup Bay SMP	0.13	0	1	1	0.8	0.4
Simpson Bay northwest arm	0.12	1	4	3	2.9	0.6
Simpson Bay southeast arm	0.06	1	3	2	2.0	0.2
Siwash Bay	0.03	1	1	0	1.0	0.0
Siwash Island	tr	1	1	0	1.0	0.0
Sleepy Bay	0.01	1	1	0	1.0	0.0
Smith Island	0.01	0	0	0	0.0	0.0
Snug Corner Cove	0.09	1	1	0	1.0	0.0
Snug Harbor	0.05	1	1	0	1.0	0.0
Solf Cove	0.02	2	2	0	2.0	0.0
South Bay Perry Island	0.05	1	1	0	1.0	0.0
South Esther SMP	0.01	1	1	0	1.0	0.0
South Olsen Island	tr	1	1	0	1.0	0.0
South Twin Bay	0.04	1	1	0	1.0	0.0
Southern tip Culross Island	tr	2	2	0	2.0	0.0
Sphinx Island	tr	1	1	0	1.0	0.0
Squaw Bay	0.03	1	2	1	1.7	0.5
Squire Island	0.01	1	2	1	1.8	0.4
Squire Island Anchorage	tr	1	2	1	1.9	0.4
Squirrel Bay	0.02	1	1	0	1.0	0.0
Squirrel Cove	tr	1	1	0	1.0	0.0
Squirrel Island	tr	1	2	1	2.0	0.2
Stockdale Harbor	0.10	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Storey Island	0.01	1	1	0	1.0	0.0
Sunny Cove (Lethcoe)	0.05	1	1	0	1.0	0.0
Surprise Cove	0.02	1	1	0	1.0	0.0
Surprise Cove SMP	0.01	1	1	0	1.0	0.0
Surprise Inlet	0.07	1	1	0	1.0	0.0
Swanson Bay	0.08	1	1	0	1.0	0.0
Tanker Island	tr	0	0	0	0.0	0.0
Tatitlek	tr	2	3	1	3.0	0.2
Tatitlek Narrows	0.09	2	3	1	2.9	0.3
The Keyhole	tr	1	1	0	1.0	0.0
The Narrows	0.25	1	1	0	1.0	0.0
The Nub	tr	2	2	0	2.0	0.0
Three Fingers Cove	0.02	1	1	0	1.0	0.0
Three Mile Bay	0.01	1	1	0	1.0	0.0
Thumb Bay	0.01	1	1	0	1.0	0.0
Tiger Bight	0.01	1	1	0	1.0	0.0
Tiger Glacier;Head of Icy Bay	0.02	1	1	0	1.0	0.0
Two Moon Bay	0.10	1	1	0	1.0	0.0
Unakwik Inlet	0.82	0	2	2	0.9	0.4
Unnamed north of Galena	0.01	1	1	0	1.0	0.0
UnNamed466003	4.33	0	1	1	0.5	0.5
UnNamed466004	0.58	0	1	1	0.3	0.4
UnNamed466005	0.71	0	1	1	0.4	0.5
UnNamed466031	2.68	0	1	1	0.7	0.5
UnNamed466032	5.11	0	1	1	0.1	0.3
UnNamed466033	3.59	0	3	3	0.6	0.6
UnNamed475932	1.55	0	0	0	0.0	0.0
UnNamed475933	1.83	0	1	1	0.6	0.5
UnNamed475934	0.05	0	0	0	0.0	0.0
UnNamed476002	1.33	0	1	1	0.0	0.2
UnNamed476003	4.67	0	1	1	0.8	0.4
UnNamed476004	1.18	1	2	1	1.0	0.1
UnNamed476005	0.62	1	2	1	1.3	0.4
UnNamed476006	1.45	1	2	1	1.1	0.3

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476007	4.40	0	1	1	0.9	0.3
UnNamed476008	3.29	0	1	1	0.5	0.5
UnNamed476009	1.24	1	1	0	1.0	0.0
UnNamed476031	3.36	0	1	1	0.1	0.3
UnNamed476032	5.49	0	1	1	0.8	0.4
UnNamed476033	2.45	0	2	2	1.0	0.1
UnNamed476034	2.91	0	1	1	0.8	0.4
UnNamed476035	5.03	0	1	1	0.4	0.5
UnNamed476036	0.66	1	2	1	1.0	0.0
UnNamed485932	1.98	0	1	1	0.8	0.4
UnNamed486004	0.31	0	1	1	1.0	0.0
UnNamed486005	0.70	1	1	0	1.0	0.0
UnNamed486031	0.70	1	2	1	1.0	0.1
UnNamed486033	1.28	1	1	0	1.0	0.0
UnNamed486034	2.07	1	1	0	1.0	0.0
Upper Passage	0.05	1	1	0	1.0	0.0
Useless Cove	0.01	1	1	0	1.0	0.0
Valdez	0.16	1	1	0	1.0	0.0
Valdez Arm	1.15	1	1	0	1.0	0.0
Valdez Arm west side CRD	0.25	1	1	0	1.0	0.0
Valdez Narrows	0.10	1	1	0	1.0	0.0
Verdant Island	tr	1	1	0	1.0	0.0
Virgin Bay	0.01	2	2	0	2.0	0.0
Waterfall Cove	0.01	1	1	0	1.0	0.0
Wellesley Glacier	tr	1	1	0	1.0	0.0
Wells Anchorage	0.01	1	1	0	1.0	0.0
Wells Bay	0.21	1	1	0	1.0	0.0
West Bay Bligh Island	0.03	2	3	1	2.6	0.5
West Culross Anchorage	tr	2	2	0	2.0	0.0
West Finger Inlet	0.01	1	1	0	1.0	0.0
West Flank Island	tr	1	1	0	1.0	0.0
West Twin Bay	0.06	1	1	0	1.0	0.0
Whale Bay	0.24	1	1	0	1.0	0.0
Whalen Bay	0.02	1	1	0	1.0	0.0

