Exxon Valdez Oil Spill
Restoration Project Final Report

Prince William Sound Marine Bird Surveys, Synthesis and Restoration

Restoration Project 080751
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STUDY HISTORY: The U. S. Fish and Wildlife Service, Migratory Bird Management conducted boat-based surveys in Prince William Sound prior to the *Exxon Valdez* oil spill in 1972-73 (L. Haddock et al., USFWS, unpubl. data) and 1984-85 (Irons et al. 1988a, b). After the spill, Natural Resource Damage Assessment Bird Study Number 2 (Burn 1994, Klosiewski and Laing 1994) documented damage from the spill on the marine bird and sea otter populations of Prince William Sound. Data from these surveys indicated that populations of sea otters (Burn 1994) and several marine bird species (Klosiewski and Laing 1994) declined in the spill area. Thus, Restoration Projects 93045 (Agler et al. 1994), 94159 (Agler et al. 1995), 96159 (Agler and Kendall 1997), 98159 (Lance et al. 1999), 00159 (Stephensen et al. 2001), 040159 (Sullivan et al. 2005), and 050751 (McKnight et al. 2006) were initiated to continue monitoring marine bird and sea otter population abundance to assess recovery of injured species.

ABSTRACT: We conducted small boat surveys to estimate marine bird and sea otter (*Enhydra lutris*) populations in Prince William Sound, Alaska during March and July 2007, using methods developed in 1989-91 (Klosiewski and Laing 1994). We examined trends of marine birds in the oiled and unoiled areas of PWS from 1989-2007. We considered an increasing population trend evidence that recovery was occurring and no trend or a decreasing trend evidence that populations were not recovering. Our data indicated that most taxa for which injury was previously demonstrated were not recovering. During winter, three taxa ("loons," Common Loons, and "scoters") had increasing population trends, while fourteen taxa (Bald Eagles, Black-legged Kittiwakes, Buffleheads, Common Murres, "cormorants," "goldeneyes," "grebes," Glaucous-winged Gulls, Harlequin Ducks, "mergansers," Mew Gulls, Marbled Murrelets, Northwestern Crows, and Pigeon Guillemots) did not exhibit any trend toward recovery. During summer three taxa ("cormorants," Glaucous-winged Gulls, and Northwestern Crows) showed trends consistent with a recovering population, and fifteen taxa (Bald Eagles, Black-legged Kittiwakes, Black Oystercatchers, "goldeneyes," Harlequin Ducks, "loons," Common Loons, Kittlitz's Murrelets, "mergansers," Mew Gulls, Marbled Murrelets, Common Murres, Pigeon Guillemots, "scoters," and "terns") showed no trend toward recovery. Densities of sea otters in March and July surveys showed no trend toward recovery.

KEY WORDS: population estimates, marine birds, sea otters, trends, Prince William Sound.

PROJECT DATA:

Description of data – Data on the at-sea distribution and abundance of seabirds and sea otters were collected in Prince William Sound, Alaska. Data were entered into a computer and will be added to the USGS/USFWS's North Pacific Pelagic Seabird Database, which resides in Anchorage, Alaska.

Format – All data are available as Microsoft Access files or comma delimited ASCII files.

Custodian – David B. Irons, Ph. D., Seabird Coordinator, Migratory Bird Management, U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, Alaska 99503.

Internet – Project data are available at the website for the *Exxon Valdez* Oil Spill Trustee Council, under the Project Search section for project 080851:
http://www.evostc.state.ak.us/projects/ProjectInfo.cfm?method=year&project_id=1837

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EXECUTIVE SUMMARY

The waters and shorelines of Prince William Sound provide important feeding, resting, and breeding sites for many marine birds and mammals. In 1989, the *T/V Exxon Valdez* grounded on Bligh Reef in the northeastern corner of Prince William Sound and spilled 40 million liters of crude oil into the surrounding waters. Over 30,000 marine birds and 900 sea otter carcasses were recovered following the spill. Of these, 3,400 birds and approximately 500 sea otters were recovered in Prince William Sound. Direct mortality to marine birds in Prince William Sound and the Gulf of Alaska was estimated at approximately 250,000 birds. Mortality of sea otters was estimated as 350-4,950 otters.

The U. S. Fish and Wildlife Service conducted boat surveys in Prince William Sound in 1972-73, 1984-85, 1989-91, 1993, 1994, 1996, 1998, 2000, 2004, 2005, and 2007 to determine the population abundance of marine birds and sea otters. Data from the 1989-91 surveys were used to assess natural resource damage from the *Exxon Valdez* oil spill. The data indicated that populations of sea otters and several marine bird species declined in the oil spill area.

A number of species were suggested for consideration on the injured species list, but not all were included. At present, the designated injured species list includes Common Loons, “cormorants,” Harlequin Ducks, Bald Eagles, Black Oystercatchers, Common Murres, Pigeon Guillemots, Marbled Murrelets, Kittlitz’s Murrelets, and sea otters.

This study was designed to monitor marine bird and sea otter populations of Prince William Sound following the *T/V Exxon Valdez* oil spill to determine recovery of species affected by the oil spill. To do this, we estimated abundances of marine bird and sea otter populations in Prince William Sound in March and July 2007 and compared these estimates with the 1989-91, 1993, 1994, 1996, 1998, 2000, 2004, and 2005 estimates to ascertain trends in marine bird and sea otter population abundance in Prince William Sound.

Two criteria were employed to examine post-spill trends of marine bird and sea otter populations. First, we examined population trends of injured taxa only in the oiled area of Prince William Sound using regression models. Second, we examined population trends of injured taxa in the oiled area relative to the unoiled area using homogeneity of slopes tests. We considered a population recovering if there was a positive trend using either criterion. We considered a population not recovering if there was no trend using both criteria, a negative trend in the oiled area, or a negative trend in the oiled area relative to the unoiled area.

Most taxa that were previously determined as injured were not recovering. During winter, three taxa (“loons,” Common Loons, and “scoters”) had increasing population trends, while fourteen taxa (Bald Eagles, Black-legged Kittiwakes, Buffleheads, Common Murres, “cormorants,” “goldeneyes,” “grebes,” Glaucous-winged Gulls, Harlequin Ducks, “mergansers,” Mew Gulls, Marbled Murrelets, Northwestern Crows, and Pigeon Guillemots) did not exhibit any trend toward recovery. During summer three taxa (“cormorants,” Glaucous-winged Gulls, and Northwestern Crows) showed trends consistent with a recovering population, and fifteen taxa (Bald Eagles, Black-legged Kittiwakes, Black Oystercatchers, “goldeneyes,” Harlequin Ducks, “loons,” Common Loons, Kittlitz’s Murrelets, “mergansers,” Mew Gulls, Marbled Murrelets, Common Murres, Pigeon Guillemots, “scoters,” and “terns”) showed no trend toward recovery. Densities of sea otters in March and July surveys showed no trend toward recovery. We show evidence of slow recovery and lack of recovery in many taxa that utilize shoreline and near-shore habitats where oil is likely to persist. These potential lingering spill effects and

natural variability appear to be acting in concert in delaying recovery of many Prince William Sound marine bird populations.

INTRODUCTION

The waters and shores of Prince William Sound (PWS) provide important feeding, resting, and breeding habitat for many marine birds and mammals (Isleib and Kessel 1973, Hogan and Murk 1982). The terminus of the Trans-Alaska oil pipeline is in Valdez in northern PWS, and since 1977 oil tankers have made thousands of trips through PWS en route to refineries in the lower 48 states. Due to concern over the effects of a potential oil spill on marine birds, the U.S. Fish and Wildlife Service conducted marine bird surveys in PWS in 1972-73 (L. Haddock et al., unpubl. data) and again in 1984-85 (Irons et al. 1988a).

On 24 March 1989, the *T/V Exxon Valdez* grounded on Bligh Reef in northeastern PWS, spilling ~ 40 million liters of crude oil into the surrounding waters. In the following weeks, wind and currents moved the oil to the southwest where a large percentage was deposited on shorelines and intertidal areas of western and southwestern PWS. Approximately 25% of the oil drifted out of PWS, traveling ~ 750 km to the southwest, contaminating areas of the Kenai Peninsula, Barren Islands, Alaska Peninsula, and Kodiak Island archipelago (Spies et al. 1996). Immediate effects of oil contamination on marine birds were pronounced. Over 30,000 marine bird carcasses were recovered in the spill area, of which, ~ 3,400 were recovered in PWS (Piatt et al. 1990a). Carcasses comprised mainly diving birds: murres, sea ducks, cormorants, murrelets, pigeon guillemots, loons, and grebes (Piatt et al. 1990a). Direct mortality of marine birds in PWS and the Gulf of Alaska was estimated at about 250,000 birds (Piatt and Ford 1996). At the time, the *Exxon Valdez* oil spill (EVOS) was the largest oil spill in North America with unprecedented toll on marine birds, eliciting much concern about the short and long-term effects on marine bird populations in PWS.

In 1989, surveys were initiated by the U.S. Fish and Wildlife Service to determine the population abundance of marine birds in PWS and to assess natural resource damage in the aftermath of the oil spill. Surveys conducted by the U.S. Fish and Wildlife Service were continued in March (1990, 1991, 1993, 1994, 1996, 1998, 2000, 2004, 2005, and 2007) and July (1989, 1990, 1991, 1993, 1996, 1998, 2000, 2004, 2005, and 2007) (Klosiewski and Laing 1994, Agler et al. 1994, 1995, Agler and Kendall 1997, Lance et al. 1999, Stephensen et al. 2001, Sullivan et al. 2005, McKnight et al. 2006). These surveys were designed to monitor marine bird populations of PWS following the *T/V Exxon Valdez* oil spill to determine population trends for those species injured by the oil spill (*Exxon Valdez* Oil Spill Restoration Plan 1996).

Previous studies on the effects of the oil spill (Murphy et al. 1997, Irons et al. 2000) found that summer densities of several species of marine birds were lower than expected (relative to densities in 1984-1985) in the oiled area of PWS after the spill, relative to densities in the unoiled area. Irons et al. (2000) found that diving species were affected more than non-diving species. Klosiewski and Laing (1994) compared population estimates, both winter and summer, and found that numbers of several species of marine birds were lower (relative to numbers in 1972-73) in the oiled area of PWS after the spill compared to populations in the unoiled area. Day et al. (1997) evaluated impacts to and recovery of marine birds by looking at use of oil-affected habitats in PWS, using post-spill data collected throughout the year over a three-year period (1989-1991), also finding oil spill effects on several species of marine birds. Using guild analysis, Wiens et al. (1996) found that the most consistent impacts of oiling were on species that feed on or close to shore, breed on the beach, or are winter or year-round residents. Thus, it is clear from these studies that the EVOS had significant impacts on marine bird populations in PWS; however, it was not certain to what degree these taxa have recovered at the population level sixteen years after the spill.

Many of the species showing oil spill effects during summer have much larger winter populations in PWS (Agler and Kendall 1997). During late winter, when the oil spill occurred, most avifauna of PWS consisted of winter residents, principally: sea ducks, gulls, cormorants, grebes, loons, and alcids. Thus, most of the 3,400 bird carcasses retrieved after the oil spill probably belonged to winter populations (Klosiewski and Laing 1994). Further, one might predict that continuing impacts or recovery of those species would be more apparent in winter populations.

We used the results of post-spill studies focused on detecting oil spill effects (Klosiewski and Laing 1994, Wiens et al. 1996, Day et al. 1997, Murphy et al. 1997, Irons et. al. 2000) to determine which marine bird populations in PWS were impacted by the spill. In this study, we evaluate the trends of impacted marine bird populations of PWS to test the following hypothesis regarding recovery at the population level.

Our null hypothesis, H_o, was that populations in the oiled area did not change, that is, populations were not recovering. Our first alternative hypothesis, H_a1, was that populations were increasing, which we considered as evidence of recovery. Recovery was measured by two methods; a significantly increasing population trend in the oiled area, or a significantly increasing population trend in the oiled area relative to the unoiled area 1989-2007. If either of these criteria were met we considered that as evidence of a recovering population. Our second alternative hypothesis, H_a2, was that populations were decreasing and therefore not recovering. A decreasing population was measured by two methods; a significantly decreasing population trend in the oiled area, or a significantly decreasing population trend in the oiled area relative to the unoiled area 1989-2007.

Objectives

The purpose of this study was to obtain estimates of the summer and winter populations of marine birds and sea otters in Prince William Sound to determine whether species whose populations declined after the *T/V Exxon Valdez* oil spill have recovered. Our specific objectives were:

a. To determine distribution and estimate abundance, with 95% confidence limits, of marine bird and sea otter populations in Prince William Sound during March and July 2007;

b. To determine if marine bird species whose populations were impacted by the spill have recovered;

c. To support restoration studies on harlequin duck and other marine birds and sea otters by providing data on population changes, distribution, and habitat use of Prince William Sound populations.

METHODS

Study Area

Prince William Sound is a large estuarine embayment (~ 10,000 km^2) of the northern Gulf of Alaska (Fig. 1). The coastline of PWS is rugged; surrounded by the Chugach and Kenai Mountains (up to 4km elevation), with numerous tidewater glaciers, deep fjords, and islands. The climate is maritime, with moderate temperatures, high humidity, frequent fog and overcast, and high precipitation (Isleib and Kessel 1973). A low-pressure trough, the Aleutian Low, is located over the area from October through March producing frequent and intense storms with high winds (Isleib and Kessel 1973). Water circulation is dominated by the Alaska Coastal Current (ACC), which mixes with a high volume of fresh water input from precipitation, rivers, and glaciers. Westerly and southwesterly currents predominate with a branch of the ACC entering through Hinchinbrook Entrance, transiting PWS from east to west before exiting through Montague Strait (Niebauer et al. 1994). Strong tidal currents ranging as high as 6 meters cause rapid mixing of waters at the entrances to bays, fjords and inlets. During the winter, ice forms at the heads of protected bays and fjords that receive substantial freshwater runoff (Isleib and Kessel 1973). The study area included all waters within PWS and all land within 100 m of the shore, with the exception of Orca Inlet, near Cordova, Alaska and the southern sides of Montague, Hinchinbrook, and Hawkins Islands (Fig. 1).

Survey Methods

We divided PWS into three strata: shoreline, coastal-pelagic (nearshore), and pelagic (offshore, Fig. 1). The shoreline stratum consisted of all waters within 200 m of land. Based on habitat, the shoreline stratum was divided into 742 transects with a total area of approximately 820.74 km^2 (Irons et al.1988a). Shoreline transects varied in size, ranging from small islands with <1 km of coastline to sections of the mainland with over 30 km of coastline. Mean transect length was ~6 km. Shoreline transects were located by geographic features, such as points of land, to facilitate orientation in the field and to separate the shoreline by habitat type. Surveys were conducted in late winter (March) and mid-summer (July).

In 1989, 187 (25%) of the total 742 shoreline transects were randomly selected for the surveys. An additional 25 shoreline transects from western PWS were randomly selected and added in July 1990 to increase the precision of estimates from the oiled zone (Fig. 1). The number of shoreline transects was reduced to 99 (13% of the total 742 transects) during March surveys to accommodate potential weather delays. Sample sizes within individual surveys sometimes varied slightly, because a few transects could not always be surveyed due to environmental conditions (e.g., ice).

To sample the coastal-pelagic and pelagic waters of PWS, the study area was divided into 5-min latitude-longitude blocks. Blocks were classified as nearshore if they included >1.8 km of shoreline. Blocks that included ≤1.8 km of shoreline were classified in the pelagic stratum. If coastal-pelagic or pelagic blocks intersected the 200 m shoreline buffer, they were truncated to avoid overlap with the shoreline stratum. Blocks were randomly chosen and two transects were surveyed within each block. If a block was too small to contain both transects, it was combined with an adjacent block. During the March surveys, 14% (29) of the coastal-pelagic blocks (n = 207) and 29% (25) of those within the pelagic stratum (n = 86) were sampled. During the July surveys, 22% (44) of the coastal-pelagic blocks (n = 207) and 29% (25) of those within the pelagic stratum (n = 86) were sampled. We surveyed two north-south transects, each 200 m wide, located 1-min longitude inside the east and west boundaries of each coastal-pelagic and pelagic block. Global Positioning Systems (GPS) and nautical compasses were used to navigate transect lines.

Transects were surveyed in ~ 11-20 working days over a three-week period; winter surveys (~ 1-28 March; 1990-91, 1993, 1994, 1996, 1998, 2000, 2004, 2005, and 2007) and summer surveys (~ 2-27 July; 1989-91, 1993, 1996, 1998, 2000, 2004, 2005, and 2007). Survey methodology and transects surveyed were identical in all years. Surveys were conducted concurrently by three 8 m fiberglass boats traveling at speeds of 10-20 km/hr. Two observers counted all birds and mammals detected in a sampling window 100 m on either side, 100 m ahead, and 100 m overhead of the vessel. When surveying shoreline transects, observers also recorded birds and mammals sighted on land within 100 m of shore. Observers scanned continuously and used binoculars to aid in species identification. Most transects were surveyed when wave height was <30 cm, and no surveys were conducted when wave height was >60 cm.

To examine population trends over time and to determine if populations injured by the spill were recovering, we post-stratified PWS into oiled and unoiled areas (Fig. 1). Our methodology of post-stratification followed that of Klosiewski and Laing (1994), who considered all strata within the outer boundary of the general oiled area as oiled. The oil spill, however, contaminated some beaches, while some adjacent beaches were left untouched creating a mosaic pattern of oiling. Thus, at this coarse scale unoiled habitat was present within the oiled area. Because birds are mobile, we assumed that birds on unoiled transects surrounded by oil were likely to be affected by oil (but see Irons et al. 2000). Our post-stratification analyses assumed that bird populations in the oiled and unoiled portions of PWS, as well as PWS as a whole, were discrete. While this is likely not the case for marine birds in general (Porter and Coulson 1987), data on the movement of bird populations between the various portions of PWS (Kuletz et al. 1995, Bowman et al. 1997, Rosenberg and Petrula 1998, and Suryan and Irons 2001) are too limited to include in our analyses.

Some bird species were grouped by genus for analyses (Appendix 1). These species were combined to allow analyses to include data on birds that were only identified to genus (e.g., “loons”). In general, species within a taxonomic group were similar in natural history attributes and vulnerability to oil (see King and Sanger 1979). When enough data were available, we also included results for the individual injured species within a genus. In the special case of murrelets, we have grouped unidentified *Brachyramphus* murrelets into the Marbled Murrelet group, because early efforts to identify murrelets to species varied widely over the study years, and more than 95% of the unidentified birds were most likely Marbled Murrelets rather than the rarer Kittlitz’s Murrelets. Similarly, we have grouped unidentified murres with the Common Murres, as Thick-billed Murres were rarely identified during surveys of PWS.

Data Analysis

Population Estimates and Densities

We estimated population abundances and variances using a ratio of total count to area surveyed within each stratum (Cochran 1977). Shoreline transects were treated as a simple random sample, whereas the coastal-pelagic and pelagic transects were analyzed as two-stage cluster samples of unequal size. To obtain a population estimate for each block, we estimated the density of birds counted on the combined transects for a block and multiplied by the area of the sampled block. We then added the estimates from all blocks surveyed and divided by the sum of the areas of all blocks surveyed. Next, we calculated the population estimate for a stratum by multiplying this estimate by the area of all blocks in the stratum. Total population estimates for PWS were calculated by adding the population estimates from the three strata. We then calculated the 95% confidence intervals for these estimates from the sum of the variances of each stratum. Our population estimates are minimums because some unknown percentage of each species is likely missed due to being underwater or undetected. Density estimates used in regression analyses were calculated from total population estimates.

To determine if impacted populations were showing signs of recovery or not we employed two methods of analyses. We examined the post-spill population trend of the birds in the oiled area. We also examined the post-spill population trend of the birds in the oiled area relative to the unoiled area, since there are several factors other than oil spills that cause bird populations to change.