Table A19. Population density index (0 – 4) statistics for eel grass, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Whiskey Cove	0.01	1	1	0	1.0	0.0
Whittier	0.05	1	1	0	1.0	0.0
Willard Island	0.01	1	1	0	1.0	0.0
Windy Bay	0.03	1	1	0	1.0	0.0
Winter Anchorage Unakwik	tr	1	1	0	1.0	0.0
Wooded Island	tr	0	0	0	0.0	0.0
Yale Arm	0.15	0	1	1	0.1	0.3
Yelper Cove	tr	1	1	0	1.0	0.0
Zaikof Bay	0.29	1	1	0	1.0	0.0
Ziegler Cove	tr	1	1	0	1.0	0.0
Ziegler Cove SMP	tr	1	1	0	1.0	0.0
	100					

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
06-02B West Delta	0.02	0.06	2.43	2.37	0.78	0.80
06-03A Nelson Bay	tr	0.19	0.35	0.16	0.27	0.04
06-03B Simpson Bay	0.02	0.00	0.75	0.75	0.21	0.27
06-03C Sheep Bay	0.01	0.06	0.46	0.41	0.29	0.12
06-03D Gravina Bay	0.05	0.00	0.49	0.49	0.24	0.16
06-03E Fidalgo Bay	0.84	0.00	0.76	0.76	0.01	0.05
06-03F Valdez Arm	0.05	0.00	3.14	3.14	0.69	0.81
06DU000605	0.34	0.00	2.62	2.62	0.71	0.43
06DU000606	0.15	0.97	12.77	11.80	7.05	3.04
06DU000607	0.21	0.00	5.17	5.17	0.55	0.97
06DU000608	0.83	0.00	5.14	5.14	0.13	0.44
06DU000618	0.10	0.00	0.06	0.06	0.01	0.01
06DU000619	0.10	0.00	0.13	0.13	0.03	0.03
AA01 West Port Wells	tr	0.47	2.27	1.80	1.07	0.57
AA02 Harriman Fjord/Barry Arm	0.08	0.00	0.98	0.98	0.11	0.24
AA03 College Fjord	0.03	0.02	0.68	0.66	0.20	0.18
AA04 Esther Island/Passage	0.03	0.21	1.96	1.75	0.68	0.31
AA05 Eaglek/Unakwik Bay	0.04	0.12	0.65	0.53	0.34	0.11
AA06 Columbia Bay	0.02	0.00	0.92	0.92	0.32	0.23
AA07 Perry Island	0.01	0.47	1.35	0.88	1.06	0.19
AA09 Culross Island/Passage	tr	1.17	3.09	1.92	1.86	0.44
AA10 Cochrane Bay	0.01	0.35	2.75	2.41	1.26	0.54
AA11 Blackstone Bay	0.01	0.86	3.77	2.91	1.45	0.57
AA12 Kings Bay/Nellie Juan	0.03	0.00	1.91	1.91	0.36	0.40
AA13 West Knight Island Passage	0.02	0.22	2.38	2.15	0.96	0.61
AA14 West Knight Island	0.06	0.12	0.90	0.78	0.34	0.21
AA15 East Knight Island	0.02	0.13	0.37	0.24	0.24	0.07
AA16 Icy/Whale Bay	0.02	0.02	0.38	0.36	0.19	0.10
AA17 Port Bainbridge	0.02	0.00	0.28	0.28	0.06	0.11
AA18 Passage Canal	0.01	2.02	28.58	26.56	12.16	10.19
Agayuut Bay	tr	0.41	0.45	0.04	0.43	0.01
Agayuut Island	tr	0.41	0.43	0.01	0.42	0.00
Aguliak Island	tr	0.19	0.19	0.00	0.19	0.00

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Anderson Bay Hinchinbrook Island	0.02	0.03	0.05	0.02	0.04	0.01
Anderson Bay Valdez	0.02	0.54	1.00	0.46	0.73	0.11
Applegate Island	tr	2.80	3.27	0.47	3.11	0.13
Auk Bay	0.03	0.03	0.07	0.04	0.05	0.01
Axel Lind Island	tr	0.21	0.27	0.06	0.26	0.02
Bainbridge Island	0.02	0.06	0.26	0.20	0.13	0.05
Bainbridge Passage	0.27	0.06	0.26	0.20	0.16	0.05
Bald Head Chris	tr	0.28	0.44	0.16	0.35	0.05
Barnes Cove	tr	0.27	0.31	0.05	0.29	0.01
Barry Arm	0.31	0.49	1.03	0.53	0.76	0.14
Bass Harbor	0.05	0.33	0.61	0.28	0.44	0.07
Bay of Isles	0.16	0.15	0.37	0.22	0.30	0.05
Beach River	0.08	0.00	0.02	0.02	0.01	0.00
Bear Cove	0.01	0.47	0.59	0.12	0.53	0.03
Beartrap Bay	0.03	0.12	0.45	0.33	0.35	0.10
Bettles Bay	0.09	0.41	0.95	0.54	0.75	0.13
Bettles Bay SMP	tr	0.52	0.53	0.02	0.53	0.01
Bettles Island	tr	0.38	0.51	0.13	0.43	0.04
Billings Cove	tr	5.94	7.85	1.91	6.78	0.80
Billings Point Perry Island	tr	0.57	0.60	0.02	0.59	0.01
Billy's Hole	tr	0.34	0.41	0.08	0.38	0.02
Blackstone Bay	0.56	0.77	9.60	8.83	1.70	1.05
Bligh Island	0.01	0.16	1.00	0.84	0.33	0.21
Block Island Cedar Bay	tr	0.29	0.31	0.02	0.30	0.01
Block Island Eleanor Island	tr	0.34	0.45	0.11	0.40	0.02
Blue Fjord	0.11	0.08	0.77	0.68	0.38	0.15
Bomb Point	tr	0.70	0.74	0.05	0.72	0.01
Boswell Bay	0.06	0.04	0.16	0.12	0.13	0.03
Boswell Bay SMP	tr	0.15	0.15	0.00	0.15	0.00
Boulder Bay	0.07	0.27	0.67	0.41	0.42	0.08
Brave Harbor	tr	0.51	0.54	0.03	0.53	0.01
Bull Head	0.01	0.26	0.39	0.13	0.31	0.04
Busby Island	tr	0.49	0.92	0.43	0.68	0.11

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Bush Point	tr	1.28	1.29	0.01	1.28	0.00
Buyers Cove	0.01	0.72	0.86	0.13	0.79	0.03
Cabin Bay	0.07	0.68	0.97	0.29	0.88	0.07
Camp 13-22	tr	1.44	1.47	0.02	1.45	0.01
Campbell Bay	0.02	0.67	0.86	0.19	0.76	0.05
Cannery Creek	0.04	0.33	0.50	0.17	0.44	0.04
Canoe Passage	0.04	0.06	0.09	0.04	0.08	0.01
Canoe Passage SMP	tr	0.06	0.09	0.02	0.07	0.01
Cascade Bay	0.02	0.37	0.46	0.09	0.43	0.02
Cat Head	tr	0.34	0.35	0.01	0.34	0.00
Cathead Bay	0.01	0.24	0.34	0.10	0.30	0.03
Cedar Bay Hawkins Island	0.02	0.06	0.21	0.15	0.13	0.04
Cedar Bay Wells Bay	0.04	0.19	0.29	0.11	0.24	0.03
Cedar Lake anchorage	tr	0.27	0.28	0.01	0.28	0.00
Chamberlain Bay	0.03	0.43	0.61	0.18	0.51	0.05
Channel Island south of Green Island	tr	0.13	0.13	0.00	0.13	0.00
Channel Islands The Narrows	tr	0.81	0.89	0.08	0.84	0.02
Chenega Island	0.01	0.08	0.45	0.38	0.22	0.11
Clam Island	tr	0.30	0.32	0.02	0.31	0.01
Cloudman Bay	0.01	0.26	0.35	0.10	0.31	0.02
Cochrane Bay	0.52	0.36	3.41	3.05	1.55	0.51
Coghill	0.07	0.44	0.83	0.39	0.71	0.08
Coghill Lake Tr	tr	0.72	0.73	0.02	0.73	0.01
College Fjord	1.10	0.05	0.83	0.78	0.32	0.22
Columbia Bay	0.46	0.04	0.89	0.85	0.29	0.19
Comfort Cove	0.01	0.27	0.32	0.06	0.30	0.01
Constantine Harbor	0.05	0.06	0.14	0.08	0.10	0.02
Copper Bay	0.02	0.20	0.47	0.26	0.32	0.07
Cordova	0.01	2.19	2.46	0.27	2.39	0.06
Cow Pens	0.01	0.48	0.52	0.04	0.50	0.01
Crab Bay	tr	0.35	0.50	0.14	0.41	0.04
Crafton Island	tr	1.08	1.67	0.60	1.37	0.17
Culross Bay	0.02	2.08	3.01	0.93	2.64	0.24

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Culross Cove	0.01	2.86	3.21	0.35	3.05	0.08
Culross Island	0.01	0.76	3.32	2.56	2.44	0.82
Culross Passage	0.23	1.58	3.40	1.83	2.59	0.56
Dalli Bay	tr	0.69	0.74	0.05	0.72	0.01
Dan Bay	0.02	0.00	0.01	0.01	0.00	0.00
Danger Island	tr	0.07	0.10	0.02	0.08	0.01
Dangerous Passage	0.35	0.13	0.58	0.45	0.39	0.08
Day Care Cove	tr	0.47	0.53	0.05	0.50	0.01
DECISION POINT SMP	tr	2.58	2.61	0.03	2.59	0.01
Deep Bay	0.03	0.63	1.16	0.53	0.98	0.12
Deep Water Bay	0.03	1.27	1.90	0.64	1.68	0.14
Deer Cove Hinchinbrook	0.01	0.28	0.30	0.02	0.29	0.01
Deer Cove Knight	0.01	0.66	0.86	0.20	0.78	0.04
Derickson Bay Eaglek	0.03	0.25	0.46	0.20	0.38	0.05
Derickson Bay Nellie Juan	0.07	0.80	1.96	1.16	1.60	0.29
Disk Island	tr	0.57	0.71	0.14	0.68	0.03
Disk Island Anchorage	tr	0.68	0.71	0.04	0.70	0.01
Double Bay	0.04	0.05	0.07	0.02	0.06	0.00
Drier Bay	0.11	0.26	0.38	0.12	0.34	0.03
Dual Head	0.01	0.35	0.41	0.06	0.40	0.01
Dutch Group	tr	0.13	0.24	0.10	0.20	0.03
Eagle Bay	0.02	0.59	0.70	0.11	0.64	0.02
Eaglek Bay	0.38	0.25	0.47	0.22	0.37	0.04
Eaglek Island	tr	0.28	0.30	0.02	0.29	0.01
East Bight Lower Herring Bay	tr	0.16	0.19	0.03	0.17	0.01
East Finger Inlet	0.01	0.36	0.90	0.54	0.68	0.15
East Flank Island	tr	0.64	0.65	0.01	0.65	0.00
East Twin Bay	0.03	0.68	1.16	0.48	0.98	0.13
Eickelberg Bay	0.02	0.25	0.73	0.47	0.51	0.13
Elder Bay	0.01	0.54	0.61	0.07	0.57	0.02
Eleanor Island	0.01	0.35	0.71	0.36	0.61	0.07
Ellamar	tr	1.25	1.32	0.07	1.29	0.02
Elrington Island	0.03	0.00	0.48	0.47	0.24	0.11
Elrington Passage	0.25	0.22	0.68	0.46	0.36	0.12