Population Trends in the Oiled Area

We examined the trend in marine bird densities, for summer and winter in the oiled area to determine if the population levels were changing. An impacted taxon was considered showing evidence of recovery if the logarithms of the densities in the oiled areas of PWS were exhibiting a statistically significant increasing trend (positive slope); otherwise, the taxon was considered showing no evidence of recovery (slope not significantly different than zero or was significantly negative). This test assumed that the oil spill effect was large enough that recovery could be detected using our survey methods. It makes no assumptions regarding unoiled areas.

Population Trends in Oiled Area Relative to Unoiled Area

We compared trends in marine bird densities, for both winter and summer, between oiled and unoiled areas of PWS. To test whether the populations were changing at different rates we examined the homogeneity of the slopes of the logarithms of the densities over time between the oiled and the unoiled areas (Freud and Littell 1981) using linear models. Significantly different slopes indicated that densities of a species or species group in the oiled area were changing at a different rate than in the unoiled area. We calculated the rate of change of density in each area with linear regression analyses.

A taxon was considered recovering if bird densities in the oiled areas of PWS were increasing at a significantly greater rate (slope of the regression line) than bird densities in the unoiled areas of PWS. A taxon was considered as showing no evidence of recovery if trends of bird densities in the oiled areas of PWS were not significantly different from trends in the unoiled areas of PWS (no difference in slopes), or if bird densities in the oiled areas of PWS had trends (slopes) which were significantly smaller (or more negative) than trends in the unoiled area.

We made several assumptions to test for recovery using the homogeneity of slopes test. 1) We assumed that an oil spill effect on a taxon was large enough that recovery could be detected using our survey methods. Murphy et al. (1997) and Irons et al. (2000) demonstrated impacts on several marine bird taxa using similar survey methods, lending support to this assumption. 2) We assumed that in the absence of an oil spill, populations would increase or decrease at approximately the same rate in the oiled and unoiled areas of PWS. 3) We assumed oiled and unoiled bird populations were discrete. 4) We assumed that no natural, density-dependent mechanisms affected bird populations' ability to recover in PWS (e.g., changes in the carrying capacity of the environment between 1989 and 2007; see Ainley and Nur 1997). If these assumptions were not met, the homogeneity of slopes test may not have detected recovery.

Substantial seasonal differences exist in the distribution and abundance of the various marine bird taxa in PWS (Isleib and Kessel 1973), thus the same suite of taxa were not always analyzed in both winter and summer. Ten years of data were available for March (1990, 1991, 1993, 1994, 1996, 1998, 2000, 2004, 2005, and 2007) and July (1989, 1990, 1991, 1993, 1996, 1998, 2000, 2004, 2005, and 2007). Our hypothesis focused on whether rates of change in density were the same between oiled and unoiled areas, rather than if absolute densities differed. Consequently, densities were $\log_{10}$ transformed to yield multiplicative models (e.g., effects and any subsequent changes in density would be proportional to the previous densities in the various portions of PWS) rather than additive models (Stewart-Oaten et al. 1986, 1992); the latter being an assumption of statistical tests on untransformed data (Sokal and Rohlf 1995). To avoid the undefined log of zero, we added a constant of 0.167 to all density estimates prior to analysis (Mosteller and Tukey 1977).

In all analyses we used a test size alpha = 0.10 to balance Type I and Type II errors. The reasons for this included: 1) variation was often high and sample sizes low (n = 10 survey years); and 2) monitoring studies are inherently different from experiments and the number of tests being run with a multi-species survey are many, therefore, controlling for the number of tests by lowering alpha levels (e.g. Bonferroni adjustment) might obscure trends of biological value. To make our results comparable with other studies on the effects of the EVOS on marine bird populations that used an alpha level of 0.20 (Wiens and Parker 1995, Wiens et al. 1996, Day et al. 1997, Murphy et al. 1997, Irons et al. 2000), we have included appendices (A-D) displaying the same results using an alpha level of 0.20.

In assessing impacts from environmental perturbations, there has been a trend of using large alpha levels (Wiens and Parker 1995, Wiens et al. 1996, Murphy et al. 1997, and Irons et al. 2000); allowing to error on the conservative side (increased chance of a Type I error, falsely identifying an impact that did not occur) rather than commit a Type II error (failing to identify an impact that did occur). It follows that in looking for recovery of an injured population, the practice of a conservative approach to setting alpha levels may be reversed. That is, the conservation and management consequences of making a Type I error (falsely identifying recovery that did not occur) may be greater than committing a Type II error (failing to identify recovery that did occur). Thus, it is likely that in assessing possible recovery of a species, the size of the alpha level should be smaller than we used in this study. In other words, our acceptance of recovery of a taxon based on an alpha of 0.10 is generous. Further, a consequence of conducting numerous statistical tests is that some results may be indicated as statistically significant by chance alone. Therefore, in this study we look at the patterns and strengths of significant results (see Figures 2 and 3) and interpret those patterns in light of the life history attributes of the affected taxon and results from related studies in PWS.

RESULTS

We report on seventeen years of post-spill marine bird population changes during July and March in the oiled area of PWS using two methods of analyses, absolute trends in the oiled area and trends in the oiled area relative to the unoiled area (Fig. 1). Taxa are categorized by their trend. These results are based on all years of data collected. Results presented in earlier reports could be different from these either because populations increased or decreased since those surveys, in some cases populations increased for a few years then declined. If that were the case then we may have considered a species recovering and now consider it not recovering. We allow the reader to interpret those results.

Taxa with Positive Absolute or Relative Population Trends in the Oiled Area

During summer, three taxa ("cormorants," Glaucous-winged Gulls, and Northwestern Crows) of the 18 that were analyzed demonstrated a positive trend in the oiled area (Fig. 3). During winter, three taxa ("loons," Common Loons, and "scoters") of the 17 that were analyzed showed a positive trend in the oiled area (Fig. 2).

Taxa with No Trends in the Oiled Area

Seven taxa (Bald Eagles, Black-legged Kittiwakes, Common Murres, “goldeneyes,” Harlequin Ducks, “mergansers,” and Mew Gulls) showed no increase or decrease in densities in the oiled area during summer and winter over the seventeen year study period (Figs. 2, 3). Two taxa (Common Loons and “loons,”) showed no change in densities during summer only (Fig. 3), and four taxa (“cormorants,” Glaucous-winged Gulls, Northwestern Crows, and Pigeon Guillemots) showed no change in densities during winter only (Fig. 2). Buffleheads, considered only in winter analyses, showed no change in densities in either area, and Black Oystercatchers and Kittlitz’s Murrelets, considered only in summer analyses, also showed no increase or decrease in density over the study period (Appendices A, B, and C; and Fig. 2, 3).

Taxa with Negative Absolute or Relative Trends in the Oiled Area

During summer, three taxa (Marbled Murrelets, Pigeon Guillemots, and “terns”) declined in the oiled area and one taxon (“scoters”) declined in the oiled area relative to changes in the unoiled area (Fig. 3). During winter, two taxa (Marbled Murrelets and “grebes”) declined in the oiled area (Fig. 2).

Trends using Regression Analysis

We also examined population trends from 1989-2005 for PWS as a whole, using regression analyses. We found significant positive trends in March for Bald Eagles (Appendix D). “Grebes” and Marbled Murrelets exhibited significant negative trends in overall abundance in March. In July, significant positive trends in overall abundance were found for “cormorants,” Glaucous-winged Gulls, and “mergansers,” and significant negative trends were found for “goldeneyes,” Marbled Murrelets, Pigeon Guillemots, and “terns” (Appendix D).

DISCUSSION

Interpreting our data for evidence of recovering populations required use of information available from the trends in the oiled area, the trends in the oiled area relative to the unoiled area, results from related studies in PWS, as well as taxon-specific ecological attributes. We assumed that any decrease in the population caused by the oil spill was detectable by previous oil spill studies and that if populations were recovering we could measure that recovery by at least one of the two methods that we used. We recognize that the power to detect recovery varies among taxa depending on the inter-year variability. In this study we attempted to assess whether an injured population was recovering with the burden of proof being on the available data, marshaling the collective evidence from our results (see Table 1), other related studies, as well as the ecological attributes of the taxa.

We were fortunate to have data from a nearby unoiled area to use as a control. We felt that the homogeneity of slopes methods, which used the data in the control area, would provide convincing evidence of recovery. To look for additional evidence of recovery we also examined the trends in the oiled area alone.

Taxa Trends: Recovery and Lack of Recovery

"Loons."-- Injury to "loons" from the oil spill was documented for summer populations in PWS (Irons et al. 2000). The homogeneity of slopes test and regression on summer densities of both "all loons" as well as Common Loons in the oiled areas of PWS indicated no trend of recovery for this species group. In contrast, while the homogeneity of slopes test on winter densities indicated showed no trend toward recovery, the densities of both "all loons" and Common Loons in the oiled area did increase significantly, suggesting winter populations may be recovering.

"*Grebes."*-- Injury to "grebes" from the oil spill was documented for birds that winter in PWS and as of 1991 showed no evidence of recovery (Day et al. 1997). The homogeneity of slopes test and regression on winter densities of grebes in the oiled areas of PWS indicated no trend of recovery for this group. Of equal concern were significant declines in oiled and unoiled areas of PWS indicating PWS-wide declines in this taxon.

"Cormorants."-- Injury to "cormorants" from the oil spill was documented for non-breeding birds that spend the summer in PWS (Klosiewski and Laing 1994, Day et al. 1997, Murphy et al. 1997, Irons et al. 2000). Although the homogeneity of slopes test and regression on winter densities of cormorants showed no trend toward recovery, the regressions on summer densities of cormorants in the oiled areas of PWS indicated a positive trend for this taxon in the oiled region, suggesting that recovery of summer populations is underway. PWS-wide regressions also showed a positive trend for this taxon over the seventeen year study period.

Harlequin Ducks.-- Injury to Harlequin Ducks from the oil spill was documented for summer populations in PWS (Klosiewski and Laing 1994, Day et al. 1997, Irons et al. 2000), but effects were not detected after 1991 (Day et al. 1997, Irons et al. 2000). In contrast, data from Harlequin Duck specific surveys (July-September; Rosenberg and Petrula 1998) demonstrated that oiled and unoiled populations became more divergent during 1995-1997, suggesting continuing oil spill effects. Our homogeneity of slopes test and regressions on summer and winter densities in oiled areas relative to unoiled areas of PWS did not show any evidence of a recovering population.

Summer and winter populations of Harlequin Ducks in PWS represent different age/sex composition and structure. Summer populations in PWS are composed primarily of non-breeders and failed breeders, whereas winter populations include adult breeders (Rosenberg and Petrula 1998). Given the oil spill occurred in March, and that winter represents the period of maximum stability in Harlequin Duck populations (Rosenberg and Petrula 1998), one might predict that continuing impacts or recovery for Harlequin Ducks would be most evident in the winter population. Some studies have shown evidence of this. Winter survival rates for adult female Harlequin Ducks were lower in oiled areas of PWS than the unoiled areas between 1995-1998 (Esler et al. 2000), consistent with non-recovery. Modeling efforts using this survival data predicted a stable population in the unoiled area and a declining population in the oiled area. Further, Harlequin Ducks exhibit high winter site fidelity. While site fidelity is an adaptive strategy in predictable environments (Hohman et al. 1992), it may not facilitate the enhancement of injured populations through immigration (D. Esler unpubl. data).

"Scoters."-- Injury to "scoters" from the oil spill was documented for summer populations in PWS (Klosiewski and Laing 1994). The homogeneity of slopes test showed divergent trends in summer populations of scoters between the oiled and unoiled regions, consistent with continuing and increasing oil spill effects. The regression analysis of winter densities in the oiled area, however, showed a positive trend for winter populations of "scoters."

Bufflehead. -- Negative impacts to Bufflehead from the oil spill were documented in PWS for winter populations (Day et al. 1997). Both the homogeneity of slopes test as well as the regression on winter densities of Bufflehead in the oiled areas of PWS indicated no recovery for this species.

"Goldeneyes."-- Negative impacts to "goldeneyes" from the oil spill were documented in PWS for summer (Irons et al. 2000) and fall populations (Day et al. 1997). Both the homogeneity of slopes test as well as the regression on winter and summer densities of "goldeneyes" in the oiled areas of PWS suggest no trend of recovery for this species. Of equal concern were significant declines in oiled and unoiled areas of PWS indicating PWS-wide declines in summer populations of this taxon.

"Mergansers."-- Negative impacts to "mergansers" from the oil spill were documented in PWS for summer populations (Day et al. 1997, Irons et al. 2000). Both the homogeneity of slopes test as well as the regression on winter and summer densities of "mergansers" in the oiled areas of PWS suggest no trend of recovery for this species. In contrast, PWS-wide regressions showed an increasing trend for "mergansers" over the seventeen year study period.

Bald Eagles.-- Negative impacts to Bald Eagles from the oil spill were documented in PWS in 1989 (Bernatowicz et al. 1996, Day et al. 1997), however, by 1990 there was evidence of recovery (White et al. 1993, Bernatowicz et al. 1996, Day et al. 1997). In 1989, a decline in nesting success was observed in western PWS (oiled) relative to eastern PWS (unoiled), but this difference disappeared in 1990 (Bernatowicz et al. 1996) and by 1995 the PWS population had returned to pre-spill levels (Bowman et al. 1997). Our regressions on winter data indicated an annual increase in eagle densities for both the oiled and unoiled portions of PWS between 1989 and 2005, consistent with a recovering population. The homogeneity of slopes test showed no difference in relative densities between the oiled and unoiled regions. Bowman et al. (1997) found accurate comparisons of population changes between oiled and unoiled areas difficult to make because of the high mobility of eagles; differences reflecting local shifts in distribution related to food supplies. In the case of Bald Eagles, assumptions of the homogeneity of slopes test may not be valid, lending strength to individual regression analyses.

Our regression analysis as well as the homogeneity of slopes test showed no significant trends in Bald Eagle densities, in contrast with Bald Eagle-specific surveys (Bowman et al. 1997), which documented increases in PWS populations since 1982, and again since 1991. Bald Eagles population estimates in the oiled region increased for years, but the numbers have apparently leveled off, rendering the trend no longer significant as of our 2007 results. Bald Eagles are officially classified as "recovered."

Regression analysis of PWS-wide densities, however, showed an increasing trend in summer populations of this taxon. It is difficult to explain the sustained increase in PWS eagle numbers (similar increasing trends are documented for the Kodiak Archipelago, southeastern

Alaska, and the Kodiak National Wildlife Refuge; Bowman et al. 1997) but it is possible that PWS-wide populations are rebounding from an earlier perturbation. Jacobson and Hodges (unpubl. MS) suggested that observed increases in southeast Alaska Bald Eagle populations between 1967 and 1997 were due to recovery from the effects of extensive bounty hunting earlier this century.

Mew Gulls. -- Injury to Mew gulls from the oil spill was documented for summer populations in PWS (Klosiewski and Laing 1994, Day et al. 1997). The homogeneity of slopes test and regressions on both summer and winter densities of Mew Gulls in oiled areas of PWS indicated no trend of recovery for this species.

Glaucous-winged Gulls. -- Injury to Glaucous-winged Gulls from the oil spill was documented for both winter and summer populations in PWS, though effects had disappeared by 1990 (Day et al. 1997). The homogeneity of slopes test and regressions on winter densities of Glaucous-winged Gulls in oiled areas of PWS indicated no trend of recovery for winter populations of this species. In contrast, regression analysis of summer densities showed a positive trend, indicating that recovery of summer populations may be underway. Further, PWS-wide regressions on this taxon showed a positive trend over the seventeen year study.

Black-legged Kittiwakes. -- Negative impacts to kittiwakes from the oil spill were documented in PWS for summer populations (Irons et al. 2000), however, these decreases were attributed to local shifts in foraging distributions related to temporally abundant food resources (eg. forage fish schools) rather than declines in populations. The homogeneity of slopes test and regressions on both summer and winter densities of Black-legged Kittiwakes in oiled areas of PWS indicated no trend of recovery for this species.

Kittiwake productivity was lower than expected in the oiled area following the spill in 1989, while productivity in the unoiled area was high. Productivity declined even more in the oiled area and declined in the unoiled area through 1994 (Irons 1996). Poor productivity in oiled areas of PWS may have translated to low recruitment and may partially explain the negative trend in summer densities.

"Terns." -- Negative impacts to "terns" from the oil spill were documented in PWS for summer populations (Klosiewski and Laing 1994). The regression on summer densities of "terns" in the oiled area showed a significant negative trend, suggesting a decline in population. Of equal concern were significant declines in oiled and unoiled areas of PWS indicating PWS-wide declines in summer populations of this taxon. Our data are consistent with recent surveys of tern colonies in PWS (summer 1999 and 2000), which revealed significant declines compared with pre-spill surveys, including the complete disappearance of colonies (USFWS unpubl. data).

Black Oystercatchers. -- Injury to Black Oystercatchers was documented for summer populations in 1989 and 1990 (Klosiewski and Laing 1994, Day et al. 1997, Murphy et al. 1997, Irons et al. 2000) but effects had largely dissipated after 1991 (Murphy et al. 1997, Irons et al. 2000). Effects were primarily due to breeding disruption during 1989 and 1990 by disturbance associated with cleanup and bioremediation activities (Sharp et al. 1996, Andres 1997). Studies conducted between 1992-93 (Andres 1999) found that effects from persistent shoreline oil on breeding success of oystercatchers were negligible. More recently, Murphy and Mabee (1998) showed that oystercatchers had fully re-occupied territories and were nesting at oiled sites in PWS, concluding that oiling did not affect breeding biology and success of oystercatchers in 1998.

The homogeneity of slopes test, as well as regression on summer densities of Black Oystercatchers in the oiled areas of PWS suggested no trend of recovery for this species. Murphy and Mabee (1998) found significantly lower breeding success in oiled areas of PWS, attributing predation as the driving mechanism. Predation on eggs and young can be high (Murphy and Mabee 1998, Andres 1999) and a dominant force in shaping oystercatcher populations, perhaps swamping out any oil effects on breeding success.

Common Murres. -- Injury to Common Murres from the oil spill was documented for non-breeding birds that spend the summer in PWS (Klosiewski and Laing 1994, Day et al. 1997, Irons et al. 2000) as well as winter populations (Day et al. 1997). The homogeneity of slopes test, as well as regressions on both summer and winter densities of Common Murres in the oiled areas, indicated no trend of recovery for this species. Murres are a common winter resident in PWS. However, numbers are highly variable, with peak winter numbers associated with anomalous oceanographic conditions (eg. El Niño) in the Gulf of Alaska (Piatt and Van Pelt 1997).

Pigeon Guillemots. -- Injury to Pigeon Guillemots from the oil spill was documented for both winter (Klosiewski and Laing 1994) and summer populations in PWS (Murphy et al. 1997, Irons et al. 2000). Guillemot populations have declined throughout PWS since 1972 and the estimated number of birds in the oiled areas of PWS during March 1990 was 33% less than expected relative to unoiled areas (Klosiewski and Laing 1994). In addition, population counts at Naked Island, PWS showed the population declined in the three years following the spill, and declines at colonies located along oiled shorelines were greater than unoiled sites (Oakley and Kuletz 1996). Homogeneity of slopes test and regressions on both summer and winter densities of Pigeon Guillemots in the oiled areas indicated no trend of recovery for this species. In fact, summer densities of birds in oiled areas showed significant negative trends, suggesting a population decline. Of equal concern were significant declines in oiled and unoiled areas of PWS indicating PWS-wide declines in summer populations of this taxon.

The oil spill did not have any detected effects on the abundance of shallow sub-tidal fishes (eg. gunnels, rockfishes, sculpins, blennies, etc.; Laur and Haldorson 1996), principal prey of guillemots (Golet et al. 2000). Chick growth and reproductive success in guillemots, however, is correlated with the percentage of high-lipid schooling fish (eg. sandlance) in the diet (Golet et al. 2000). The percent of high-lipid schooling fishes in chick diet at Naked Island, PWS was significantly greater pre-spill (1979-81) than post-spill (1989-90 and 1994-98; Golet et al. 1999). Whether this relative shift in diets is the result of the oil spill or the regime shift remains unclear.