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Emerald Bay	tr	2.85	6.47	3.63	4.27	1.09
Emerald Cove (Heather Bay)	0.01	0.86	0.92	0.06	0.90	0.01
English Bay	tr	0.16	0.17	0.01	0.17	0.00
Entrance Island	tr	0.18	0.22	0.04	0.21	0.02
Entry Cove	tr	4.35	4.49	0.14	4.42	0.04
ENTRY COVE SMP	tr	4.34	4.49	0.15	4.41	0.05
Eshamy Bay	0.12	0.31	1.76	1.45	1.05	0.49
Esther Bay	0.03	0.51	0.81	0.30	0.66	0.06
Esther Bight	0.01	0.65	1.50	0.84	1.01	0.20
Esther Passage	0.17	0.39	0.86	0.48	0.68	0.10
Esther Passage S CS #1	tr	0.65	0.65	0.00	0.65	0.00
Evans Island	0.02	0.09	0.72	0.63	0.28	0.17
Ewan Bay	0.06	0.20	0.60	0.40	0.47	0.09
Fairmount Bay	0.02	0.25	0.34	0.09	0.30	0.02
Fairmount Island	tr	0.27	0.34	0.07	0.31	0.02
Falls Bay	0.02	1.17	1.69	0.52	1.34	0.12
Finski Bay	0.01	0.39	0.48	0.10	0.42	0.02
Fish Bay Hinchinbrook	0.01	0.02	0.02	0.00	0.02	0.00
Fish Bay Port Fidalgo	0.05	0.12	0.21	0.10	0.18	0.02
Fish Hook Anchorage	tr	0.29	0.30	0.01	0.30	0.00
Fish Island	tr	0.00	0.00	0.00	0.00	0.00
Fisherman's Anchorage	tr	0.55	0.65	0.10	0.60	0.03
Flemming Island	0.01	0.09	0.13	0.04	0.10	0.01
Fool Island	tr	0.65	0.70	0.05	0.68	0.02
Foul Bay	0.01	1.01	1.83	0.82	1.47	0.21
Foul Pass	0.01	0.49	0.68	0.19	0.59	0.05
Fox Farm Bay	0.02	0.24	0.30	0.06	0.27	0.01
Fox Point	tr	0.33	0.37	0.04	0.35	0.01
Gaamaak Cove	0.01	0.24	0.27	0.04	0.26	0.01
Galena Bay	0.10	0.76	1.15	0.40	0.97	0.11
Garden Cove	0.01	0.20	0.25	0.04	0.23	0.01
Garden Island	tr	0.24	0.25	0.01	0.24	0.00
Gibbon Anchorage	0.04	0.13	0.36	0.22	0.26	0.06
Gilmour Bight	0.01	0.09	0.13	0.05	0.11	0.01

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Glacier Island	0.02	0.38	0.89	0.51	0.65	0.16
Glacier Water Cove	0.01	0.21	0.37	0.15	0.28	0.03
Gold Creek/Camp Bowie	0.01	0.57	0.86	0.28	0.69	0.07
Golden	0.03	0.26	0.39	0.13	0.33	0.03
Goose Bay	0.01	2.04	2.23	0.19	2.11	0.05
Goose Island	tr	0.33	0.47	0.15	0.38	0.04
Granite Bay (Dangerous Passage)	0.02	0.36	0.52	0.16	0.43	0.04
Granite Bay (Eaglek)	0.03	0.21	0.30	0.09	0.24	0.02
Granite Bay Esther Island	0.04	0.80	1.22	0.43	1.11	0.10
Granite Bay SMP	tr	0.77	1.18	0.41	0.98	0.13
Granite Cove	0.02	0.06	0.17	0.12	0.11	0.02
Granite Point	tr	0.36	0.36	0.01	0.36	0.00
Gravina Island	tr	0.05	0.05	0.00	0.05	0.00
Gravina Point	tr	0.06	0.06	0.00	0.06	0.00
Gravina Rocks	tr	0.23	0.25	0.02	0.24	0.01
Gravina Rocks anchorage (Lethcoe)	0.02	0.22	0.37	0.15	0.31	0.04
Green Island	0.02	0.00	0.36	0.36	0.15	0.14
Greystone Bay	0.02	0.68	1.23	0.55	0.96	0.12
Grommet Cove	tr	0.75	0.77	0.02	0.76	0.01
Growler Bay	0.04	0.43	0.57	0.14	0.50	0.03
Growler Island	tr	0.54	0.57	0.03	0.55	0.01
Gulf of Alaska	0.74	0.01	0.24	0.23	0.11	0.06
Gull Island	tr	0.47	0.47	0.00	0.47	0.00
Hanning Bay	0.10	0.02	0.06	0.04	0.05	0.01
Harriman Fjord	0.36	0.14	1.39	1.25	0.84	0.38
Harriman south shore complex	0.01	0.98	1.34	0.36	1.20	0.10
Harrison Lagoon	0.02	0.87	1.17	0.30	1.05	0.08
Hartney Bay	0.03	0.07	0.19	0.13	0.14	0.03
Harvard Arm	0.21	0.05	0.13	0.08	0.10	0.02
Hawkins Island	0.04	0.02	1.10	1.08	0.20	0.29
Hawkins Island Cutoff	0.70	0.00	0.14	0.14	0.02	0.02
Head of Barry Arm	0.04	0.65	1.01	0.35	0.88	0.08
Head of Cedar Bay	0.02	0.23	0.31	0.08	0.28	0.02

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Head of Eaglek Bay	0.02	0.12	0.28	0.16	0.21	0.04
Head of Galena Bay	0.09	0.18	0.79	0.61	0.59	0.14
Head of Harriman Fjord	0.05	0.29	0.36	0.06	0.33	0.01
Head of Pigot Bay	0.03	1.03	2.39	1.35	1.68	0.31
Head of Port Fidalgo	0.18	0.04	0.20	0.16	0.16	0.03
Head of Port Gravina;Gravina River	0.05	0.02	0.38	0.36	0.19	0.10
Head of Unakwik Inlet	0.03	0.24	0.33	0.09	0.31	0.02
Head of Wells Bay	0.03	0.19	0.34	0.14	0.28	0.04
Heather Bay	0.18	0.07	0.92	0.85	0.50	0.24
Heather Island	0.01	0.39	0.81	0.42	0.57	0.11
Hells Hole	0.02	0.05	0.10	0.05	0.08	0.01
Herring Bay	0.21	0.12	0.66	0.55	0.45	0.13
Herring Point	tr	0.36	0.42	0.06	0.39	0.02
Hidden Bay	0.03	0.91	1.46	0.55	1.21	0.17
Hidey Hole	tr	0.18	0.20	0.03	0.19	0.01
Hinchinbrook Island	0.07	0.00	0.30	0.30	0.10	0.08
Hinge Beach (Doran Straight)	tr	0.86	0.86	0.00	0.86	0.00
Hobo Bay	0.02	1.00	1.15	0.15	1.11	0.03
Hogan Bay	0.02	0.08	0.15	0.07	0.11	0.02
Hogg Bay	0.13	0.12	0.25	0.13	0.20	0.03
Hole-in-the-wall	tr	0.72	0.75	0.03	0.74	0.01
Hook Point	0.03	0.00	0.01	0.01	0.00	0.00
Horseshoe Bay	tr	0.15	0.15	0.00	0.15	0.00
Horseshoe Bay SMP	0.01	0.14	0.16	0.01	0.15	0.00
Hummer Bay	0.03	0.47	0.61	0.14	0.53	0.04
Humpback Cove	0.01	0.19	0.25	0.06	0.22	0.02
Humpback/Shepard	0.01	0.36	0.77	0.41	0.54	0.12
Icy Bay	0.26	0.04	0.41	0.37	0.25	0.10
Iktua Bay	0.03	0.09	0.15	0.06	0.12	0.01
Ingot Cove	tr	0.48	0.53	0.05	0.51	0.02
Ingot Island	0.01	0.34	0.65	0.31	0.57	0.08
Irish Cove Glacier Island	0.01	0.42	0.59	0.17	0.50	0.05
Irish Cove Port Fidalgo	0.01	0.08	0.15	0.07	0.14	0.01

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Italian Bay	tr	0.83	0.86	0.03	0.85	0.01
Jack Bay	0.15	0.75	3.31	2.56	2.15	0.85
Jack Bay SMP	tr	0.89	1.31	0.42	1.09	0.14
Jackpot Bay	0.09	0.23	0.79	0.56	0.65	0.11
Jackson Cove	tr	0.52	0.64	0.12	0.57	0.03
Jackson Hole	0.01	0.71	0.82	0.11	0.78	0.02
Jeanie Cove	0.14	0.00	0.00	0.00	0.00	0.00
Jenny Island	tr	0.22	0.23	0.01	0.23	0.00
Johnson Bay	0.04	0.16	0.31	0.15	0.23	0.03
Jonah Bay	0.05	0.22	0.46	0.24	0.33	0.07
Junction Island	tr	0.34	0.35	0.01	0.35	0.00
Kake Cove	tr	0.17	0.19	0.01	0.18	0.00
Kelly's Cove	0.02	0.52	0.90	0.38	0.79	0.11
Kenny Cove	0.02	0.06	0.15	0.09	0.11	0.02
Kings Bay	0.63	0.00	0.52	0.52	0.10	0.09
Kiniklik anchorage	tr	0.29	0.32	0.03	0.30	0.01
Kiniklik Island	tr	0.24	0.25	0.01	0.25	0.00
Knight Island Pass CS #1	tr	0.16	0.17	0.00	0.17	0.00
Knowles Bay	0.09	0.12	0.28	0.16	0.17	0.03
Knowles Head	tr	0.38	0.39	0.01	0.38	0.00
Lake Bay	0.01	1.51	2.06	0.55	1.83	0.12
Landlocked Bay	0.13	0.48	0.78	0.30	0.66	0.08
Latouche Island	0.03	0.07	0.21	0.13	0.12	0.03
LaTouche Passage	0.50	0.07	0.36	0.28	0.14	0.05
Lighthouse Reserve	tr	0.64	0.90	0.26	0.79	0.09
Liljegren Passage	0.14	0.19	0.76	0.58	0.42	0.10
Little Axel Lind Island	tr	0.16	0.18	0.02	0.17	0.00
Little Bay	0.02	0.15	0.16	0.02	0.15	0.00
Little Fairmount Island	tr	0.19	0.23	0.03	0.21	0.01
Little Green Island	tr	0.04	0.04	0.00	0.04	0.00
Little Smith Island	tr	0.39	0.44	0.05	0.41	0.01
Logging Camp Bay	tr	1.90	2.00	0.10	1.95	0.04
Logjam Bay	0.01	0.00	0.00	0.00	0.00	0.00
Lone Island	0.01	0.38	0.80	0.42	0.63	0.14