"Murrelets." -- A minimum of 8,400 "murrelets" (both Marbled and Kittlitz's murrelet) were killed directly by exposure to oil, representing about 7% of the population in the spill zone (Kuletz 1996). Oil spill effects were detected for Marbled Murrelets in 1989, but disappeared by 1990 (Day et al. 1997, Kuletz 1996). There is evidence that cleanup and other spill-related activities disrupted nearshore murrelet distributions (Kuletz 1996), which may partially explain the oil spill effect during the summer following the spill. Our homogeneity of slopes test showed no trend toward recovery for either species. In fact, regression analysis on densities of Marbled Murrelets in the oiled region showed significant declines in both summer and winter populations.

Of equal concern were significant declines in oiled and unoiled areas of PWS indicating PWS-wide declines in both summer and winter populations of this species.

While murrelets winter in PWS, numbers are only 20-30% of summer populations. Winter data may track earlier phenology of "murrelet" arrival in PWS between 1990-2005, due to changes in oceanography and associated schooling fish distribution in the Gulf of Alaska (Anderson and Piatt, 1999) and PWS. Spear and Ainley (1999) related annual variation in densities of Sooty Shearwaters (*Puffinus griseus*) to large-scale oceanic warming; resulting in a distributional shift in feeding location during the nonbreeding period. Since March marks the beginning of movement of murrelets into PWS, which peaks in April (Kuletz et al. 1995), a temporal shift in winter distribution is plausible, particularly in light of four El Niños that have occurred since 1990 (Trenberth 1997). As with other alcids that visit colonies throughout the year (eg. Black Guillemot [*Cepphus grylle*], Greenwood 1987; Common Murre, Harris and Wanless 1990), these winter murrelet populations may be comprised primarily of experienced breeding adults (see Naslund 1993) as opposed to a mix of breeders and non-breeders in summer.

Northwestern Crows. -- Injury to Northwestern Crows from the oil spill was documented for both winter (Day et al. 1997) and summer populations in PWS (Klosiewski and Laing 1994). While the homogeneity of slopes test showed no significant difference in trends between oiled and unoiled areas for this species, the regression on summer densities of Northwestern Crows in the oiled area of PWS suggested recovery for this species.

Mechanism of Continuing Injury or Lack of Recovery

Shoreline habitats in the oiled portions of PWS were impacted to various degrees by oiling. Natural weathering and flushing by high wave energy reduced the amount of oil in some areas of PWS. However, as recently as 2001 some beaches in protected, low-energy areas still contained substantial amounts of oil in a toxic state in sediments (Short et al. 2001). Further, *Exxon Valdez* oil, in a relatively unweathered state in sediments, was the source of the contamination of mussel beds. Contaminated sediments were acting as a reservoir, affecting chronic exposure of nearby mussels and other intertidal organisms (Harris et al. 1996). In addition, cleaning operations killed marine life which survived oiling and damaged intertidal habitats by altering shoreline sediment structure, which could ultimately affect repopulation of shorelines by sediment-dwelling invertebrates (e.g., clams, mussels; Mearns 1996). It follows that organisms, such as marine birds, which utilize these habitats may exhibit slow rates of recovery or continuing and increasing effects. Our trend data are consistent with this idea. Several of the species showing no evidence of recovery in one or both seasons (eg. Harlequin Ducks, "goldeneyes," "mergansers," Mew Gulls, Black-legged Kittiwakes, Pigeon Guillemots, "scoters," Marbled Murrelets, and Kittlitz's Murrelets) use nearshore habitats. However, this trend is confounded by other species that also use nearshore habitats, yet did show some evidence of recovery (e.g., Glaucous-winged Gulls and Northwestern Crows). Thus, for summer populations, our results show taxa that utilize the nearshore environment in each status category. This suggests that for some of the species affected by the EVOS, factors other than use of nearshore habitat are contributing to observed trends.

The Nearshore Vertebrate Predator Project (Ballachey et al. 2006, Ballachey et al. 1999) assessed exposure of marine birds in PWS to oil using expression of cytochrome P4501A, an enzyme induced by exposure to polynuclear aromatic hydocarbons or halogenated aromatic hydrocarbons. Higher levels of P4501A induction were found in oiled areas relative to unoiled areas for Harlequin Ducks and Barrow's Goldeneyes (Ballachey et al. 2006, Ballachey et al. 1999), and Black Oystercatchers (Ballachey et al. 2006) These results are consistent with our results showing no recovery in Black Oystercatchers, "goldeneyes," and Harlequin Ducks. The P4501A data are clear evidence of greater contaminant exposure to organisms in oiled areas of PWS relative to unoiled areas (Ballachey et al. 2006, Ballachey et al. 1999). It is not known, however, what amount of oil is necessary to induce P4501A at the levels detected or the health consequences (e.g., survival, reproduction) of that much oil. In recent years the amount of oil ingested by some birds and mammals has been decreasing, suggesting that the habitat is recovering (Ballachey unpubl. data).

Cumulative Impacts: Regime Shifts, Oil Spills, and Recovery

Using trend data alone to assess impacts and recovery from a perturbation such as the EVOS is confounded by effects of natural temporal and geographic variation inherent in wildlife populations (Piatt et al. 1990b, Spies 1996, Wiens and Parker 1995). Population dynamics of marine birds may be carried out at large temporal and spatial scales (Wiens et al. 1996, Piatt and Anderson 1996) and against a backdrop of high natural variation in the marine environment (Piatt and Anderson 1996, Hayward 1997, Francis et al. 1998). Movement of birds between and within wintering and breeding grounds (Stowe 1982), juvenile dispersal (Harris 1983), and large pools of non-breeding individuals (Porter and Coulson 1987, Klomp and Furness 1992), may serve to mask local population changes, effectively buffering local effects over a broader region. Some studies of the EVOS (Day et al. 1997, Wiens et al. 1996) suggested that marine bird populations have a good deal of resiliency to severe but short-term perturbations, including the EVOS. This view is supported by the occurrence of large natural die-offs and reproductive failure of marine birds associated with reduced food supply and storms (Harris and Wanless 1984, Piatt and Van Pelt 1997). Interestingly, effects of these large die-offs on local populations are often difficult to detect or are small and transitory at the scale of most monitoring programs (Dunnet 1982, Stowe 1982, Harris and Wanless 1984, Piatt et al. 1990b, Wooller et al. 1992). Further, it is widely believed that marine bird populations are limited by resources with a 5-20% natural annual adult mortality rate (Piatt et al. 1990b). Under stable conditions this mortality would be compensatory (e.g., balanced by recruitment of adults into the breeding population).

This raises the question of the ability of marine birds to respond to long-term, chronic perturbations. In particular, if perturbations act in concert to have an additive effect on populations already stressed by other factors (eg. food shortages, winter storms, introduced predators, gill nets, disease, and long term oceanographic changes). In this study, we assumed that in the absence of an oil spill, marine bird populations in the oiled and unoiled portions of PWS, all things being equal, would exhibit similar trends; and as such, should have been affected to a similar degree by natural perturbations such as those at the scale of the North Pacific regime shift (Hayward 1997, Francis et al. 1998). Agler et al. (1999) compared surveys of marine birds in PWS in July 1972 with post-spill surveys in July 1989-1991, and 1993, and found that populations of several species of marine birds that feed on fish ("loons," "cormorants," "mergansers," Glaucous-winged Gulls, Black-legged Kittiwakes, Arctic Terns, Pigeon Guillemots, and "murrelets") had declined, while most of those species feeding on benthic invertebrates ("goldeneyes," Harlequin Ducks, and Black Oystercatchers) did not decline. Similarly, many of the marine bird taxa showing declines in PWS declined on the Kenai Peninsula prior to the oil spill. Agler et al. (1999) suggested declines in piscivorous marine birds were at least partially due to changes in the relative abundance of certain forage fish species that occurred during the climatic regime shift in the north Pacific Ocean in the mid 1970's (Hayward 1997, Francis et al. 1998, Anderson and Piatt, *in press*). Of the 14 taxa showing declines in PWS between 1972 and 1989-1993 (Agler et al. 1999), eight ("loons," "cormorants," "scoters," "mergansers," Black-legged Kittiwakes, "terns," Pigeon Guillemots, and "murrelets") were shown to have been negatively affected by the oil spill (Klosiewski and Laing 1994, Day et al. 1997, Wiens et al. 1996, Murphy et al. 1997, Irons et al. 2000). Of these eight taxa, only one ("cormorants") showed evidence of recovery based on our trend data for summer densities and only two ("loons" and "scoters") showed evidence of recovery based on winter densities. Thus, it appears that these taxa may be responding to the cumulative impacts of the regime shift (lowered prey availability and quality) and the oil spill, slowing recovery at the population level.

Interpreting and Defining Recovery

Assessment of recovery from a perturbation is dependent upon the null hypothesis generated, the statistical test used and its associated power, and how recovery is defined. Numerous analytical methods have been used in assessing impacts and recovery of marine birds in PWS following the EVOS (Klosiewski and Laing 1994, Wiens et al. 1996, Day et al. 1997; Murphy et al. 1997, Irons et al. 2000). These methods differ in their approach, at times producing seemingly different results, or more appropriately the interpretation of those results, from similar data. Currently, there is no consensus on which methodology is the most suitable for assessing recovery; a pattern consistent with most studies monitoring long-term population change in birds (Thomas 1996).

Wiens and Parker (1995) defined impact as a statistically significant correlation between injury and exposure; recovery being the disappearance of such a correlation through time. In short, the burden of proof is placed on the data to establish injury and no recovery. This definition has been used by several studies (Wiens et al. 1996, Day et al. 1997, Murphy et al. 1997, and Irons et al. 2000) to assess injury and recovery of marine birds in PWS following EVOS. The latter studies rejection of the null hypothesis (no difference) constituted an effect, and the failure to reject in subsequent years was defined as recovery. In contrast, Agler and Kendall (1997) compared the slopes of regression lines from oiled and unoiled areas, defining recovery as population abundance increasing in the oiled area relative to the unoiled area (homogeneity of slopes test). Here the rejection of the null hypothesis (no difference) is interpreted as recovery if impacted populations have rates above those of the reference area, and not recovering if the rates of change were not significantly different or if impacted populations have rates below those of the reference area. In short, the failure to reject the null constituted non-recovery status. The "burden of proof" of recovery is on the data in this case. It follows then that the better the data the more power to detect recovery. The result of these various definitions of recovery (based on different criteria) is that data collected on the same population of birds can produce different conclusions regarding recovery status. Thus, while the proximate definition of recovery is based on objective analytical criteria, the ultimate definition is dependent on the more subjective choice of statistical model and numerical values of criteria employed. In our opinion, rigid application of these definitions of recovery accounts for much of the divergence in conclusions over the impacts and recovery of marine bird populations in PWS following the EVOS [Wiens et al. (1996), Day et al. (1997), Murphy et al. (1997), Irons et al. (2000), and this study].

CONCLUSIONS

Few other studies of marine birds have persisted for such a long period of time after a large environmental perturbation, such as the *T/V Exxon Valdez* oil spill. Thus, we had the opportunity to examine the effect of an oil spill on an area over time. Most data on the population trends of marine and coastal birds have been collected on a short-term basis or opportunistically over a large area. Long-term studies traditionally have been on a single species, usually at a colony (Wooller et al. 1992), but this survey covered a large area and collected data on several species.

We found for the designated injured species or species groups of marine birds and mammals that Harlequin Ducks, Black Oystercatchers, Common Murres, Pigeon Guillemots, Marbled Murrelets, Kittlitz's Murrelets, and sea otters did not show evidence of recovery from the spill. Bald Eagles increased for several years and were declared recovered, but have recently been declining.

In summary, our study indicates that many of the designated injured taxa as well as the taxa for which injury was previously demonstrated are not recovering. We show evidence of slow recovery, lack of recovery, and divergent population trends in many taxa that utilize shoreline and nearshore habitats where oil is likely to persist. Potential lingering spill effects and natural variability appear to be acting in concert in delaying recovery of many PWS bird populations.

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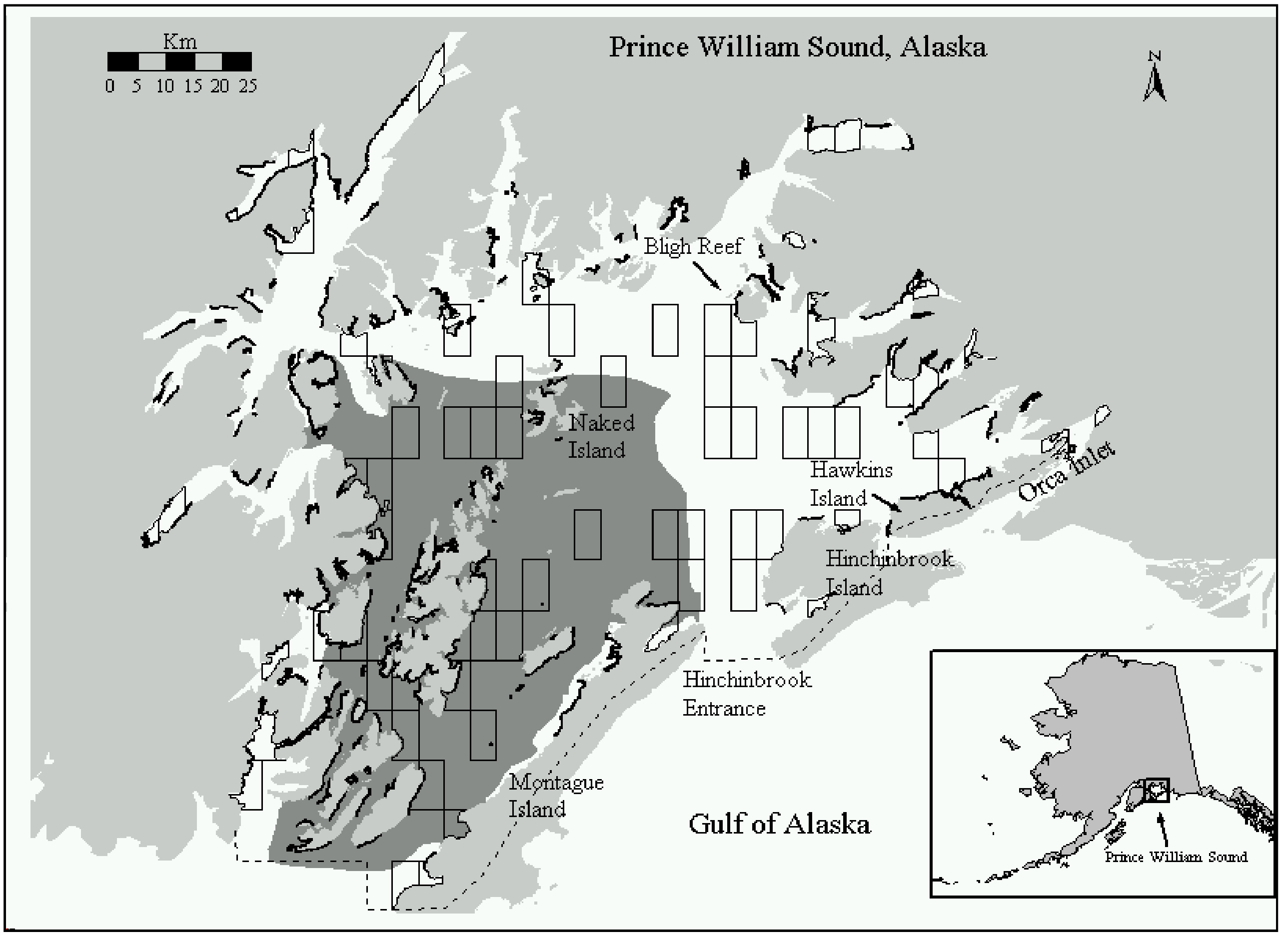
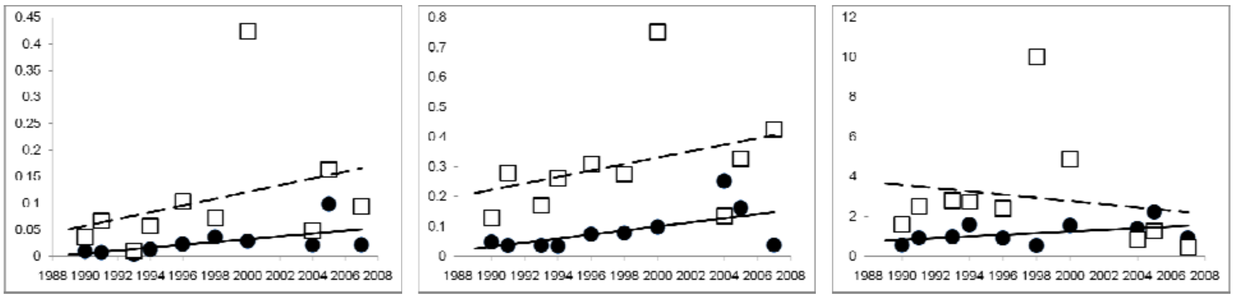


Figure 1. Map of the study area with shoreline transects and pelagic blocks surveyed in Prince William Sound during July 1990-91 (Klosiewski and Laing 1994), 1993 (Agler et al. 1994), 1996 (Agler and Kendall 1997), 1998 (Lance et al. 1999), 2000 (Stephensen et al. 2001), and 2004; and March 1990-91 (Klosiewski and Laing 1994), 1993 (Agler et al. 1994), 1994 (Agler et al. 1995), 1996 (Agler and Kendall 1997), 1998 (Lance et al. 1999), 2000 (Stephensen et al. 2000), and 2004. A subset of these transects were surveyed in July 1989 (Klosiewski and Laing 1994) and during the March surveys. The dark shading indicates the area oiled by the *T/V Exxon Valdez* oil spill in March 1989.