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Long Bay Culross	0.01	1.26	2.17	0.91	1.89	0.23
Long Bay Unakwik	0.22	0.08	0.86	0.78	0.49	0.17
Louis Bay	0.02	0.45	0.67	0.22	0.57	0.05
Lower Herring Bay	0.05	0.13	0.17	0.04	0.15	0.01
Lower Passage	0.11	0.47	0.74	0.27	0.67	0.07
Lucky Bay	0.01	0.52	0.68	0.16	0.61	0.04
MacLeod Harbor	0.13	0.00	0.02	0.02	0.01	0.01
Main Bay	0.07	1.02	2.39	1.37	2.08	0.29
Mallard Bay	0.02	0.21	0.34	0.13	0.28	0.04
Mallard Head	tr	0.25	0.34	0.08	0.31	0.02
Marsha Bay	0.03	0.10	0.25	0.15	0.17	0.04
Masked Bay	0.02	0.20	0.43	0.23	0.31	0.06
McClure Bay	0.10	0.26	0.62	0.37	0.40	0.05
McPherson Bay	0.07	0.49	0.72	0.22	0.61	0.04
McPherson Passage	0.06	0.49	0.66	0.17	0.58	0.03
Meares Point	tr	1.15	1.16	0.02	1.15	0.01
Middle Bight Lower Herring Bay	tr	0.15	0.16	0.01	0.16	0.00
Miners Bay	0.03	0.37	0.54	0.17	0.50	0.04
Mink Island	0.01	0.72	1.33	0.62	0.97	0.19
Minke Cove	tr	0.15	0.18	0.03	0.16	0.01
Montague Island	0.13	0.00	0.24	0.24	0.05	0.06
Mud Bay	tr	0.39	0.77	0.38	0.57	0.10
Mueller Cove	0.01	0.40	0.48	0.09	0.46	0.02
Mummy Bay	0.07	0.23	0.52	0.28	0.28	0.05
Mummy Island Cordova	0.01	0.14	0.21	0.08	0.17	0.02
Mummy Island Knight	0.01	0.31	0.37	0.06	0.34	0.01
Naked Island	0.02	0.30	0.97	0.67	0.63	0.16
Nassau Fjord	0.13	0.15	0.34	0.18	0.29	0.05
NE Galena Coves (Lethcoe)	0.01	0.83	0.99	0.16	0.93	0.04
Nellie Juan Glacier and spit	0.01	0.82	1.77	0.95	1.42	0.34
Nellie Juan Lagoon	0.02	0.90	1.77	0.87	1.35	0.23
Nelson Bay	0.09	0.13	0.36	0.23	0.25	0.05
New Year Islands	tr	0.26	0.27	0.01	0.26	0.00

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
North Island	tr	0.82	1.02	0.20	0.93	0.06
North Twin Bay	0.03	0.09	0.26	0.16	0.17	0.04
Northeast Arm Mummy Bay	0.01	0.24	0.29	0.04	0.26	0.01
Northeast Cove Drier Bay	0.01	0.23	0.28	0.05	0.26	0.01
Northwest Arm Lower Herring Bay	0.01	0.12	0.14	0.02	0.13	0.00
Northwest Bay	0.04	0.55	0.73	0.18	0.69	0.04
Nuchek	0.01	0.07	0.15	0.08	0.12	0.02
Observation Island	tr	1.11	1.20	0.10	1.17	0.03
Old Chenega site	tr	0.10	0.13	0.03	0.12	0.01
Olsen Bay	0.07	0.10	0.28	0.18	0.24	0.04
Olsen Cove	tr	0.47	0.50	0.04	0.49	0.01
Olsen Island	tr	0.44	0.45	0.02	0.44	0.00
Orca Bay	1.73	0.01	0.73	0.72	0.17	0.18
Orca Cove	tr	0.33	0.37	0.03	0.35	0.01
Orca Creek	tr	0.29	0.37	0.08	0.33	0.02
Orca Inlet	0.91	0.04	2.44	2.40	0.64	0.63
Otter Cove	tr	0.22	0.22	0.01	0.22	0.00
Otter Creek Portage Tr	tr	0.20	0.20	0.00	0.20	0.00
Outpost Island	tr	0.16	0.16	0.00	0.16	0.00
Outside Bay	0.05	0.33	0.84	0.51	0.64	0.12
Paddy Bay	0.04	0.38	0.61	0.23	0.52	0.06
Pakenham Point	0.01	0.72	0.89	0.17	0.81	0.05
Papoose Cove	tr	0.54	0.55	0.02	0.54	0.01
Parshas Bay	0.02	0.21	0.28	0.07	0.23	0.01
Passage Anchorage	0.01	0.63	0.79	0.16	0.69	0.04
Passage Canal	0.50	1.48	28.56	27.08	5.93	6.83
Patton Bay	0.28	0.00	0.00	0.00	0.00	0.00
Paulson Bay	tr	1.50	1.65	0.14	1.58	0.04
Peak Island	0.01	0.33	0.60	0.26	0.43	0.07
Perry Island Rest	tr	1.35	1.37	0.02	1.36	0.01
Picturesque Cove	0.01	2.87	3.17	0.31	3.04	0.08
Pigot Bay	0.07	1.99	4.27	2.29	3.13	0.57
Pinnacle Rock	tr	0.13	0.14	0.00	0.14	0.00