Significant Positive Trends [Relative (r) or Absolute (a)] in Oiled Area

Common Loons (a) | All Loons (a) | Scoters (r)



Significant Negative Trends [Relative (r) or Absolute (a)] in Oiled Area

Grebes (a) | Marbled Murrelets* (a)

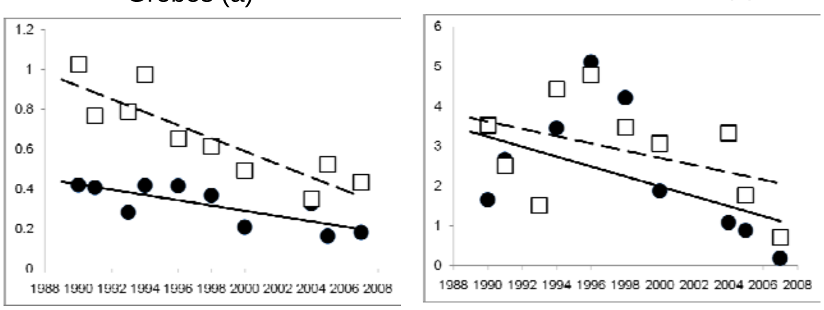
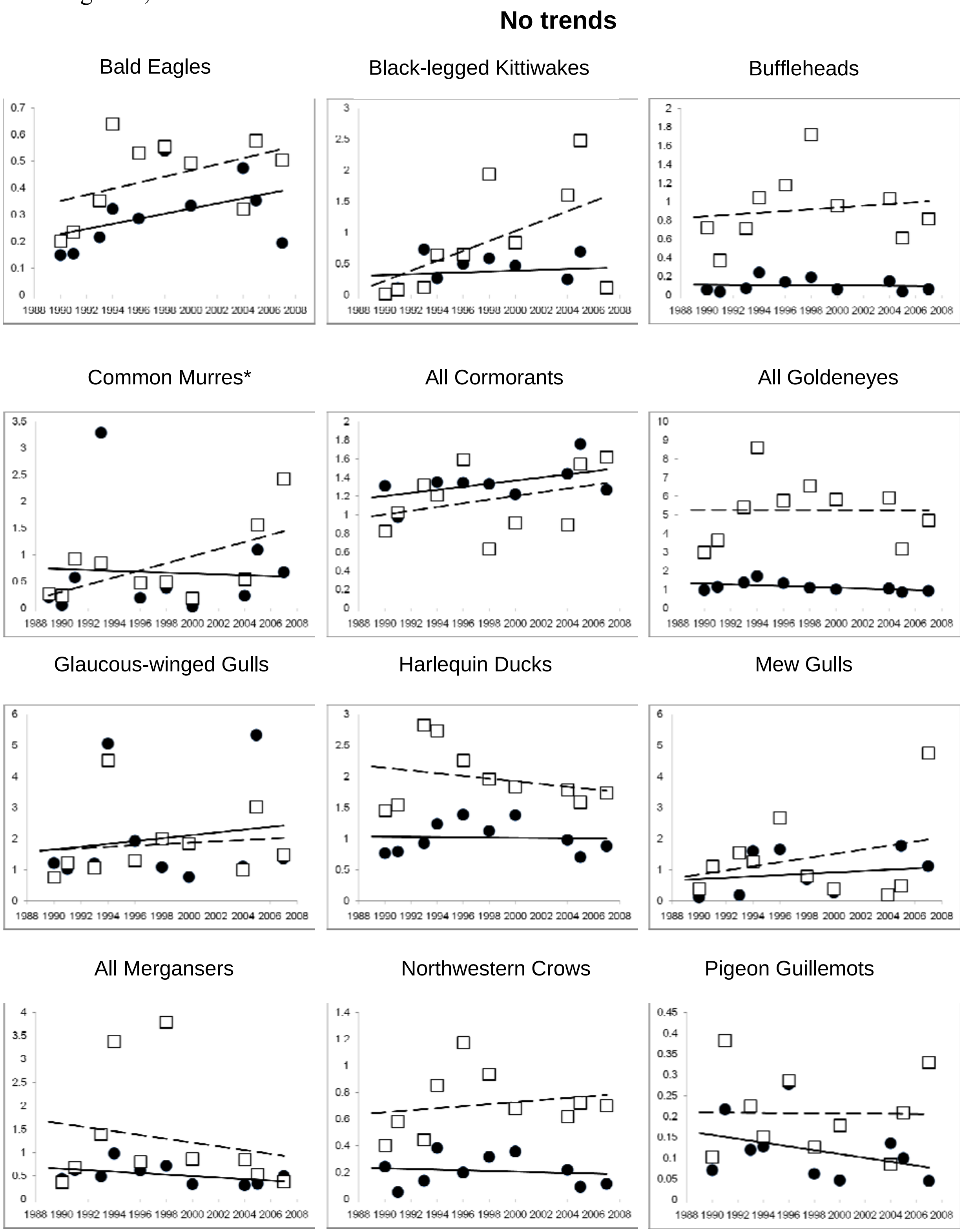


Figure 2. Changes in March densities (birds/km^2) of taxa, between 1990 and 2007, in unoiled (squares) and oiled (circles) areas of Prince William Sound, Alaska. Absolute trend (a) refers to a statistically significant trend in the oiled area; relative trend (r) refers to a statistically significant trend in the oiled area relative to the unoiled area. X axis = year, Y axis = density. *Includes unidentified members of the genus.

Figure 2, cont'd



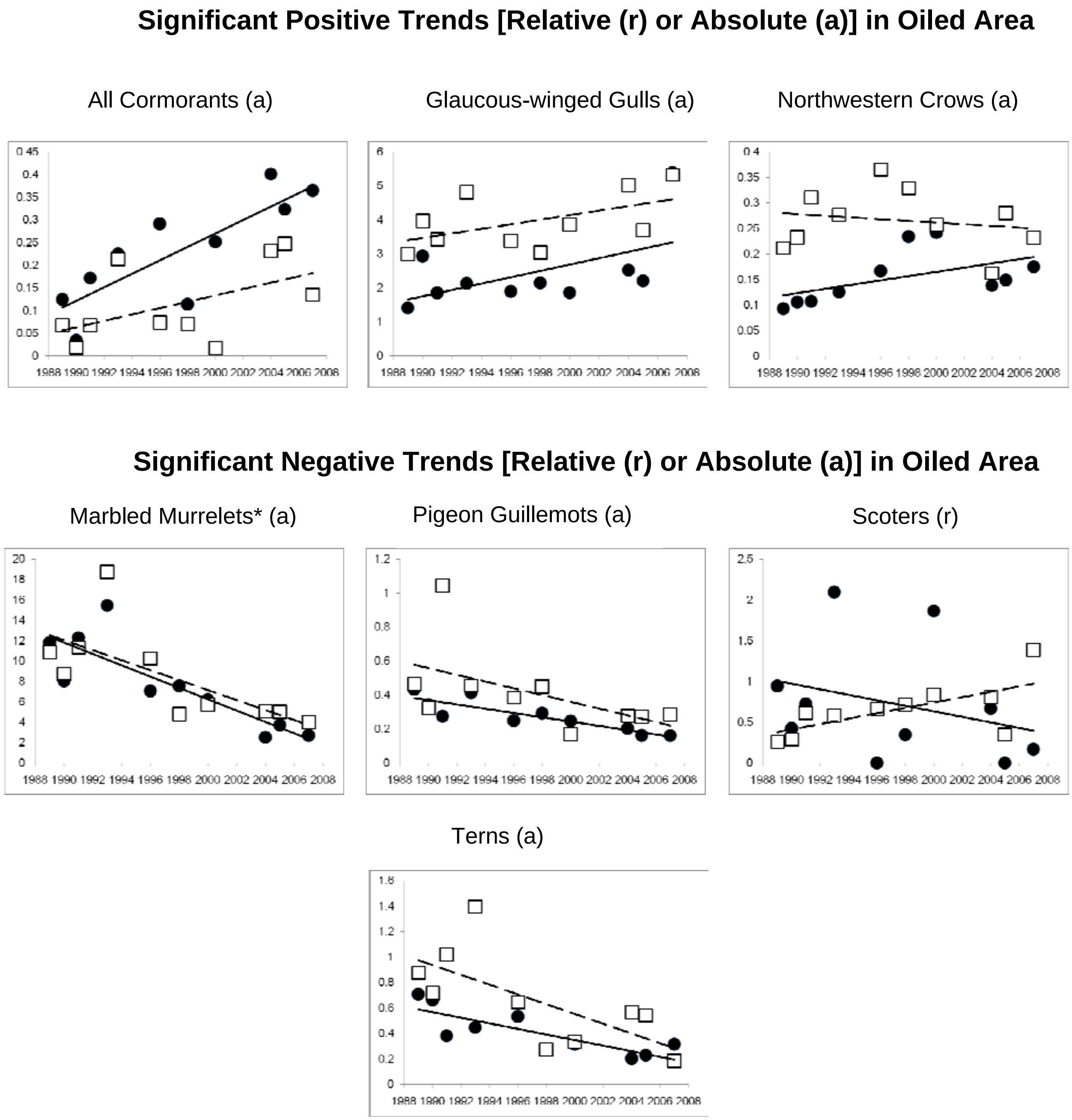
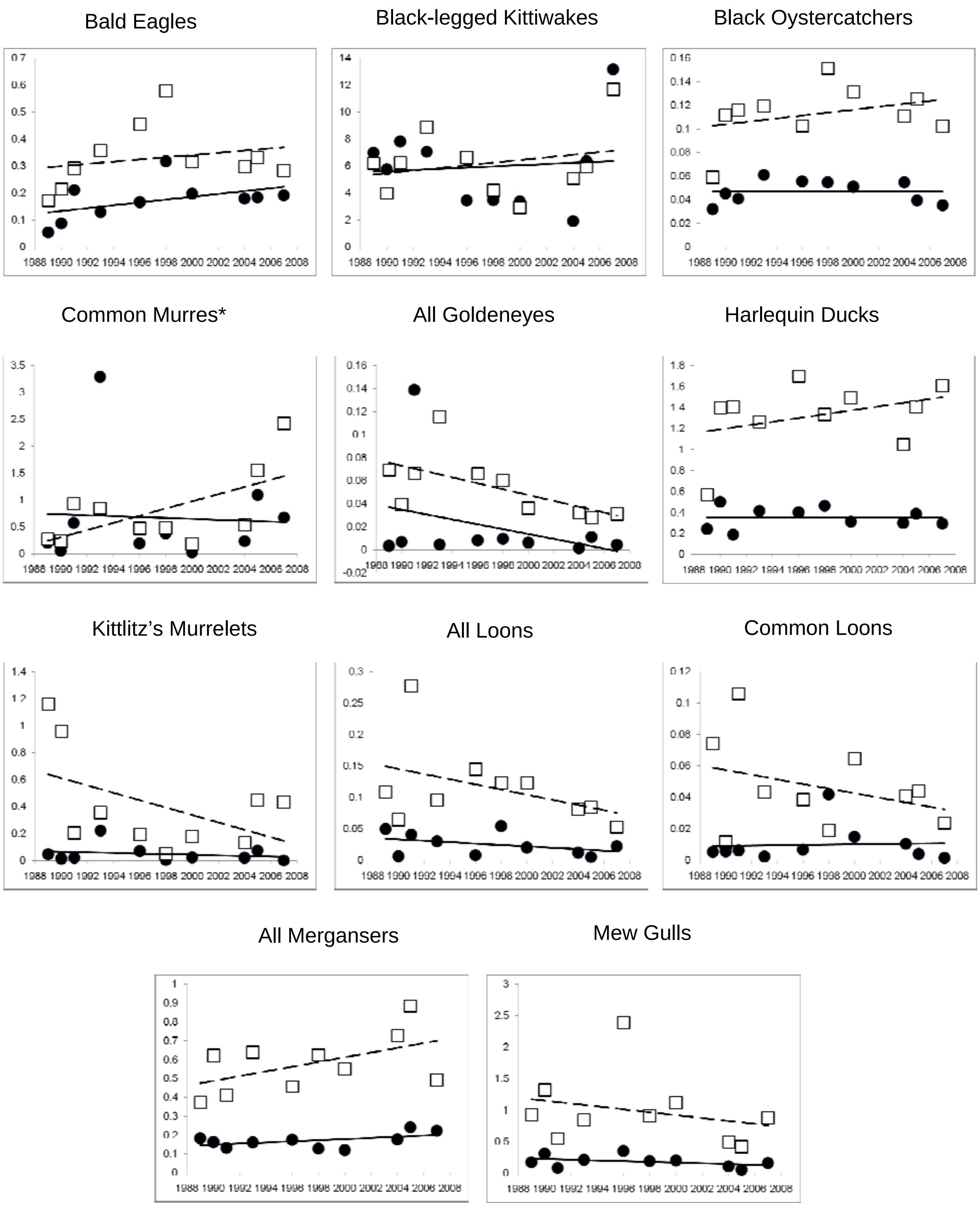


Figure 3. Changes in July densities (birds/km^2) of taxa, between 1989 and 2005, in unoiled (squares) and oiled (circles) areas of Prince William Sound, Alaska. Absolute trend (a) refers to a statistically significant trend in the oiled area; relative trend (r) refers to a statistically significant trend in the oiled area relative to the unoiled area. X axis = year, Y axis = density. *Includes unidentified members of the same genus.

Figure 3, cont'd

No Trends



Appendix A. Summary of statistically significant trends in post-spill densities of injured marine taxa in PWS, Alaska, after the *Exxon Valdez* oil spill[a].

Taxa	Oiled area relative to unoiled		Oiled Slope		Unoiled Slope	
	Trend in March	Trend in July	Trend in March	Trend in July	Trend in March	Trend in July
Bald Eagles	0	0	+1*	+1*	+1**	0
Black-legged Kittiwakes	0	0	0	0	+1*	0
Black Oystercatchers	nd[b]	0	nd	0	nd	0
Bufflehead	0	nd	0	nd	0	nd
"Cormorants"	0	0	+1*	+1****	0	+1*
"Goldeneyes"	0	0	-1*	0	0	-1****
"Grebes"	0	nd	-1***	nd	-1****	nd
Glaucous-winged Gulls	0	0	0	+1**	0	+1*
Harlequin Ducks	0	0	0	0	0	0
"Loons"	0	0	+1**	-1*	0	-1*
Common Loon	0	0	+1**	0	0	0
Mew Gulls	0	0	0	0	0	0
"Mergansers"	0	0	-1*	+1*	0	+1*
Marbled Murrelets[c]	0	0	-1***	-1****	-1*	-1****
Kittlitz's Murrelets	nd	0	nd	0	nd	0
Common Murre[d]	0	0	0	0	0	+1**
Northwestern Crows	0	+1*	0	+1**	0	0
Pigeon Guillemots	0	0	0	-1****	0	-1**
"Scoters"	+1*	-1**	+1*	0	-1*	+1**
"Terns"	nd	+1*	nd	-1****	nd	-1***
Sea Otters	-1**	0	-1**	0	0	0

[a]Trends for the oiled and unoiled areas were determined by regression analyses and refer to an absolute change in the oiled and unoiled area. Trends in oiled area relative to the unoiled area were determined by homogeneity of slopes test and refer to change in the oiled area relative to the unoiled area (+1 = increasing density, 0 = no change, and -1 = decreasing density). An increasing trend in the oiled area, whether absolute or relative to the unoiled area, suggests recovery is occurring. No absolute or relative change in the oiled area suggests that recovery is not occurring. A negative trend in the oiled area relative to the unoiled area suggests that the impact is increasing with time.

[b]nd = no data, Birds were either not present or too rare to analyze during this season. [c]Includes unidentified murrelets. [d]Includes unidentified murres.

[*]p#0.20.

[**]p#0.10.

[***]p#0.05.

[****]p#0.01.

Appendix B. Results of homogeneity of slopes test (*P* # 0.20) for injured species/species groups from March (1990-91, 1993, 1994, 1996, 1998, 2000, 2004, 2005). Winter resident marine bird species/species groups with 7 year population estimate of >500 birds were used. NR = no recovery, NR* = no recovery and significant negative trend in oiled area, IE = Increasing effects, and R = recovery. Regression results are coded as follows: p<=0.01 ****, p<=0.05 ***, p<=0.10 **, p<=0.20 *. [a]Includes unidentified murrelets. [b]Includes unidentified murres.

Taxon	Comparison of slopes	Oiled Area Regression			Unoiled Area Regression	
	p value (trend)	Slope	Trend	Direction	Slope	Direction
Bald Eagles	0.93 (NR)	0.021*	R	+	0.023**	+
Black-legged Kittiwakes	0.25 (NR)	0.019	NR	0	0.08*	+
Bufflehead	0.56 (NR)	-0.002	NR	0	0.012	0
"Cormorants"	0.9 (NR)	0.011*	R	+	0.013	0
"Goldeneyes"	0.37 (NR)	-0.016*	NR*	-	0.003	0
"Grebes"	0.35 (NR)	-0.029***	NR*	-	-0.040****	-
Glaucous-winged Gulls	0.91 (NR)	0.015	NR	0	0.020	0
Harlequin Ducks	0.71 (NR)	-0.0014	NR	0	-0.008	0
"Loons"	0.93 (NR)	0.023**	R	+	0.021	0
Common Loon	0.66 (NR)	0.013**	R	+	0.022	0
Mew Gulls	0.69 (NR)	0.029	NR	0	0.002	0
"Mergansers"	0.95 (NR)	-0.023*	NR*	-	-0.026	0
Marbled Murrelets[a]	0.34 (NR)	-0.087***	NR*	-	-0.043*	-
Common Murres[b]	0.66 (NR)	0.019	NR	0	0.051	0
Northwestern Crows	0.46 (NR)	-0.005	NR	0	0.013	0
Pigeon Guillemots	0.44 (NR)	-0.015	NR	0	0.001	0
"Scoters"	0.07 (R**)	0.030*	R	+	-0.061*	-
Sea Otters	0.09 (IE**)	-0.023**	NR*	-	0.004	0

Appendix C. Results of homogeneity of slopes test (*P* # 0.20) for injured species/species groups from July (1989-91, 1993, 1996, 1998, 2000, 2004, and 2005). Breeding marine bird species/species groups with 7 year average population estimates of >500 birds were used. NR = no recovery, NR* = no recovery and significant negative trend in oiled area, IE = increasing effects, and R = recovery. Regression results are coded as follows: p<=0.01 ****, p<=0.05 ***, p<=0.10 **, p<=0.20 *. [a]Includes unidentified murrelets. [b]Includes unidentified murres.

Taxon	Comparison of slopes	Oiled Area Regression			Unoiled Area Regression	
	p value (trend)	Slope	Trend	Direction	Slope	Direction
Bald Eagles	0.64 (NR)	0.018*	R	+	0.011	0
Black-legged Kittiwakes	0.59 (NR)	-0.010	NR	0	0.010	0
Black Oystercatchers	0.32 (NR)	-0.001	NR	0	0.005	0
"Cormorants"	0.38 (NR)	0.040****	R	+	0.024*	+
"Goldeneyes"	0.78 (NR)	-0.009	NR	0	-0.012****	-
Glaucous-winged Gulls	0.44 (NR)	0.030**	R	+	0.016*	+
Harlequin Ducks	0.41 (NR)	0.001	NR	0	0.016	0
"Loons"	0.46 (NR)	-0.006*	NR*	-	-0.014*	-
Common Loon	0.52 (NR)	-0.002	NR	0	-0.006	0
Mew Gulls	0.83 (NR)	-0.016	NR	0	-0.022	0
"Mergansers"	0.48 (NR)	0.009*	R	+	0.017*	+
Marbled Murrelets[a]	0.29 (NR)	-0.08****	NR*	-	-0.06****	-
Kittlitz's Murrelets	0.42 (NR)	-0.009	NR	0	-0.035	0
Common Murres[b]	0.48 (NR)	0.016	NR	0	0.055**	+
Northwestern Crows	0.11 (R*)	0.013**	R	+	-0.004	0
Pigeon Guillemots	0.89 (NR)	-0.029****	NR*	-	-0.031**	-
"Scoters"	0.07 (IE**)	-0.056	NR	0	0.038**	+
"Terns"	0.17 (R*)	-0.038****	NR*	-	-0.050***	-
Sea Otters	0.64 (NR)	-0.005	NR	0	0.003	0

Appendix D. Results of regression analyses for injured species/species groups and sea otter population density trends from March and July 1989-2005 for entire Prince William Sound. [a]Includes unidentified murrelets. [b]Includes unidentified murres. [a]Includes unidentified murrelets. [b]Includes unidentified murres.

Taxon	March		July	
	slope	p	slope	p
Bald Eagles	0.02	0.09	0.01	0.26
Black-legged Kittiwakes	0.07	0.15	<0.01	0.86
Black Oystercatchers	nd	nd	<0.01	0.52
Buffleheads	0.01	0.62	nd	nd
"Cormorants"	0.01	0.22	0.03	0.02
"Goldeneyes"	<0.01	1.00	-0.01	0.05
"Grebes"	-0.04	<0.005	nd	nd
Glaucous-winged Gulls	0.02	0.55	0.02	0.08
Harlequin Ducks	-0.01	0.60	0.01	0.30
"Loons"	0.02	0.08	-0.01	0.19
Common Loon	0.02	0.19	<-0.01	0.36
Mew Gulls	0.02	0.70	-0.02	0.34
"Mergansers"	-0.03	0.44	0.02	0.09
Marbled Murrelets[a]	-0.06	0.09	-0.07	<0.01
Kittlitz's Murrelets	nd	nd	-0.03	0.21
Common Murres[b]	0.04	0.42	0.04	0.27
Northwestern Crows	0.01	0.56	<0.01	0.71
Pigeon Guillemots	<-0.01	0.81	-0.03	0.02
"Scoters"	-0.03	0.43	<0.01	0.83
"Terns"	nd	nd	-0.05	<0.01
Sea Otters	<-0.01	0.76	<0.01	0.80

Appendix E: Common and scientific names of bird species/species groups mentioned in text

Species/Species Group	Common Name	Scientific Name
“loons”	Red-throated Loon	*Gavia stellata*
	Pacific Loon	*Gavia pacifica*
	Common Loon	*Gavia immer*
	Yellow-billed Loon	*Gavia adamsii*
“grebes”	Horned Grebe	*Podiceps auritus*
	Red-necked Grebe	*Podiceps grisegena*
“cormorants”	Double-crested Cormorant	*Phalacrocorax auritus*
	Pelagic Cormorant	*Phalacrocorax pelagicus*
	Red-faced Cormorant	*Phalacrocorax urile*
Harlequin Duck	Harlequin Duck	*Histrionicus histrionicus*
Long-tailed Duck	Long-tailed Duck	*Clangula hyemalis*
“scoters”	Black Scoter	*Melanitta nigra*
	Surf Scoter	*Melanitta perspicillata*
	White-wing Scoter	*Melanitta fusca*
“goldeneyes”	Common Goldeneye	*Bucephala clangula*
	Barrow’s Goldeneye	*Bucephala islandica*
Bufflehead	Bufflehead	*Bucephala albeola*
“mergansers”	Common Merganser	*Mergus merganser*
	Red-breasted Merganser	*Mergus serrator*
Bald Eagle	Bald Eagle	*Haliaeetus leucocephalus*
Black Oystercatcher	Black Oystercatcher	*Haematopus bachmani*
Mew Gull	Mew Gull	*Larus canus*
Glaucous-winged Gull	Glaucous-winged Gull	*Larus glaucescens*

Appendix E (continued).