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Pirate Cove	0.01	0.49	1.12	0.63	0.70	0.15
Pleiades Islands	tr	0.17	0.18	0.01	0.18	0.00
Poe Bay	0.01	1.21	1.80	0.60	1.53	0.15
Point Helen	tr	0.17	0.17	0.00	0.17	0.00
Point Pellew Lagoon	0.01	0.33	0.41	0.08	0.37	0.02
Porpoise Rocks	0.01	0.10	0.13	0.04	0.12	0.01
Port Audrey	0.01	0.21	0.26	0.05	0.25	0.01
Port Bainbridge	0.75	0.00	0.26	0.26	0.11	0.08
Port Chalmers	0.11	0.06	0.14	0.08	0.11	0.02
Port Etches	0.41	0.06	0.26	0.19	0.17	0.05
Port Fidalgo	1.52	0.04	0.62	0.57	0.24	0.11
Port Gravina	1.16	0.02	0.49	0.46	0.18	0.12
Port Nellie Juan	0.92	0.29	3.03	2.74	0.88	0.53
Port Valdez	0.82	0.09	12.74	12.65	2.73	2.97
Prince of Wales Passage	0.53	0.07	0.49	0.42	0.18	0.08
Pt Nowell	tr	0.70	0.75	0.05	0.72	0.02
Puffin Cove	0.02	0.05	0.12	0.06	0.08	0.02
Quayarnaq Cove	tr	0.16	0.16	0.00	0.16	0.00
Quillian Bay	0.01	0.79	1.73	0.94	1.40	0.27
Ragged Bay	0.02	0.32	0.41	0.09	0.36	0.02
Raging Creek	0.01	0.19	0.52	0.33	0.30	0.09
Red Head	tr	0.12	0.16	0.04	0.14	0.01
Reef Island	tr	0.21	0.24	0.02	0.22	0.01
Rocky Bay	0.14	0.07	0.26	0.19	0.19	0.05
Rocky Point (Lethcoe)	0.01	1.12	1.21	0.09	1.18	0.02
Sahlin Lagoon	tr	0.05	0.11	0.05	0.08	0.02
Saint Matthews Bay	0.10	0.03	0.11	0.08	0.06	0.02
San Juan Bay	0.06	0.00	0.05	0.05	0.03	0.01
Sawmill Bay Evans Island	0.04	0.39	0.73	0.34	0.65	0.09
Sawmill Bay SMP	tr	0.72	2.43	1.71	1.55	0.77
Sawmill Bay Valdez Arm	0.04	1.43	2.53	1.10	2.23	0.23
Schoppe Bay	0.06	0.33	0.44	0.11	0.40	0.02
Schrader Island	tr	0.45	0.48	0.03	0.46	0.01
Seal Island	tr	0.14	0.14	0.00	0.14	0.00

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Serpentine Cove	0.02	0.73	1.17	0.44	0.96	0.11
Shady Cove	tr	0.50	0.65	0.16	0.57	0.04
Shallow Cove	tr	1.03	1.34	0.31	1.16	0.08
Sheep Bay	0.36	0.09	0.46	0.37	0.25	0.09
Sheep Point	tr	0.47	0.50	0.03	0.49	0.01
Shelter Bay Evans Island	0.02	0.09	0.19	0.10	0.15	0.03
Shelter Bay Hinchinbrook Island	0.02	0.04	0.12	0.07	0.07	0.02
Shipyard Bay	0.01	0.79	1.39	0.60	1.13	0.15
Shoestring Cove	0.01	0.61	0.78	0.17	0.71	0.04
Shotgun Cove	0.02	2.41	4.43	2.02	2.75	0.33
Shoup Bay	0.05	1.10	2.13	1.03	1.80	0.23
Shoup Bay SMP	0.13	0.41	2.13	1.72	1.30	0.37
Shrode Lake Tr	tr	1.13	1.23	0.10	1.19	0.04
Simpson Bay northwest arm	0.13	0.05	0.70	0.65	0.44	0.16
Simpson Bay southeast arm	0.06	0.40	0.75	0.35	0.66	0.09
Siwash Bay	0.03	0.13	0.32	0.19	0.21	0.06
Siwash Island	tr	0.32	0.33	0.01	0.32	0.00
Sleepy Bay	0.01	0.19	0.21	0.03	0.20	0.01
Smith Island	0.01	0.44	0.58	0.13	0.54	0.03
Snug Corner Cove	0.10	0.35	0.54	0.19	0.49	0.04
Snug Harbor	0.06	0.29	0.37	0.08	0.34	0.02
Solf Cove	0.02	0.17	0.37	0.20	0.25	0.05
South Bay Perry Island	0.05	0.72	1.19	0.47	1.02	0.10
South Esther SMP	0.01	0.93	2.25	1.32	1.85	0.35
South Olsen Island	tr	0.40	0.44	0.04	0.42	0.01
South Twin Bay	0.04	0.01	0.18	0.17	0.07	0.04
Sphinx Island	tr	0.18	0.25	0.07	0.21	0.02
Squaw Bay	0.03	0.48	0.63	0.15	0.55	0.04
Squire Island	0.01	0.39	0.80	0.41	0.58	0.12
Squire Island Anchorage	tr	0.71	0.80	0.09	0.76	0.02
Squirrel Bay	0.02	0.23	0.31	0.09	0.28	0.02
Squirrel Cove	tr	2.50	2.62	0.12	2.55	0.03
Squirrel Island	tr	0.24	0.28	0.04	0.26	0.01