Species/Species Group	Common Name	Scientific Name
Black-legged Kittiwake	Black-legged Kittiwake	*Rissa trydactyla*
“terns”	Caspian Tern	*Sterna caspia*
	Arctic Tern	*Sterna paradisaea*
	Aleutian Tern	*Sterna aleutica*
“murres”	Common Murre	*Uria aalgae*
	Thick-billed Murre	*Uria lomvia*
Pigeon Guillemot	Pigeon Guillemot	*Cepphus columba*
“murrelets”	Marbled Murrelet	*Brachyramphus marmoratus*
	Kittlitz’s Murrelet	*Brachyramphus brevirostris*
Northwestern Crow	Northwestern Crow	*Corvus caurinus*

Appendix F. Overall population trends for marine birds in Prince William Sound.

Population Estimates. -- In March 2007, we estimated that 181,883 ± 38,808 marine birds were in Prince William Sound (Appendix J). We estimated 36,995 ± 8,584 marine birds were in the oiled zone and 144,888 ± 38,062 birds were in the unoiled zone (Appendix K). During July 2007, an estimated 265,299 ± 72,058 marine birds were in Prince William Sound (Appendix J). We estimated 89,414 ± 47,368 marine birds were in the oiled zone and 175,885 ± 54,598 birds were in the unoiled zone (Appendix K). Population estimates for individual species and species groups are listed in Appendix H. In March, densities were 20.3 birds/km^2 for the whole Sound, 10.3 birds/km^2 in the oiled zone, and 26.8 birds/km^2 in the unoiled zone. In July, densities were 30.7 birds/km^2 for the whole Sound, 25.0 birds/km^2 in the oiled zone, and 32.6 birds/km^2 in the unoiled zone.

Overall Population Trends within Prince William Sound. -- To examine population trends from 1989-2007 for the entire Sound, we calculated linear regressions of total densities for each species or species group for March and July. We found a significant negative trend in the total density of marine birds in Prince William Sound for July ($p = 0.053$, slope = -0.024), but no significant trend in total densities for March (p=0.84, slope = 0.0004). In March, we found that PWS-wide densities of Bald Eagles increased significantly, while "grebes" and Marbled Murrelets declined significantly ($P < 0.10$). In July, the overall density of "cormorants," "mergansers," and Glaucous-winged Gulls increased significantly; while the overall densities of "goldeneyes," Marbled Murrelets, "terns," and Pigeon Guillemots in PWS decreased significantly ($P < 0.10$).

Appendix G. Overall population trends for sea otters in Prince William Sound**.**

Population Estimates.-- In 2007, we estimated that 5,314 $\pm$ 1,580 sea otters were in Prince William Sound in March, and 8,306 $\pm$ 3,144 otters were in Prince William Sound in July. In the oiled zone, the population estimate was 706 $\pm$ 547 otters in March and 1,106 $\pm$ 485 otters in July. In the unoiled zone, the population was estimated as 4,608 $\pm$ 1,492 otters in March and 7,200 $\pm$ 3,112 otters in July.

Trends from Homogeneity of Slopes Test.-- We found no significant trends in sea otter densities in the oiled region in July surveys. March results, however, indicated both a decline in densities in the oiled region as well as divergent trends between the oiled and unoiled regions, consistent with continuing and increasing oil spill effects.

Overall Trends within Prince William Sound.-- Within Prince William Sound as a whole, we found that the sea otter population had no significant trend in either March (*p* □ -0.01, slope = 0.76) or July (*p* □ 0.01, slope = 0.80).

Conclusions.-- Sea otters, a designated injured species, showed results indicative of no recovery in both months; in fact, winter densities exhibited trends suggesting continuing and increasing oil spill effects. Sea otter populations within Prince William Sound were expanding their numbers and distribution prior to the oil spill (Irons et al. 1988a).

Appendix H: Population estimates, confidence intervals, and densities (birds/km2) for birds recorded in PWS surveys, 1989-2005. nd = no data recorded.

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
BIRDS																			
Gaviiformes																			
Gaviidae: Loons																			
Red-throated Loon	1989										6	10	121	130	128	130	0.00	0.02	0.01
	1990	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	1 ±	1	3 ±	4	3 ±	4	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	90 ±	165	90 ±	164	<0.005	0.02	0.01	<0.005 ±	<0.005	110 ±	196	110 ±	195	<0.005	0.02	0.01
	1993	74 ±	123	16 ±	29	89 ±	125	0.02	0.00	0.01	<0.005 ±	<0.005	13 ±	17	13 ±	17	<0.005	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	12 ±	16	<0.005 ±	<0.005	12 ±	16	0.00	<0.005	0.00	<0.005 ±	<0.005	58 ±	77	58 ±	77	<0.005	0.01	0.01
	2000	0	0	0	0	0	0	0.00	0.00	0.00	19 ±	32	52 ±	53	70 ±	61	0.01	0.01	0.01
	2004	0	0	0	0	0	0	0.00	0.00	0.00	6 ±	9	3 ±	5	9 ±	10	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	1 ±	1	43 ±	43	43 ±	43	0.00	0.01	0.01
	2007	0	0	7 ±	14	7 ±	14	0.00	<0.005	<0.005	8 ±	10	107 ±	105	116 ±	105	<0.005	0.02	0.01
Pacific Loon	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	65 ±	118	65 ±	117	<0.005	0.01	0.01	<0.005 ±	<0.005	80 ±	100	80 ±	100	<0.005	0.01	0.01
	1991	0	0	0	0	0	0	0.00	0.00	0.00	37 ±	61	49 ±	42	86 ±	74	0.01	0.01	0.01
	1993	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	88 ±	92	90 ±	92	0.00	0.02	0.01
	1994	18 ±	18	188 ±	203	206 ±	202	0.01	0.03	0.02									
	1996	0 ±	0	242 ±	305	242 ±	304	0.00	0.04	0.03	<0.005 ±	<0.005	322 ±	254	322 ±	254	<0.005	0.06	0.04
	1998	6 ±	11	707 ±	1040	713 ±	1034	0.00	0.13	0.08	3 ±	5	48 ±	39	51 ±	40	0.00	0.01	0.01
	2000	6 ±	11	194 ±	330	201 ±	329	0.00	0.04	0.02	<0.005 ±	<0.005	13 ±	17	13 ±	17	<0.005	0.00	0.00
	2004	23 ±	25	173 ±	193	196 ±	194	0.01	0.03	0.02	<0.005 ±	<0.005	103 ±	81	103 ±	81	<0.005	0.02	0.01
	2005	<0.005 ±	<0.005	324 ±	268	324 ±	266	<0.005	0.06	0.04	3 ±	5	116 ±	124	119 ±	124	0.00	0.02	0.01
	2007	0	0	1438 ±	2547	1438 ±	2534	0.00	0.27	0.16	62 ±	105	6 ±	11	69 ±	105	0.02	<0.005	0.01
Common Loon	1989										19 ±	19	401 ±	267	420 ±	267	0.01	0.07	0.05
	1990	33 ±	27	194 ±	240	227 ±	241	0.01	0.04	0.03	20 ±	13	63 ±	45	82 ±	47	0.01	0.01	0.01
	1991	25 ±	25	362 ±	393	386 ±	392	0.01	0.07	0.04	22 ±	32	573 ±	441	596 ±	441	0.01	0.11	0.07
	1993	11 ±	14	56 ±	45	67 ±	47	0.00	0.01	0.01	8 ±	10	236 ±	164	244 ±	164	0.00	0.04	0.03
	1994	45 ±	35	308 ±	210	353 ±	212	0.01	0.06	0.04									
	1996	81 ±	70	555 ±	413	636 ±	417	0.02	0.10	0.07	24 ±	25	207 ±	140	231 ±	142	0.01	0.04	0.03
	1998	129 ±	59	386 ±	238	514 ±	244	0.04	0.07	0.06	150 ±	214	103 ±	39	253 ±	216	0.04	0.02	0.03
	2000	101 ±	103	2289 ±	3298	2390 ±	3283	0.03	0.42	0.27	53 ±	35	350 ±	311	403 ±	313	0.01	0.06	0.05
	2004	74 ±	70	256 ±	226	330 ±	235	0.02	0.05	0.04	37 ±	61	221 ±	119	258 ±	134	0.01	0.04	0.03
	2005	351 ±	264	883 ±	612	1234 ±	663	0.10	0.16	0.14	14 ±	12	237 ±	140	252 ±	141	0.00	0.04	0.03
	2007	75 ±	67	505 ±	608	580 ±	609	0.02	0.09	0.06	6 ±	9	128 ±	119	134 ±	119	<0.005	0.02	0.02
Yellow-billed Loon	1989										<0.005 ±	<0.005	4 ±	7	4 ±	7	<0.005	0.00	0.00
	1990	<0.005 ±	<0.005	23 ±	31	23 ±	31	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	6 ±	11	41 ±	68	47 ±	69	0.00	0.01	0.01	5 ±	6	0 ±	0	6 ±	6	0.00	0.00	0.00
	1993	<0.005 ±	<0.005	23 ±	25	23 ±	25	<0.005	0.00	0.00	<0.005 ±	<0.005	51 ±	77	51 ±	77	<0.005	0.01	0.01
	1994	25 ±	26	115 ±	172	140 ±	173	0.01	0.02	0.02									
	1996	74 ±	123	15 ±	19	90 ±	123	0.02	0.00	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	1998	94 ±	160	<0.005 ±	<0.005	94 ±	158	0.03	<0.005	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	206 ±	370	206 ±	368	<0.005	0.04	0.02	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	2004	12 ±	16	15 ±	20	28 ±	25	0.00	0.00	0.00	<0.005 ±	<0.005	60 ±	91	60 ±	91	<0.005	0.01	0.01
	2005	13 ±	16	14 ±	18	27 ±	24	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2007	38 ±	62	15 ±	19	52 ±	64	0.01	<0.005	0.01	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Loon	1989										153 ±	223	63 ±	87	216 ±	238	0.04	0.01	0.02
	1990	134 ±	171	409 ±	266	544 ±	314	0.04	0.08	0.06	3 ±	5	201 ±	212	204 ±	211	0.00	0.04	0.02
	1991	96 ±	120	1015 ±	1118	1111 ±	1119	0.03	0.19	0.12	81 ±	109	770 ±	841	851 ±	846	0.02	0.14	0.10
	1993	41 ±	34	830 ±	639	871 ±	636	0.01	0.15	0.10	97 ±	126	132 ±	103	229 ±	162	0.03	0.02	0.03
	1994	31 ±	44	796 ±	906	827 ±	902	0.01	0.15	0.09									
	1996	108 ±	170	860 ±	953	968 ±	963	0.03	0.16	0.11	6 ±	9	255 ±	247	261 ±	246	0.00	0.05	0.03
	1998	37 ±	25	397 ±	386	434 ±	385	0.01	0.07	0.05	42 ±	45	456 ±	321	498 ±	324	0.01	0.08	0.06
	2000	242 ±	345	1377 ±	977	1619 ±	1030	0.07	0.25	0.18	<0.005 ±	<0.005	248 ±	376	248 ±	376	<0.005	0.05	0.03
	2004	788 ±	1191	276 ±	279	1064 ±	1210	0.22	0.05	0.12	0 ±	0	52 ±	48	52 ±	48	0.00	0.01	0.01
	2005	213 ±	322	550 ±	476	763 ±	570	0.06	0.10	0.08	1 ±	2	57 ±	56	58 ±	56	0.00	0.01	0.01
	2007	18 ±	24	340 ±	286	358 ±	285	<0.005	0.06	0.04	3 ±	5	45 ±	74	49 ±	74	<0.005	0.01	0.01

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Total Loons	1989										178 ±	224	589 ±	308	768 ±	380	0.05	0.11	0.09
	1990	168 ±	173	698 ±	408	866 ±	440	0.05	0.13	0.10	23 ±	15	347 ±	241	370 ±	241	0.01	0.06	0.04
	1991	126 ±	127	1507 ±	1176	1634 ±	1177	0.04	0.28	0.18	146 ±	129	1502 ±	1107	1649 ±	1112	0.04	0.28	0.19
	1993	126 ±	128	925 ±	642	1051 ±	651	0.04	0.17	0.12	108 ±	127	519 ±	218	627 ±	251	0.03	0.10	0.07
	1994	119 ±	63	1407 ±	1054	1526 ±	1050	0.03	0.26	0.17									
	1996	263 ±	219	1672 ±	1213	1935 ±	1225	0.07	0.31	0.22	30 ±	26	784 ±	380	814 ±	380	0.01	0.15	0.09
	1998	278 ±	175	1490 ±	1164	1768 ±	1171	0.08	0.28	0.20	195 ±	219	665 ±	336	860 ±	400	0.05	0.12	0.10
	2000	349 ±	359	4066 ±	4139	4415 ±	4134	0.10	0.75	0.49	72 ±	47	667 ±	482	739 ±	483	0.02	0.12	0.09
	2004	898 ±	1192	720 ±	413	1618 ±	1248	0.25	0.13	0.18	43 ±	62	439 ±	180	482 ±	190	0.01	0.08	0.06
	2005	577 ±	526	1770 ±	887	2348 ±	1024	0.16	0.33	0.26	19 ±	13	456 ±	203	475 ±	203	0.01	0.08	0.05
	2007	131 ±	89	2305 ±	2644	2435 ±	2632	0.04	0.43	0.27	79 ±	106	288 ±	168	367 ±	198	0.02	0.05	0.04
Podicipediformes																			
Podicipedidae: Grebes																			
Horned Grebe	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	754 ±	431	3110 ±	1463	3864 ±	1517	0.21	0.58	0.43	0	0	0	0	0	0	0.00	0.00	0.00
	1991	185 ±	210	2071 ±	1583	2255 ±	1588	0.05	0.38	0.25	<0.005 ±	<0.005	31 ±	48	31 ±	48	<0.005	0.01	0.00
	1993	23 ±	33	377 ±	323	400 ±	322	0.01	0.07	0.04	0	0	0	0	0	0	0.00	0.00	0.00
	1994	618 ±	300	3080 ±	2174	3698 ±	2182	0.17	0.57	0.41									
	1996	1028 ±	659	1608 ±	691	2636 ±	947	0.29	0.30	0.29	<0.005 ±	<0.005	13 ±	17	13 ±	17	<0.005	0.00	0.00
	1998	677 ±	541	1724 ±	900	2401 ±	1043	0.19	0.32	0.27	0	0	0	0	0	0	0.00	0.00	0.00
	2000	475 ±	191	1977 ±	890	2452 ±	906	0.13	0.37	0.27	0	0	0	0	0	0	0.00	0.00	0.00
	2004	732 ±	375	1343 ±	540	2075 ±	653	0.20	0.25	0.23	<0.005 ±	<0.005	43 ±	40	43 ±	40	<0.005	0.01	0.00
	2005	377 ±	227	1827 ±	753	2204 ±	782	0.11	0.34	0.25	<0.005 ±	<0.005	10 ±	17	10 ±	17	<0.005	0.00	0.00
	2007	302 ±	130	1511 ±	737	1813 ±	744	0.08	0.28	0.20	0	0	9 ±	15	9 ±	15	0.00	<0.005	<0.005
Red-necked Grebe	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	635 ±	294	1936 ±	1606	2571 ±	1624	0.18	0.36	0.29	<0.005 ±	<0.005	20 ±	27	20 ±	27	<0.005	0.00	0.00
	1991	688 ±	386	877 ±	328	1565 ±	502	0.19	0.16	0.17	<0.005 ±	<0.005	50 ±	40	50 ±	40	<0.005	0.01	0.01
	1993	173 ±	116	508 ±	300	681 ±	320	0.05	0.09	0.08	<0.005 ±	<0.005	31 ±	29	31 ±	29	<0.005	0.01	0.00
	1994	477 ±	174	1401 ±	720	1878 ±	736	0.13	0.26	0.21									
	1996	326 ±	159	1393 ±	534	1719 ±	554	0.09	0.26	0.19	<0.005 ±	<0.005	70 ±	64	70 ±	64	<0.005	0.01	0.01
	1998	430 ±	249	1000 ±	721	1430 ±	759	0.12	0.18	0.16	<0.005 ±	<0.005	109 ±	101	109 ±	101	<0.005	0.02	0.01
	2000	190 ±	147	382 ±	218	572 ±	261	0.05	0.07	0.06	<0.005 ±	<0.005	36 ±	35	36 ±	35	<0.005	0.01	0.00
	2004	386 ±	236	472 ±	246	859 ±	339	0.11	0.09	0.10	<0.005 ±	<0.005	88 ±	95	88 ±	95	<0.005	0.02	0.01
	2005	209 ±	177	845 ±	799	1054 ±	813	0.06	0.16	0.12	<0.005 ±	<0.005	52 ±	67	52 ±	66	<0.005	0.01	0.01
	2007	224 ±	146	717 ±	498	941 ±	516	0.06	0.13	0.10	0	0	72 ±	61	72 ±	61	0.00	0.01	0.01
Unidentified Grebe	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	117 ±	90	492 ±	284	609 ±	296	0.03	0.09	0.07	<0.005 ±	<0.005	10 ±	12	10 ±	12	<0.005	0.00	0.00
	1991	587 ±	1015	1188 ±	919	1775 ±	1357	0.16	0.22	0.20	<0.005 ±	<0.005	7 ±	10	7 ±	10	<0.005	0.00	0.00
	1993	821 ±	408	3389 ±	2078	4210 ±	2106	0.23	0.63	0.47	0	0	0	0	0	0	0.00	0.00	0.00
	1994	403 ±	227	781 ±	484	1185 ±	531	0.11	0.14	0.13									
	1996	135 ±	70	518 ±	245	654 ±	253	0.04	0.10	0.07	0	0	0	0	0	0	0.00	0.00	0.00
	1998	211 ±	220	609 ±	737	821 ±	765	0.06	0.11	0.09	0	0	0	0	0	0	0.00	0.00	0.00
	2000	83 ±	88	317 ±	176	400 ±	195	0.02	0.06	0.04	0	0	0	0	0	0	0.00	0.00	0.00
	2004	49 ±	36	86 ±	51	135 ±	62	0.01	0.02	0.02	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	167 ±	204	167 ±	203	<0.005	0.03	0.02	<0.005 ±	<0.005	10 ±	17	10 ±	17	<0.005	0.00	0.00
	2007	129 ±	162	112 ±	166	241 ±	231	0.04	0.02	0.03	0	0	0	0	0	0	0.00	0.00	0.00
Total Grebes	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	1506 ±	606	5538 ±	2193	7044 ±	2263	0.42	1.02	0.78	<0.005 ±	<0.005	29 ±	38	29 ±	37	<0.005	0.01	0.00
	1991	1459 ±	1148	4136 ±	1908	5595 ±	2212	0.41	0.77	0.62	<0.005 ±	<0.005	88 ±	68	88 ±	67	<0.005	0.02	0.01
	1993	1017 ±	444	4274 ±	2239	5291 ±	2270	0.28	0.79	0.59	<0.005 ±	<0.005	31 ±	29	31 ±	29	<0.005	0.01	0.00
	1994	1499 ±	455	5262 ±	2943	6761 ±	2961	0.42	0.97	0.75									
	1996	1490 ±	674	3519 ±	1086	5009 ±	1270	0.42	0.65	0.56	<0.005 ±	<0.005	84 ±	66	84 ±	66	<0.005	0.02	0.01
	1998	1319 ±	716	3333 ±	1359	4652 ±	1526	0.37	0.62	0.52	<0.005 ±	<0.005	109 ±	101	109 ±	101	<0.005	0.02	0.01
	2000	749 ±	271	2675 ±	1000	3424 ±	1030	0.21	0.50	0.38	<0.005 ±	<0.005	36 ±	35	36 ±	35	<0.005	0.01	0.00
	2004	1168 ±	453	1901 ±	590	3069 ±	738	0.33	0.35	0.34	<0.005 ±	<0.005	131 ±	115	131 ±	115	<0.005	0.02	0.02
	2005	587 ±	299	2838 ±	1231	3425 ±	1260	0.16	0.53	0.38	<0.005 ±	<0.005	71 ±	75	71 ±	75	<0.005	0.01	0.01
	2007	655 ±	244	2340 ±	1026	2995 ±	1049	0.18	0.43	0.33	0	0	81 ±	63	81 ±	63	0.00	0.01	0.01