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Stockdale Harbor	0.10	0.08	0.21	0.13	0.16	0.03
Storey Island	0.01	0.11	0.29	0.17	0.20	0.06
Sunny Cove (Lethcoe)	0.05	0.04	0.16	0.12	0.12	0.03
Surprise Cove	0.02	2.20	3.39	1.20	2.69	0.24
Surprise Cove SMP	0.01	2.23	3.77	1.53	3.07	0.50
Surprise Inlet	0.07	0.43	1.28	0.85	0.85	0.25
Swanson Bay	0.08	0.06	0.26	0.20	0.14	0.07
Tanker Island	tr	0.00	0.00	0.00	0.00	0.00
Tatitlek	tr	0.66	0.88	0.22	0.77	0.06
Tatitlek Narrows	0.09	0.41	1.35	0.94	0.98	0.25
The Keyhole	tr	0.33	0.34	0.01	0.34	0.00
The Narrows	0.25	0.29	1.09	0.81	0.64	0.20
The Nub	tr	0.21	0.21	0.00	0.21	0.00
Three Fingers Cove	0.02	0.83	1.52	0.70	1.23	0.14
Three Mile Bay	0.01	0.70	1.65	0.95	1.19	0.24
Thumb Bay	0.01	0.21	0.27	0.06	0.25	0.01
Tiger Bight	0.01	0.09	0.13	0.04	0.11	0.01
Tiger Glacier;Head of Icy Bay	0.02	0.02	0.05	0.03	0.03	0.01
Two Moon Bay	0.10	0.09	0.37	0.28	0.24	0.07
Unakwik Inlet	0.83	0.16	0.54	0.37	0.36	0.09
Unnamed north of Galena	0.01	0.48	0.66	0.18	0.57	0.05
UnNamed466003	4.33	0.00	0.30	0.30	0.07	0.07
UnNamed466004	0.58	0.00	0.11	0.11	0.01	0.02
UnNamed466005	0.72	0.00	0.23	0.23	0.10	0.04
UnNamed466031	2.68	0.00	0.18	0.18	0.03	0.03
UnNamed466032	5.10	0.00	0.51	0.51	0.05	0.11
UnNamed466033	3.59	0.00	1.38	1.38	0.19	0.22
UnNamed475932	1.55	0.00	0.03	0.03	0.00	0.01
UnNamed475933	1.84	0.00	0.06	0.06	0.02	0.02
UnNamed475934	0.05	0.01	0.06	0.05	0.03	0.01
UnNamed476002	1.34	0.00	0.03	0.03	0.01	0.01
UnNamed476003	4.68	0.00	0.29	0.29	0.04	0.04
UnNamed476004	1.18	0.10	0.90	0.80	0.24	0.18
UnNamed476005	0.62	0.13	0.73	0.60	0.29	0.11

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
UnNamed476006	1.46	0.11	1.76	1.65	0.40	0.35
UnNamed476007	4.42	0.00	0.52	0.52	0.08	0.09
UnNamed476008	3.29	0.00	0.33	0.33	0.05	0.07
UnNamed476009	1.24	0.00	0.26	0.26	0.11	0.06
UnNamed476031	3.36	0.00	0.56	0.56	0.05	0.10
UnNamed476032	5.50	0.00	1.63	1.63	0.25	0.29
UnNamed476033	2.46	0.01	1.13	1.12	0.38	0.27
UnNamed476034	2.91	0.00	0.75	0.75	0.10	0.10
UnNamed476035	5.03	0.00	0.90	0.90	0.13	0.21
UnNamed476036	0.66	0.11	0.47	0.36	0.28	0.07
UnNamed485932	1.99	0.00	0.30	0.30	0.05	0.05
UnNamed486004	0.31	0.03	0.27	0.24	0.16	0.05
UnNamed486005	0.70	0.08	0.41	0.34	0.23	0.08
UnNamed486031	0.71	0.16	3.22	3.06	0.90	0.57
UnNamed486033	1.28	0.76	4.40	3.64	1.77	0.80
UnNamed486034	2.07	0.12	4.39	4.27	0.72	0.62
Upper Passage	0.06	0.22	0.62	0.40	0.46	0.13
Useless Cove	0.01	0.36	0.48	0.12	0.42	0.03
Valdez	0.16	0.29	13.05	12.76	8.10	3.36
Valdez Arm	1.16	0.25	3.01	2.77	0.94	0.65
Valdez Arm west side CRD	0.25	0.00	1.33	1.33	0.23	0.23
Valdez Narrows	0.10	0.92	3.25	2.33	2.24	0.69
Verdant Island	tr	0.33	0.35	0.02	0.34	0.01
Virgin Bay	0.01	1.25	1.37	0.13	1.33	0.03
Waterfall Cove	0.01	0.53	0.68	0.15	0.60	0.03
Wellesley Glacier	0.01	0.09	0.12	0.04	0.10	0.01
Wells Anchorage	0.01	0.30	0.37	0.07	0.35	0.02
Wells Bay	0.22	0.13	0.34	0.21	0.23	0.06
West Bay Bligh Island	0.03	0.17	0.74	0.57	0.46	0.13
West Culross Anchorage	tr	2.52	2.57	0.06	2.54	0.02
West Finger Inlet	0.02	0.21	0.42	0.20	0.33	0.05
West Flank Island	tr	0.63	0.65	0.01	0.64	0.00
West Twin Bay	0.06	0.92	1.17	0.25	1.11	0.05
Whale Bay	0.25	0.06	0.38	0.32	0.24	0.09

Table A20. Estimated recreation density statistics, by General Area, in Prince William Sound, Alaska, USA.

General Area	Percent of study area[a]	Minimum	Maximum	Range	Mean	Standard deviation
Whalen Bay	0.02	0.01	0.07	0.06	0.03	0.01
Whiskey Cove	0.01	0.07	0.09	0.01	0.08	0.00
Whittier	0.05	10.87	28.58	17.71	21.58	4.86
Willard Island	0.01	1.25	1.66	0.41	1.43	0.14
Windy Bay	0.03	0.15	0.27	0.12	0.20	0.03
Winter Anchorage Unakwik	tr	0.28	0.34	0.06	0.31	0.02
Wooded Island	tr	0.00	0.00	0.00	0.00	0.00
Yale Arm	0.15	0.02	0.14	0.12	0.08	0.04
Yelper Cove	0.01	0.02	0.03	0.01	0.02	0.00
Zaikof Bay	0.30	0.07	0.24	0.16	0.17	0.05
Ziegler Cove	tr	2.92	3.13	0.21	3.04	0.07
Ziegler Cove SMP	tr	2.26	3.13	0.88	2.61	0.23
	100					