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Procellariiformes																			
Procellariidae: Shearwaters and Petrels																			
Northern Fulmar	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	22 ±	38	17 ±	29	39 ±	47	0.01	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	41 ±	68	41 ±	68	<0.005	0.01	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	1035 ±	875	549 ±	337	1584 ±	934	0.29	0.10	0.18
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	113 ±	133	<0.005 ±	<0.005	113 ±	132	0.03	<0.005	0.01
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	38 ±	62	0	0	38 ±	61	0.01	0.00	<0.005
Sooty Shearwater	1989										37 ±	46	41 ±	51	78 ±	68	0.01	0.01	0.01
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	1366 ±	2464	16186 ±	27891	17552 ±	27948	0.38	3.00	2.03
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	12 ±	23	148 ±	258	160 ±	258	0.00	0.03	0.02
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Short-tailed Shearwater	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Shearwater	1989										187 ±	307	<0.005 ±	<0.005	187 ±	305	0.05	<0.005	0.02
	1990	0	0	0	0	0	0	0.00	0.00	0.00	34 ±	55	<0.005 ±	<0.005	34 ±	55	0.01	<0.005	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	2956 ±	5197	35473 ±	61745	38428 ±	61846	0.83	6.56	4.45
	1993	0	0	0	0	0	0	0.00	0.00	0.00	37 ±	61			37 ±	61	0.01	0.00	<0.005
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	61 ±	112	40 ±	68	102 ±	130	0.02	0.01	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Procellariidae	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Petrel	1989										75 ±	123	753 ±	1299	828 ±	1301	0.02	0.14	0.09
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Total Shearwaters	1989										224 ±	307	41 ±	51	265 ±	309	0.06	0.01	0.03
	1990	0	0	0	0	0	0	0.00	0.00	0.00	34 ±	55	<0.005 ±	<0.005	34 ±	55	0.01	<0.005	0.00

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		March DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		July DENSITIES Oil	Unoil	Total
	1991	0	0	0	0	0	0	0.00	0.00	0.00	2956 ±	5197	35473 ±	61745	38428 ±	61846	0.83	6.56	4.45
	1993	0	0	0	0	0	0	0.00	0.00	0.00	37 ±	61			37 ±	61	0.01	0.00	<0.005
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	61 ±	112	40 ±	68	102 ±	130	0.02	0.01	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00	1366 ±	2464	16186 ±	27891	17552 ±	27948	0.38	3.00	2.03
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	12 ±	23	148 ±	258	160 ±	258	0.00	0.03	0.02
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Total Procellariiformes	1989										224 ±	307	41 ±	51	265 ±	309	0.06	0.01	0.03
	1990	0	0	0	0	0	0	0.00	0.00	0.00	56 ±	67	17 ±	29	72 ±	72	0.02	0.00	0.01
	1991	0	0	0	0	0	0	0.00	0.00	0.00	2956 ±	5197	35473 ±	61745	38428 ±	61846	0.83	6.56	4.45
	1993	0	0	0	0	0	0	0.00	0.00	0.00	37 ±	61	41 ±	68	78 ±	91	0.01	0.01	0.01
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	1096 ±	879	590 ±	344	1686 ±	940	0.31	0.11	0.20
	1998	0	0	0	0	0	0	0.00	0.00	0.00	1366 ±	2464	16191 ±	27891	17557 ±	27948	0.38	3.00	2.03
	2000	0	0	0	0	0	0	0.00	0.00	0.00	113 ±	133	<0.005 ±	<0.005	113 ±	132	0.03	<0.005	0.01
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	12 ±	23	148 ±	258	160 ±	258	0.00	0.03	0.02
	2007	0	0	0	0	0	0	0.00	0.00	0.00	38 ±	62	0	0	38 ±	61	0.01	0.00	<0.005
Hydrobatidae: Storm-petrels																			
Fork-tailed Storm-petrel	1989										9414 ±	5876	26010 ±	37234	35424 ±	37575	2.63	4.81	3.94
	1990	164 ±	167	431 ±	680	595 ±	696	0.05	0.08	0.07	11235 ±	4522	7191 ±	2688	18426 ±	5239	3.14	1.33	2.13
	1991	0	0	0	0	0	0	0.00	0.00	0.00	13118 ±	10835	6401 ±	2040	19519 ±	10973	3.67	1.18	2.26
	1993	0	0	0	0	0	0	0.00	0.00	0.00	2166 ±	1374	11645 ±	7914	13811 ±	8016	0.61	2.15	1.60
	1994	37 ±	62	<0.005 ±	<0.005	37 ±	61	0.01	<0.005	0.00									
	1996	<0.005 ±	<0.005	41 ±	68	41 ±	68	<0.005	0.01	0.00	12054 ±	11070	3768 ±	2421	15822 ±	11278	3.37	0.70	1.83
	1998	1306 ±	1855	10241 ±	12793	11547 ±	12859	0.37	1.89	1.29	4349 ±	5698	5110 ±	3750	9459 ±	6794	1.22	0.95	1.09
	2000	187 ±	250	446 ±	564	634 ±	613	0.05	0.08	0.07	24185 ±	19009	10643 ±	9846	34828 ±	21319	6.76	1.97	4.03
	2004	<0.005 ±	<0.005	244 ±	409	244 ±	406	<0.005	0.05	0.03	6216 ±	4236	6353 ±	4451	12569 ±	6125	1.74	1.18	1.45
	2005	185 ±	301	370 ±	444	555 ±	533	0.05	0.07	0.06	1820 ±	1425	1959 ±	1098	3779 ±	1792	0.51	0.36	0.44
	2007	86 ±	78	192 ±	282	278 ±	291	0.02	0.04	0.03	452 ±	432	2370 ±	2593	2822 ±	2623	0.13	0.44	0.33
Leach's Storm-petrel	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	15 ±	25	65 ±	78	80 ±	82	<0.005	0.01	0.01
Unidentified Storm-petrel	1989										155 ±	254	<0.005 ±	<0.005	155 ±	253	0.04	<0.005	0.02
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	15 ±	25	25 ±	43	40 ±	50	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	52 ±	66	229 ±	340	281 ±	346	0.01	0.04	0.03
	2000	<0.005 ±	<0.005	15 ±	28	15 ±	28	<0.005	0.00	0.00	37 ±	64	41 ±	71	78 ±	95	0.01	0.01	0.01
	2004	0	0	0	0	0	0	0.00	0.00	0.00	193 ±	182	81 ±	92	275 ±	203	0.05	0.02	0.03
	2005	0	0	0	0	0	0	0.00	0.00	0.00	46 ±	63	<0.005 ±	<0.005	46 ±	63	0.01	<0.005	0.01
	2007	0	0	41 ±	68	41 ±	68	0.00	0.01	<0.005	38 ±	62	81 ±	91	119 ±	110	0.01	0.02	0.01
Total Storm-petrels	1989										9643 ±	5872	26763 ±	37200	36406 ±	37542	2.70	4.95	4.05
	1990	164 ±	167	431 ±	680	595 ±	696	0.05	0.08	0.07	11235 ±	4522	7191 ±	2688	18426 ±	5239	3.14	1.33	2.13
	1991	0	0	0	0	0	0	0.00	0.00	0.00	13118 ±	10835	6401 ±	2040	19519 ±	10973	3.67	1.18	2.26
	1993	0	0	0	0	0	0	0.00	0.00	0.00	2181 ±	1389	11670 ±	7916	13851 ±	8021	0.61	2.16	1.60
	1994	37 ±	62	<0.005 ±	<0.005	37 ±	61	0.01	<0.005	0.00									
	1996	<0.005 ±	<0.005	41 ±	68	41 ±	68	<0.005	0.01	0.00	12054 ±	11070	3768 ±	2421	15822 ±	11278	3.37	0.70	1.83
	1998	1306 ±	1855	10241 ±	12793	11547 ±	12859	0.37	1.89	1.29	4401 ±	5691	5339 ±	3730	9740 ±	6778	1.23	0.99	1.13
	2000	187 ±	250	461 ±	565	649 ±	614	0.05	0.09	0.07	24222 ±	19004	10684 ±	9844	34906 ±	21313	6.77	1.98	4.04
	2004	<0.005 ±	<0.005	244 ±	409	244 ±	406	<0.005	0.05	0.03	6409 ±	4252	6435 ±	4474	12844 ±	6152	1.79	1.19	1.49
	2005	185 ±	301	370 ±	444	555 ±	533	0.05	0.07	0.06	1866 ±	1421	1959 ±	1098	3825 ±	1789	0.52	0.36	0.44
	2007	86 ±	78	232 ±	289	319 ±	298	0.02	0.04	0.04	490 ±	427	2451 ±	2654	2940 ±	2683	0.14	0.45	0.34
Total Tubenoses	1989										9867 ±	5857	26804 ±	37201	36671 ±	37541	2.76	4.96	4.08
	1990	164 ±	167	431 ±	680	595 ±	696	0.05	0.08	0.07	11291 ±	4519	7207 ±	2687	18498 ±	5236	3.16	1.33	2.14
	1991	0	0	0	0	0	0	0.00	0.00	0.00	16074 ±	11949	41873 ±	62037	57947 ±	63052	4.49	7.75	6.70
	1993	0	0	0	0	0	0	0.00	0.00	0.00	2218 ±	1404	11720 ±	7902	13938 ±	8010	0.62	2.17	1.61

		March						July					
		POPULATION ESTIMATES			DENSITIES			POPULATION ESTIMATES			DENSITIES		
Taxon	**Year**	**Oiled Area**	**Unoiled Area**	**Total**	**Oil**	**Unoil**	**Total**	**Oiled Area**	**Unoiled Area**	**Total**	**Oil**	**Unoil**	**Total**
	1994	37 ± 62	<0.005 ± <0.005	37 ± 61	0.01	<0.005	0.00						
	1996	<0.005 ± <0.005	41 ± 68	41 ± 68	<0.005	0.01	0.00	13154 ± 11914	4545 ± 2413	17699 ± 12099	3.68	0.84	2.05
	1998	1306 ± 1855	10241 ± 12793	11547 ± 12859	0.37	1.89	1.29	5767 ± 6255	21530 ± 29661	27297 ± 30254	1.61	3.98	3.16
	2000	187 ± 250	461 ± 565	649 ± 614	0.05	0.09	0.07	24335 ± 19132	10684 ± 9844	35019 ± 21427	6.80	1.98	4.05
	2004	<0.005 ± <0.005	244 ± 409	244 ± 406	<0.005	0.05	0.03	6409 ± 4252	6435 ± 4474	12844 ± 6152	1.79	1.19	1.49
	2005	185 ± 301	370 ± 444	555 ± 533	0.05	0.07	0.06	1878 ± 1420	2107 ± 1118	3985 ± 1800	0.52	0.39	0.46
	2007	86 ± 78	232 ± 289	319 ± 298	0.02	0.04	0.04	527 ± 431	2451 ± 2654	2978 ± 2684	0.15	0.45	0.34
Pelecaniformes													
Phalacrocoracidae: Cormorants													
Double-crested Cormorant	1989							<0.005 ± <0.005	89 ± 107	89 ± 106	<0.005	0.02	0.01
	1990	178 ± 194	91 ± 128	269 ± 230	0.05	0.02	0.03	22 ± 28	31 ± 42	54 ± 51	0.01	0.01	0.01
	1991	94 ± 104	30 ± 33	124 ± 108	0.03	0.01	0.01	<0.005 ± <0.005	49 ± 47	49 ± 47	<0.005	0.01	0.01
	1993	585 ± 831	455 ± 652	1041 ± 1046	0.16	0.08	0.12	8 ± 8	246 ± 305	254 ± 305	0.00	0.05	0.03
	1994	36 ± 45	95 ± 96	131 ± 106	0.01	0.02	0.01						
	1996	150 ± 95	217 ± 208	367 ± 227	0.04	0.04	0.04	8 ± 8	66 ± 108	74 ± 108	0.00	0.01	0.01
	1998	767 ± 1044	242 ± 222	1009 ± 1056	0.21	0.04	0.11	14 ± 20	12 ± 16	27 ± 25	0.00	0.00	0.00
	2000	198 ± 181	279 ± 365	476 ± 405	0.06	0.05	0.05	3 ± 5	26 ± 24	29 ± 24	0.00	0.00	0.00
	2004	498 ± 329	304 ± 340	802 ± 469	0.14	0.06	0.09	25 ± 30	168 ± 122	193 ± 125	0.01	0.03	0.02
	2005	55 ± 58	99 ± 127	155 ± 139	0.02	0.02	0.02	66 ± 59	91 ± 101	156 ± 117	0.02	0.02	0.02
	2007	14 ± 26	256 ± 292	271 ± 292	<0.005	0.05	0.03	22 ± 32	11 ± 13	33 ± 34	0.01	<0.005	<0.005
Pelagic Cormorant	1989							227 ± 210	166 ± 193	394 ± 284	0.06	0.03	0.04
	1990	4236 ± 2250	4291 ± 1191	8528 ± 2521	1.18	0.79	0.95	90 ± 73	48 ± 39	138 ± 83	0.03	0.01	0.02
	1991	1966 ± 1185	3466 ± 1915	5431 ± 2237	0.55	0.64	0.60	379 ± 319	133 ± 111	512 ± 336	0.11	0.02	0.06
	1993	2634 ± 1413	5416 ± 2828	8050 ± 3140	0.74	1.00	0.90	683 ± 458	668 ± 493	1351 ± 671	0.19	0.12	0.16
	1994	4748 ± 1767	6211 ± 2154	10959 ± 2765	1.33	1.15	1.22						
	1996	447 ± 536	143 ± 130	590 ± 546	0.12	0.03	0.07	59 ± 53	204 ± 216	263 ± 222	0.02	0.04	0.03
	1998	460 ± 527	268 ± 261	728 ± 583	0.13	0.05	0.08	29 ± 24	16 ± 19	44 ± 31	0.01	0.00	0.01
	2000	80 ± 77	217 ± 310	297 ± 318	0.02	0.04	0.03	193 ± 289	39 ± 44	233 ± 291	0.05	0.01	0.03
	2004	3593 ± 1577	3687 ± 1171	7280 ± 1947	1.00	0.68	0.81	1259 ± 883	1051 ± 518	2311 ± 1020	0.35	0.19	0.27
	2005	4822 ± 1518	5827 ± 2103	10649 ± 2575	1.35	1.08	1.19	973 ± 607	1230 ± 710	2203 ± 932	0.27	0.23	0.25
	2007	2346 ± 644	6190 ± 2592	8536 ± 2656	0.66	1.15	0.95	639 ± 734	714 ± 679	1352 ± 996	0.18	0.13	0.16
Red-faced Cormorant	1989							<0.005 ± <0.005	22 ± 25	22 ± 25	<0.005	0.00	0.00
	1990	0 0	0 0	0 0	0.00	0.00	0.00	0 0	0 0	0 0	0.00	0.00	0.00
	1991	<0.005 ± <0.005	8 ± 14	8 ± 14	<0.005	0.00	0.00	0 0	0 0	0 0	0.00	0.00	0.00
	1993	5 ± 9	1 ± 3	6 ± 9	0.00	0.00	0.00	6 ± 9	9 ± 15	15 ± 18	0.00	0.00	0.00
	1994	0 0	0 0	0 0	0.00	0.00	0.00						
	1996	18 ± 25	15 ± 20	34 ± 32	0.01	0.00	0.00	11 ± 18	<0.005 ± <0.005	11 ± 18	0.00	<0.005	0.00
	1998	0 0	0 0	0 0	0.00	0.00	0.00	6 ± 9	<0.005 ± <0.005	6 ± 9	0.00	<0.005	0.00
	2000	6 ± 12	75 ± 138	81 ± 138	0.00	0.01	0.01	140 ± 226	<0.005 ± <0.005	140 ± 225	0.04	<0.005	0.02
	2004	49 ± 63	31 ± 46	81 ± 77	0.01	0.01	0.01	87 ± 103	7 ± 10	93 ± 103	0.02	0.00	0.01
	2005	333 ± 404	125 ± 207	458 ± 449	0.09	0.02	0.05	106 ± 171	<0.005 ± <0.005	106 ± 170	0.03	<0.005	0.01
	2007	18 ± 25	15 ± 19	32 ± 31	<0.005	<0.005	<0.005	395 ± 601	0 0	395 ± 598	0.11	0.00	0.05
Unidentified Cormorant	1989							218 ± 342	89 ± 110	307 ± 357	0.06	0.02	0.03
	1990	273 ± 349	78 ± 77	352 ± 353	0.08	0.01	0.04	11 ± 11	22 ± 26	34 ± 28	0.00	0.00	0.00
	1991	1421 ± 762	2056 ± 1048	3477 ± 1286	0.40	0.38	0.39	236 ± 361	184 ± 166	419 ± 396	0.07	0.03	0.05
	1993	1501 ± 1277	1273 ± 976	2775 ± 1592	0.42	0.24	0.31	107 ± 102	233 ± 201	340 ± 225	0.03	0.04	0.04
	1994	50 ± 66	228 ± 200	278 ± 209	0.01	0.04	0.03						
	1996	130 ± 97	245 ± 221	375 ± 240	0.04	0.05	0.04	3 ± 5	22 ± 32	25 ± 33	0.00	0.00	0.00
	1998	61 ± 73	65 ± 74	126 ± 103	0.02	0.01	0.01	6 ± 7	8 ± 9	14 ± 11	0.00	0.00	0.00
	2000	732 ± 669	186 ± 214	918 ± 695	0.20	0.03	0.10	11 ± 18	<0.005 ± <0.005	11 ± 18	0.00	<0.005	0.00
	2004	600 ± 437	239 ± 189	839 ± 471	0.17	0.04	0.09	8 ± 10	3 ± 5	12 ± 11	0.00	0.00	0.00
	2005	55 ± 63	328 ± 264	383 ± 270	0.02	0.06	0.04	6 ± 7	11 ± 14	17 ± 15	0.00	0.00	0.00
	2007	80 ± 84	267 ± 339	347 ± 347	0.02	0.05	0.04	40 ± 62	0 0	40 ± 62	0.01	0.00	<0.005

Taxon	Year	March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
		Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Pelagic/Red-faced Cormorant	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	4064 ±	1273	7993 ±	3768	12056 ±	3954	1.14	1.48	1.34	962 ±	1490	105 ±	94	1067 ±	1486	0.27	0.02	0.12
	1998	3472 ±	2036	2859 ±	1113	6330 ±	2298	0.97	0.53	0.70	352 ±	545	348 ±	375	700 ±	659	0.10	0.06	0.08
	2000	3346 ±	1548	4174 ±	2308	7520 ±	2760	0.94	0.77	0.84	553 ±	743	27 ±	32	580 ±	741	0.15	0.00	0.07
	2004	408 ±	248	554 ±	358	962 ±	432	0.11	0.10	0.11	56 ±	64	22 ±	26	78 ±	69	0.02	0.00	0.01
	2005	1028 ±	489	1981 ±	1417	3009 ±	1490	0.29	0.37	0.33	6 ±	9	3 ±	5	9 ±	11	0.00	0.00	0.00
	2007	2075 ±	1532	2031 ±	1522	4107 ±	2142	0.58	0.38	0.46	208 ±	202	6 ±	10	215 ±	201	0.06	<0.005	0.02
Total Cormorants	1989										446 ±	514	367 ±	277	812 ±	581	0.12	0.07	0.09
	1990	4687 ±	2247	4460 ±	1263	9148 ±	2553	1.31	0.83	1.02	123 ±	80	102 ±	68	225 ±	104	0.03	0.02	0.03
	1991	3481 ±	1515	5559 ±	2161	9040 ±	2620	0.97	1.03	1.01	614 ±	521	366 ±	207	980 ±	558	0.17	0.07	0.11
	1993	4726 ±	2559	7146 ±	3156	11872 ±	4030	1.32	1.32	1.32	804 ±	470	1156 ±	721	1959 ±	858	0.22	0.21	0.23
	1994	4833 ±	1773	6535 ±	2190	11368 ±	2796	1.35	1.21	1.27									
	1996	4809 ±	1381	8613 ±	3747	13422 ±	3970	1.34	1.59	1.49	1043 ±	1512	397 ±	319	1440 ±	1538	0.29	0.07	0.17
	1998	4760 ±	2433	3433 ±	1217	8193 ±	2694	1.33	0.64	0.91	407 ±	573	383 ±	376	790 ±	682	0.11	0.07	0.09
	2000	4362 ±	1812	4930 ±	2337	9293 ±	2936	1.22	0.91	1.03	900 ±	972	92 ±	65	992 ±	969	0.25	0.02	0.11
	2004	5149 ±	2054	4815 ±	1585	9964 ±	2571	1.44	0.89	1.11	1435 ±	1015	1252 ±	540	2687 ±	1145	0.40	0.23	0.31
	2005	6294 ±	1792	8360 ±	2544	14654 ±	3090	1.76	1.55	1.63	1156 ±	813	1336 ±	756	2492 ±	1106	0.32	0.25	0.29
	2007	4534 ±	1715	8759 ±	3017	13293 ±	3448	1.27	1.62	1.48	1305 ±	1552	731 ±	680	2036 ±	1687	0.36	0.14	0.24
Ciconiiformes																			
Ardeidae: Bitterns and Herons																			
Great Blue Heron	1989										9 ±	12	9 ±	10	18 ±	15	0.00	0.00	0.00
	1990	18 ±	25	30 ±	27	49 ±	36	0.01	0.01	0.01	5 ±	6	49 ±	32	54 ±	33	0.00	0.01	0.01
	1991	<0.005 ±	<0.005	30 ±	33	30 ±	33	<0.005	0.01	0.00	<0.005 ±	<0.005	36 ±	33	36 ±	33	<0.005	0.01	0.00
	1993	43 ±	63	62 ±	99	106 ±	117	0.01	0.01	0.01	11 ±	9	81 ±	52	93 ±	53	0.00	0.02	0.01
	1994	12 ±	16	186 ±	203	198 ±	202	0.00	0.03	0.02									
	1996	6 ±	12	177 ±	154	183 ±	153	0.00	0.03	0.02	28 ±	17	148 ±	101	176 ±	102	0.01	0.03	0.02
	1998	<0.005 ±	<0.005	105 ±	90	105 ±	90	<0.005	0.02	0.01	26 ±	15	159 ±	108	185 ±	109	0.01	0.03	0.02
	2000	0 ±	1	149 ±	185	150 ±	184	0.00	0.03	0.02	6 ±	9	59 ±	37	65 ±	38	0.00	0.01	0.01
	2004	11 ±	14	174 ±	322	185 ±	321	0.00	0.03	0.02	25 ±	20	63 ±	55	88 ±	58	0.01	0.01	0.01
	2005	<0.005 ±	<0.005	138 ±	182	138 ±	181	<0.005	0.03	0.02	11 ±	9	103 ±	112	114 ±	112	0.00	0.02	0.01
	2007	0	0	44 ±	47	44 ±	47	0.00	0.01	<0.005	20 ±	17	117 ±	84	137 ±	85	0.01	0.02	0.02
Anseriformes																			
Anatidae: Swans, Geese, and Ducks																			
Cygnini: Swans																			
Tundra Swan	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	10 ±	16	10 ±	16	<0.005	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Trumpeter Swan	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	31 ±	58	31 ±	58	<0.005	0.01	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Unidentified Swan	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	37 ±	70	37 ±	69	<0.005	0.01	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Anserini: Geese																			
Greater White-fronted Goose	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Emperor Goose	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	6 ±	11	<0.005 ±	<0.005	6 ±	11	0.00	<0.005	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Brant	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	1 ±	1	3 ±	4	3 ±	4	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	312 ±	523	<0.005 ±	<0.005	312 ±	520	0.09	<0.005	0.04
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	62 ±	105	0	0	62 ±	104	0.02	0.00	0.01
Canada Goose	1989										3 ±	5	160 ±	275	164 ±	275	0.00	0.03	0.02
	1990	<0.005 ±	<0.005	38 ±	70	38 ±	70	<0.005	0.01	0.00	<0.005 ±	<0.005	1907 ±	3283	1907 ±	3276	<0.005	0.35	0.22
	1991	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	3098 ±	5214	3101 ±	5204	0.00	0.57	0.36
	1993	37 ±	67	<0.005 ±	<0.005	37 ±	66	0.01	<0.005	0.00	<0.005 ±	<0.005	3099 ±	5253	3099 ±	5243	<0.005	0.57	0.36
	1994	<0.005 ±	<0.005	48 ±	91	48 ±	90	<0.005	0.01	0.01									
	1996	<0.005 ±	<0.005	15 ±	29	15 ±	28	<0.005	0.00	0.00	<0.005 ±	<0.005	1019 ±	1550	1019 ±	1548	<0.005	0.19	0.12
	1998	<0.005 ±	<0.005	367 ±	417	367 ±	415	<0.005	0.07	0.04	3 ±	4	21 ±	24	24 ±	24	0.00	0.00	0.00
	2000	25 ±	46	45 ±	60	69 ±	75	0.01	0.01	0.01	<0.005 ±	<0.005	56 ±	58	56 ±	58	<0.005	0.01	0.01
	2004	<0.005 ±	<0.005	313 ±	586	313 ±	583	<0.005	0.06	0.03	<0.005 ±	<0.005	661 ±	951	661 ±	949	<0.005	0.12	0.08
	2005	<0.005 ±	<0.005	161 ±	299	161 ±	298	<0.005	0.03	0.02	<0.005 ±	<0.005	152 ±	126	152 ±	126	<0.005	0.03	0.02
	2007	12 ±	22	67 ±	124	78 ±	125	<0.005	0.01	0.01	0	0	59 ±	70	59 ±	70	0.00	0.01	0.01

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		March DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		July DENSITIES Oil	Unoil	Total
Anatini: Dabbling Ducks																			
Green-winged Teal	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	61 ±	85	64 ±	85	0.00	0.01	0.01
	1991	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	78 ±	128	78 ±	128	<0.005	0.01	0.01
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	80 ±	99	80 ±	99	<0.005	0.01	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	36 ±	59	36 ±	59	<0.005	0.01	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	23 ±	37	23 ±	37	<0.005	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	111 ±	179	111 ±	179	<0.005	0.02	0.01
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	107 ±	126	107 ±	126	0.00	0.02	0.01
Blue-winged Teal	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0 ±	0	6 ±	10	7 ±	10	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Teal	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Mallard	1989										<0.005 ±	<0.005	278 ±	378	278 ±	377	<0.005	0.05	0.03
	1990	17 ±	24	1937 ±	1372	1954 ±	1365	0.00	0.36	0.22	<0.005 ±	<0.005	207 ±	243	207 ±	242	<0.005	0.04	0.02
	1991	<0.005 ±	<0.005	8249 ±	11868	8249 ±	11806	<0.005	1.53	0.92	<0.005 ±	<0.005	457 ±	289	457 ±	289	<0.005	0.08	0.05
	1993	<0.005 ±	<0.005	3401 ±	2515	3401 ±	2501	<0.005	0.63	0.38	<0.005 ±	<0.005	30 ±	46	30 ±	46	<0.005	0.01	0.00
	1994	15 ±	23	3605 ±	2977	3620 ±	2961	0.00	0.67	0.40									
	1996	52 ±	71	6998 ±	4514	7050 ±	4491	0.01	1.30	0.78	<0.005 ±	<0.005	446 ±	239	446 ±	239	<0.005	0.08	0.05
	1998	13 ±	22	4550 ±	2286	4563 ±	2274	0.00	0.84	0.51	<0.005 ±	<0.005	115 ±	107	115 ±	107	<0.005	0.02	0.01
	2000	82 ±	58	8957 ±	7596	9039 ±	7557	0.02	1.66	1.01	<0.005 ±	<0.005	36 ±	52	36 ±	52	<0.005	0.01	0.00
	2004	1 ±	1	9604 ±	7564	9605 ±	7524	0.00	1.78	1.07	<0.005 ±	<0.005	173 ±	199	173 ±	199	<0.005	0.03	0.02
	2005	1 ±	2	3058 ±	2437	3059 ±	2424	0.00	0.57	0.34	<0.005 ±	<0.005	43 ±	51	43 ±	51	<0.005	0.01	0.00
	2007	54 ±	85	4937 ±	2550	4991 ±	2538	0.02	0.91	0.56	0	0	992 ±	714	992 ±	712	0.00	0.18	0.11
Northern Pintail	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	44 ±	71	44 ±	71	<0.005	0.01	0.01
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	<0.005 ±	<0.005	23 ±	31	23 ±	31	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	23 ±	44	23 ±	44	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Northern Shoveler	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	89 ±	105	89 ±	105	0.00	0.02	0.01

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Gadwall	1989										<0.005 ±	<0.005	17 ±	30	17 ±	30	<0.005	0.00	0.00
	1990	<0.005 ±	<0.005	174 ±	324	174 ±	322	<0.005	0.03	0.02	<0.005 ±	<0.005	27 ±	32	27 ±	32	<0.005	0.00	0.00
	1991	<0.005 ±	<0.005	151 ±	255	151 ±	254	<0.005	0.03	0.02	<0.005 ±	<0.005	22 ±	39	22 ±	39	<0.005	0.00	0.00
	1993	<0.005 ±	<0.005	155 ±	290	155 ±	289	<0.005	0.03	0.02	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	1630 ±	2109	1630 ±	2098	<0.005	0.30	0.18									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	<0.005 ±	<0.005	22 ±	31	22 ±	31	<0.005	0.00	0.00	<0.005 ±	<0.005	76 ±	134	76 ±	133	<0.005	0.01	0.01
	2000	<0.005 ±	<0.005	7 ±	14	7 ±	14	<0.005	0.00	0.00	<0.005 ±	<0.005	63 ±	95	63 ±	95	<0.005	0.01	0.01
	2004	<0.005 ±	<0.005	313 ±	586	313 ±	583	<0.005	0.06	0.03	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	1308 ±	2323	1308 ±	2311	<0.005	0.24	0.15	<0.005 ±	<0.005	239 ±	274	239 ±	273	<0.005	0.04	0.03
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	60 ±	92	60 ±	92	0.00	0.01	0.01
American Wigeon	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	68 ±	97	68 ±	97	<0.005	0.01	0.01
	1991	0 ±	0	7 ±	13	8 ±	13	0.00	0.00	0.00	<0.005 ±	<0.005	310 ±	336	310 ±	336	<0.005	0.06	0.04
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	84 ±	101	84 ±	100	<0.005	0.02	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	196 ±	314	196 ±	313	<0.005	0.04	0.02
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	<0.005 ±	<0.005	66 ±	105	66 ±	105	<0.005	0.01	0.01
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	63 ±	74	63 ±	73	0.00	0.01	0.01
Unidentified Dabbling Duck	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	1043 ±	1499	1043 ±	1491	<0.005	0.19	0.12	<0.005 ±	<0.005	47 ±	50	47 ±	50	<0.005	0.01	0.01
	1991	<0.005 ±	<0.005	621 ±	715	621 ±	711	<0.005	0.11	0.07	<0.005 ±	<0.005	9 ±	16	9 ±	16	<0.005	0.00	0.00
	1993	<0.005 ±	<0.005	1607 ±	2874	1607 ±	2858	<0.005	0.30	0.18	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	94 ±	165	94 ±	165	<0.005	0.02	0.01
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Aythyini: Diving Ducks																			
Ring-necked Duck	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Greater Scaup	1989										<0.005 ±	<0.005	439 ±	512	439 ±	510	<0.005	0.08	0.05
	1990	1 ±	1	1186 ±	1467	1187 ±	1459	0.00	0.22	0.13	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	147 ±	211	147 ±	211	<0.005	0.03	0.02
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	82 ±	126	82 ±	126	<0.005	0.02	0.01
	1994	12 ±	23	1169 ±	1573	1182 ±	1564	0.00	0.22	0.13									
	1996	1 ±	2	168 ±	249	169 ±	247	0.00	0.03	0.02	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0 ±	0	3248 ±	4880	3249 ±	4855	0.00	0.60	0.36	<0.005 ±	<0.005	13 ±	23	13 ±	23	<0.005	0.00	0.00
	2000	<0.005 ±	<0.005	322 ±	406	322 ±	404	<0.005	0.06	0.04	<0.005 ±	<0.005	81 ±	113	81 ±	113	<0.005	0.01	0.01
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	16 ±	19	16 ±	19	<0.005	0.00	0.00
	2005	<0.005 ±	<0.005	252 ±	429	252 ±	427	<0.005	0.05	0.03	0	0	0	0	0	0	0.00	0.00	0.00
	2007	6 ±	11	215 ±	265	221 ±	264	<0.005	0.04	0.02	0	0	1728 ±	2521	1728 ±	2516	0.00	0.32	0.20
Lesser Scaup	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	9 ±	15	9 ±	15	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	78 ±	142	78 ±	141	<0.005	0.01	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	54 ±	63	54 ±	62	<0.005	0.01	0.01	<0.005 ±	<0.005	34 ±	60	34 ±	60	<0.005	0.01	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Unidentified Scaup	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	431 ±	769	431 ±	765	<0.005	0.08	0.05	<0.005 ±	<0.005	195 ±	307	195 ±	306	<0.005	0.04	0.02
	1993	110 ±	197	217 ±	369	328 ±	415	0.03	0.04	0.04	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	242 ±	455	242 ±	452	<0.005	0.04	0.03									
	1996	86 ±	123	353 ±	393	439 ±	410	0.02	0.07	0.05	0	0	0	0	0	0	0.00	0.00	0.00
	1998	479 ±	871	232 ±	304	711 ±	913	0.13	0.04	0.08	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2000	<0.005 ±	<0.005	82 ±	149	82 ±	148	<0.005	0.02	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	485 ±	566	485 ±	563	<0.005	0.09	0.05	<0.005 ±	<0.005	7 ±	11	7 ±	11	<0.005	0.00	0.00
	2005	<0.005 ±	<0.005	337 ±	429	337 ±	427	<0.005	0.06	0.04	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	712 ±	1113	712 ±	1107	0.00	0.13	0.08	0	0	19 ±	31	19 ±	31	0.00	<0.005	<0.005
Total Scaup	1989										<0.005 ±	<0.005	439 ±	512	439 ±	510	<0.005	0.08	0.05
	1990	1 ±	1	1784 ±	1603	1785 ±	1595	0.00	0.33	0.20	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	431 ±	769	431 ±	765	<0.005	0.08	0.05	<0.005 ±	<0.005	342 ±	370	342 ±	369	<0.005	0.06	0.04
	1993	110 ±	197	217 ±	369	328 ±	415	0.03	0.04	0.04	<0.005 ±	<0.005	82 ±	126	82 ±	126	<0.005	0.02	0.01
	1994	12 ±	23	1411 ±	1638	1424 ±	1629	0.00	0.26	0.16									
	1996	87 ±	123	521 ±	451	608 ±	465	0.02	0.10	0.07	<0.005 ±	<0.005	9 ±	15	9 ±	15	<0.005	0.00	0.00
	1998	479 ±	871	3480 ±	4888	3959 ±	4939	0.13	0.64	0.44	<0.005 ±	<0.005	17 ±	24	17 ±	24	<0.005	0.00	0.00
	2000	<0.005 ±	<0.005	404 ±	426	404 ±	424	<0.005	0.07	0.05	<0.005 ±	<0.005	81 ±	113	81 ±	113	<0.005	0.01	0.01
	2004	<0.005 ±	<0.005	564 ±	572	564 ±	569	<0.005	0.10	0.06	<0.005 ±	<0.005	22 ±	22	22 ±	22	<0.005	0.00	0.00
	2005	<0.005 ±	<0.005	642 ±	606	642 ±	602	<0.005	0.12	0.07	<0.005 ±	<0.005	34 ±	60	34 ±	60	<0.005	0.01	0.00
	2007	6 ±	11	927 ±	1134	933 ±	1129	<0.005	0.17	0.10	0	0	1748 ±	2521	1748 ±	2516	0.00	0.32	0.20
Mergini: Sea Ducks																			
Common Eider	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
King Eider	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	30 ±	56	30 ±	55	<0.005	0.01	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Steller's Eider	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Eider	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

		March									July								
		POPULATION ESTIMATES						**DENSITIES**			**POPULATION ESTIMATES**						**DENSITIES**		
Taxon	**Year**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**
Total Eiders	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	7 ±	8	7 ±	8	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	30 ±	56	30 ±	55	<0.005	0.01	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Harlequin Duck	1989										858 ±	380	3065 ±	1245	3923 ±	1297	0.24	0.57	0.44
	1990	2739 ±	973	7881 ±	2320	10620 ±	2500	0.77	1.46	1.18	1784 ±	1502	7556 ±	3120	9341 ±	3454	0.50	1.40	1.08
	1991	2832 ±	987	8327 ±	2676	11158 ±	2835	0.79	1.54	1.24	667 ±	364	7597 ±	3053	8264 ±	3069	0.19	1.41	0.96
	1993	3315 ±	1254	15304 ±	7232	18619 ±	7299	0.93	2.83	2.07	1480 ±	1036	6842 ±	2411	8322 ±	2618	0.41	1.27	0.96
	1994	4419 ±	1457	14785 ±	4303	19204 ±	4515	1.24	2.74	2.14									
	1996	4954 ±	1799	12197 ±	3589	17151 ±	3989	1.38	2.26	1.91	1428 ±	642	9191 ±	2881	10619 ±	2946	0.40	1.70	1.23
	1998	4016 ±	1274	10605 ±	3267	14621 ±	3486	1.12	1.96	1.63	1654 ±	838	7199 ±	2281	8853 ±	2425	0.46	1.33	1.02
	2000	4935 ±	1756	9941 ±	2807	14876 ±	3288	1.38	1.84	1.66	1110 ±	452	8080 ±	2838	9191 ±	2868	0.31	1.50	1.06
	2004	3508 ±	1169	9665 ±	2776	13174 ±	2994	0.98	1.79	1.47	1070 ±	440	5669 ±	2064	6740 ±	2106	0.30	1.05	0.78
	2005	2511 ±	676	8555 ±	3351	11066 ±	3399	0.70	1.58	1.23	1380 ±	608	7600 ±	2307	8981 ±	2381	0.39	1.41	1.04
	2007	3151 ±	811	9348 ±	3134	12499 ±	3219	0.88	1.73	1.39	1048 ±	541	8699 ±	4154	9747 ±	4181	0.29	1.61	1.13
Long-tailed Duck	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.01	0.76	0.46	0	0	0	0	0	0	0.00	0.00	0.00
	2007	227 ±	376	2742 ±	2452	2969 ±	2468	0.06	0.51	0.33	0	0	38 ±	36	38 ±	36	0.00	0.01	<0.005
Black Scoter	1989										1000 ±	1729	235 ±	262	1235 ±	1737	0.28	0.04	0.14
	1990	378 ±	437	2383 ±	1431	2761 ±	1488	0.11	0.44	0.31	<0.005 ±	<0.005	42 ±	50	42 ±	50	<0.005	0.01	0.00
	1991	347 ±	537	1040 ±	621	1387 ±	815	0.10	0.19	0.15	121 ±	217	311 ±	395	431 ±	450	0.03	0.06	0.05
	1993	113 ±	114	1843 ±	1034	1956 ±	1035	0.03	0.34	0.22	<0.005 ±	<0.005	276 ±	241	276 ±	240	<0.005	0.05	0.03
	1994	1132 ±	964	1410 ±	739	2541 ±	1204	0.32	0.26	0.28									
	1996	164 ±	156	1673 ±	1369	1837 ±	1370	0.05	0.31	0.20	<0.005 ±	<0.005	75 ±	110	75 ±	110	<0.005	0.01	0.01
	1998	181 ±	153	2611 ±	3224	2791 ±	3211	0.05	0.48	0.31	<0.005 ±	<0.005	108 ±	150	108 ±	150	<0.005	0.02	0.01
	2000	163 ±	301	919 ±	723	1082 ±	778	0.05	0.17	0.12	<0.005 ±	<0.005	25 ±	25	25 ±	25	<0.005	0.00	0.00
	2004	70 ±	69	882 ±	1037	953 ±	1034	0.02	0.16	0.11	<0.005 ±	<0.005	238 ±	238	238 ±	237	<0.005	0.04	0.03
	2005	322 ±	319	715 ±	541	1037 ±	624	0.09	0.13	0.12	<0.005 ±	<0.005	664 ±	831	664 ±	829	<0.005	0.12	0.08
	2007	194 ±	203	904 ±	748	1099 ±	771	0.05	0.17	0.12	0	0	162 ±	254	162 ±	253	0.00	0.03	0.02
Surf Scoter	1989										3 ±	5	525 ±	376	528 ±	375	0.00	0.10	0.06
	1990	1156 ±	603	3391 ±	1199	4547 ±	1333	0.32	0.63	0.51	1269 ±	2281	687 ±	558	1955 ±	2337	0.35	0.13	0.23
	1991	1527 ±	759	7786 ±	4612	9313 ±	4649	0.43	1.44	1.04	121 ±	217	948 ±	667	1069 ±	700	0.03	0.18	0.12
	1993	1594 ±	804	4326 ±	1754	5921 ±	1917	0.45	0.80	0.66	31 ±	39	1950 ±	1017	1980 ±	1015	0.01	0.36	0.23
	1994	1698 ±	757	5753 ±	4801	7451 ±	4833	0.47	1.06	0.83									
	1996	1585 ±	1037	4907 ±	2872	6492 ±	3035	0.44	0.91	0.72	<0.005 ±	<0.005	3024 ±	2095	3024 ±	2092	<0.005	0.56	0.35
	1998	1059 ±	635	28496 ±	47805	29555 ±	47564	0.30	5.27	3.29	374 ±	550	851 ±	501	1225 ±	741	0.10	0.16	0.14
	2000	2372 ±	1415	4143 ±	2462	6516 ±	2821	0.66	0.77	0.73	1826 ±	2545	4191 ±	3359	6017 ±	4202	0.51	0.78	0.70
	2004	3049 ±	1903	2192 ±	1021	5241 ±	2138	0.85	0.41	0.58	1163 ±	1397	3850 ±	4485	5013 ±	4687	0.33	0.71	0.58
	2005	5837 ±	7007	5555 ±	3246	11392 ±	7647	1.63	1.03	1.27	<0.005 ±	<0.005	725 ±	837	725 ±	836	<0.005	0.13	0.08
	2007	2523 ±	1766	952 ±	573	3476 ±	1838	0.71	0.18	0.39	604 ±	1086	6918 ±	4832	7521 ±	4942	0.17	1.28	0.87
White-winged Scoter	1989										2367 ±	2938	657 ±	474	3024 ±	2956	0.66	0.12	0.34
	1990	431 ±	229	2866 ±	1303	3297 ±	1316	0.12	0.53	0.37	244 ±	434	845 ±	1260	1089 ±	1330	0.07	0.16	0.13
	1991	1039 ±	1199	4256 ±	2452	5296 ±	2712	0.29	0.79	0.59	2359 ±	2996	1204 ±	791	3564 ±	3084	0.66	0.22	0.41
	1993	908 ±	1054	6051 ±	4182	6959 ±	4288	0.25	1.12	0.77	7298 ±	8046	295 ±	208	7593 ±	8010	2.04	0.05	0.88
	1994	2684 ±	1865	5480 ±	3311	8165 ±	3775	0.75	1.01	0.91									
	1996	1346 ±	679	4857 ±	3600	6203 ±	3644	0.38	0.90	0.69	3 ±	5	434 ±	361	437 ±	361	0.00	0.08	0.05
	1998	578 ±	506	18896 ±	26675	19474 ±	26542	0.16	3.50	2.17	83 ±	122	2299 ±	2973	2382 ±	2970	0.02	0.43	0.28
	2000	2972 ±	3382	20905 ±	36226	23877 ±	36194	0.83	3.87	2.66	4838 ±	6142	330 ±	233	5167 ±	6117	1.35	0.06	0.60
	2004	1626 ±	1197	1071 ±	1057	2697 ±	1583	0.45	0.20	0.30	1185 ±	1565	285 ±	214	1470 ±	1572	0.33	0.05	0.17
	2005	1757 ±	2886	647 ±	541	2404 ±	2906	0.49	0.12	0.27	3 ±	4	510 ±	669	513 ±	668	0.00	0.09	0.06
	2007	541 ±	520	631 ±	619	1172 ±	803	0.15	0.12	0.13	0	0	419 ±	416	419 ±	415	0.00	0.08	0.05

Taxon	Year	March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
		Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Unidentified Scoter	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	368 ±	580	522 ±	806	890 ±	986	0.10	0.10	0.10	<0.005 ±	<0.005	887 ±	654	887 ±	652	<0.005	0.16	0.10
	1993	845 ±	501	2916 ±	1952	3761 ±	2003	0.24	0.54	0.42	167 ±	270	641 ±	917	808 ±	953	0.05	0.12	0.09
	1994	148 ±	131	2192 ±	2198	2340 ±	2190	0.04	0.41	0.26									
	1996	151 ±	108	1493 ±	1473	1644 ±	1470	0.04	0.28	0.18	<0.005 ±	<0.005	67 ±	80	67 ±	79	<0.005	0.01	0.01
	1998	98 ±	134	4047 ±	7200	4145 ±	7164	0.03	0.75	0.46	786 ±	1015	624 ±	953	1411 ±	1387	0.22	0.12	0.16
	2000	6 ±	12	307 ±	473	313 ±	471	0.00	0.06	0.03	0	0	0	0	0	0	0.00	0.00	0.00
	2004	200 ±	221	258 ±	252	458 ±	333	0.06	0.05	0.05	42 ±	67	<0.005 ±	<0.005	42 ±	67	0.01	<0.005	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Total Scoters	1989										3371 ±	3277	1417 ±	808	4788 ±	3354	0.94	0.26	0.53
	1990	1965 ±	764	8640 ±	2519	10604 ±	2617	0.55	1.60	1.18	1513 ±	2715	1574 ±	1389	3087 ±	3037	0.42	0.29	0.36
	1991	3281 ±	1929	13605 ±	6746	16886 ±	6977	0.92	2.52	1.88	2601 ±	3395	3350 ±	1660	5950 ±	3764	0.73	0.62	0.69
	1993	3460 ±	1507	15137 ±	5497	18597 ±	5666	0.97	2.80	2.07	7496 ±	8050	3161 ±	1604	10657 ±	8170	2.10	0.58	1.23
	1994	5661 ±	2398	14835 ±	6175	20497 ±	6583	1.58	2.75	2.28									
	1996	3246 ±	1344	12931 ±	5686	16177 ±	5811	0.91	2.39	1.80	3 ±	5	3600 ±	2173	3603 ±	2169	0.00	0.67	0.42
	1998	1915 ±	1034	54050 ±	84610	55965 ±	84182	0.54	10.00	6.23	1243 ±	1547	3882 ±	3421	5125 ±	3745	0.35	0.72	0.59
	2000	5513 ±	3856	26275 ±	36305	31788 ±	36319	1.54	4.86	3.54	6664 ±	8411	4545 ±	3435	11210 ±	9045	1.86	0.84	1.30
	2004	4945 ±	2377	4404 ±	1810	9349 ±	2961	1.38	0.81	1.04	2390 ±	2930	4373 ±	4585	6763 ±	5427	0.67	0.81	0.78
	2005	7917 ±	9815	6917 ±	3704	14834 ±	10385	2.21	1.28	1.65	3 ±	4	1899 ±	1422	1902 ±	1419	0.00	0.35	0.22
	2007	3258 ±	1884	2488 ±	1144	5746 ±	2183	0.91	0.46	0.64	604 ±	1086	7499 ±	4858	8103 ±	4968	0.17	1.39	0.94
Common Goldeneye	1989										0 ±	1	203 ±	191	204 ±	191	0.00	0.04	0.02
	1990	17 ±	22	878 ±	715	896 ±	712	0.00	0.16	0.10	6 ±	9	23 ±	26	28 ±	28	0.00	0.00	0.00
	1991	16 ±	28	132 ±	117	148 ±	119	0.00	0.02	0.02	3 ±	4	132 ±	137	135 ±	137	0.00	0.02	0.02
	1993	55 ±	91	47 ±	64	102 ±	110	0.02	0.01	0.01	<0.005 ±	<0.005	123 ±	110	123 ±	110	<0.005	0.02	0.01
	1994	121 ±	165	1721 ±	1728	1842 ±	1726	0.03	0.32	0.21									
	1996	252 ±	186	1518 ±	1063	1770 ±	1074	0.07	0.28	0.20	8 ±	10	53 ±	49	61 ±	50	0.00	0.01	0.01
	1998	555 ±	325	3476 ±	3642	4031 ±	3637	0.16	0.64	0.45	9 ±	14	68 ±	56	76 ±	58	0.00	0.01	0.01
	2000	124 ±	103	949 ±	508	1072 ±	515	0.03	0.18	0.12	8 ±	10	54 ±	57	62 ±	58	0.00	0.01	0.01
	2004	125 ±	129	1398 ±	760	1523 ±	766	0.03	0.26	0.17	<0.005 ±	<0.005	44 ±	55	44 ±	55	<0.005	0.01	0.01
	2005	68 ±	71	941 ±	585	1008 ±	586	0.02	0.17	0.11	34 ±	32	47 ±	45	81 ±	55	0.01	0.01	0.01
	2007	55 ±	46	464 ±	302	520 ±	304	0.02	0.09	0.06	2 ±	4	4 ±	5	6 ±	6	<0.005	<0.005	<0.005
Barrow's Goldeneye	1989										3 ±	5	95 ±	103	99 ±	103	0.00	0.02	0.01
	1990	2978 ±	994	11990 ±	3434	14968 ±	3555	0.83	2.22	1.67	6 ±	9	<0.005 ±	<0.005	6 ±	9	0.00	<0.005	0.00
	1991	3614 ±	1334	16697 ±	5877	20311 ±	5993	1.01	3.09	2.26	<0.005 ±	<0.005	50 ±	69	50 ±	68	<0.005	0.01	0.01
	1993	2821 ±	1389	10874 ±	3329	13694 ±	3584	0.79	2.01	1.52	6 ±	9	67 ±	73	73 ±	74	0.00	0.01	0.01
	1994	5018 ±	1741	26631 ±	15722	31649 ±	15731	1.40	4.93	3.52									
	1996	4284 ±	1174	22246 ±	4129	26530 ±	4269	1.20	4.12	2.95	<0.005 ±	<0.005	161 ±	158	161 ±	158	<0.005	0.03	0.02
	1998	3234 ±	1166	29790 ±	16260	33024 ±	16218	0.90	5.51	3.68	17 ±	15	207 ±	216	225 ±	216	0.00	0.04	0.03
	2000	3096 ±	1008	24920 ±	8346	28016 ±	8363	0.87	4.61	3.12	<0.005 ±	<0.005	124 ±	103	124 ±	102	<0.005	0.02	0.01
	2004	3432 ±	1539	26133 ±	7503	29565 ±	7616	0.96	4.84	3.29	3 ±	5	92 ±	88	94 ±	88	0.00	0.02	0.01
	2005	2820 ±	1865	15454 ±	4541	18274 ±	4879	0.79	2.86	2.03	6 ±	9	65 ±	52	71 ±	52	0.00	0.01	0.01
	2007	2800 ±	964	21100 ±	5225	23899 ±	5285	0.78	3.90	2.66	8 ±	10	141 ±	130	149 ±	130	<0.005	0.03	0.02
Unidentified Goldeneye	1989										9 ±	16	78 ±	90	87 ±	91	0.00	0.01	0.01
	1990	457 ±	395	3221 ±	1619	3678 ±	1657	0.13	0.60	0.41	14 ±	19	189 ±	143	203 ±	144	0.00	0.03	0.02
	1991	407 ±	329	2774 ±	2265	3181 ±	2276	0.11	0.51	0.35	494 ±	869	177 ±	173	671 ±	882	0.14	0.03	0.08
	1993	2035 ±	1063	18239 ±	7740	20274 ±	7770	0.57	3.38	2.26	11 ±	12	435 ±	469	446 ±	468	0.00	0.08	0.05
	1994	985 ±	670	18227 ±	10271	19211 ±	10236	0.28	3.37	2.14									
	1996	250 ±	125	7427 ±	4797	7677 ±	4773	0.07	1.37	0.85	21 ±	15	144 ±	194	165 ±	194	0.01	0.03	0.02
	1998	104 ±	72	2201 ±	1845	2305 ±	1836	0.03	0.41	0.26	9 ±	8	52 ±	35	61 ±	36	0.00	0.01	0.01
	2000	373 ±	201	5580 ±	5074	5954 ±	5052	0.10	1.03	0.66	15 ±	19	21 ±	22	35 ±	29	0.00	0.00	0.00
	2004	193 ±	170	4518 ±	2829	4711 ±	2818	0.05	0.84	0.52	3 ±	4	42 ±	41	45 ±	41	0.00	0.01	0.01
	2005	168 ±	130	624 ±	355	792 ±	376	0.05	0.12	0.09	<0.005 ±	<0.005	39 ±	47	39 ±	47	<0.005	0.01	0.00
	2007	430 ±	397	3803 ±	2096	4233 ±	2122	0.12	0.70	0.47	5 ±	6	24 ±	24	30 ±	24	<0.005	<0.005	<0.005
Total Goldeneyes	1989										13 ±	17	377 ±	250	390 ±	250	0.00	0.07	0.04
	1990	3452 ±	1067	16089 ±	4233	19541 ±	4341	0.96	2.98	2.18	25 ±	23	212 ±	144	237 ±	146	0.01	0.04	0.03
	1991	4037 ±	1338	19603 ±	6172	23639 ±	6281	1.13	3.63	2.63	497 ±	869	359 ±	233	856 ±	896	0.14	0.07	0.10
	1993	4911 ±	2153	29159 ±	8774	34070 ±	8982	1.37	5.40	3.79	17 ±	15	625 ±	551	642 ±	550	0.00	0.12	0.07
	1994	6123 ±	1965	46579 ±	21613	52702 ±	21583	1.71	8.62	5.87									
	1996	4786 ±	1202	31192 ±	7203	35978 ±	7263	1.34	5.77	4.01	30 ±	18	358 ±	261	388 ±	261	0.01	0.07	0.04
	1998	3894 ±	1321	35467 ±	16877	39360 ±	16842	1.09	6.56	4.38	35 ±	24	327 ±	225	362 ±	225	0.01	0.06	0.04
	2000	3593 ±	1110	31449 ±	10019	35042 ±	10028	1.00	5.82	3.90	23 ±	21	198 ±	125	221 ±	127	0.01	0.04	0.03
	2004	3750 ±	1555	32050 ±	8466	35800 ±	8560	1.05	5.93	3.99	6 ±	6	177 ±	111	183 ±	111	0.00	0.03	0.02
	2005	3055 ±	1871	17019 ±	4736	20074 ±	5061	0.85	3.15	2.23	40 ±	33	151 ±	104	191 ±	108	0.01	0.03	0.02
	2007	3285 ±	1015	25367 ±	6331	28652 ±	6378	0.92	4.69	3.19	16 ±	14	169 ±	134	185 ±	135	<0.005	0.03	0.02

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Bufflehead	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	210 ±	174	3909 ±	1642	4119 ±	1643	0.06	0.72	0.46	0	0	0	0	0	0	0.00	0.00	0.00
	1991	125 ±	92	2003 ±	649	2129 ±	652	0.04	0.37	0.24	<0.005 ±	<0.005	20 ±	27	20 ±	27	<0.005	0.00	0.00
	1993	254 ±	184	3871 ±	1834	4125 ±	1833	0.07	0.72	0.46	<0.005 ±	<0.005	22 ±	28	22 ±	27	<0.005	0.00	0.00
	1994	866 ±	719	5657 ±	2000	6523 ±	2113	0.24	1.05	0.73									
	1996	499 ±	304	6377 ±	2354	6875 ±	2361	0.14	1.18	0.77	0	0	0	0	0	0	0.00	0.00	0.00
	1998	681 ±	476	9288 ±	4613	9969 ±	4614	0.19	1.72	1.11	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2000	226 ±	127	5172 ±	2396	5398 ±	2387	0.06	0.96	0.60	<0.005 ±	<0.005	18 ±	31	18 ±	31	<0.005	0.00	0.00
	2004	530 ±	346	5576 ±	2187	6105 ±	2202	0.15	1.03	0.68	0	0	0	0	0	0	0.00	0.00	0.00
	2005	132 ±	87	3323 ±	1311	3455 ±	1307	0.04	0.61	0.38	0	0	0	0	0	0	0.00	0.00	0.00
	2007	227 ±	172	4425 ±	1490	4652 ±	1492	0.06	0.82	0.52	0	0	0	0	0	0	0.00	0.00	0.00
Hooded Merganser	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Common Merganser	1989										650 ±	306	2020 ±	1295	2670 ±	1326	0.18	0.37	0.30
	1990	635 ±	318	536 ±	283	1171 ±	423	0.18	0.10	0.13	566 ±	247	2860 ±	2004	3425 ±	2015	0.16	0.53	0.40
	1991	1856 ±	1045	2610 ±	2057	4466 ±	2293	0.52	0.48	0.50	441 ±	291	1949 ±	834	2389 ±	881	0.12	0.36	0.28
	1993	1425 ±	913	4529 ±	2957	5954 ±	3076	0.40	0.84	0.66	398 ±	174	2829 ±	957	3227 ±	971	0.11	0.52	0.37
	1994	2330 ±	1975	5130 ±	3035	7460 ±	3595	0.65	0.95	0.83									
	1996	895 ±	581	1826 ±	1218	2721 ±	1341	0.25	0.34	0.30	625 ±	258	2262 ±	786	2886 ±	825	0.17	0.42	0.33
	1998	2044 ±	1670	18597 ±	18107	20641 ±	18089	0.57	3.44	2.30	443 ±	194	3178 ±	1232	3621 ±	1245	0.12	0.59	0.42
	2000	801 ±	359	1978 ±	1666	2779 ±	1695	0.22	0.37	0.31	421 ±	191	2650 ±	966	3071 ±	983	0.12	0.49	0.36
	2004	703 ±	550	3540 ±	3410	4243 ±	3435	0.20	0.66	0.47	612 ±	389	3475 ±	3176	4087 ±	3193	0.17	0.64	0.47
	2005	1251 ±	739	1757 ±	1384	3009 ±	1559	0.28	0.33	0.31	819 ±	635	4017 ±	2709	4836 ±	2777	0.23	0.74	0.56
	2007	1577 ±	793	1335 ±	650	2913 ±	1017	0.44	0.25	0.32	763 ±	312	2365 ±	889	3129 ±	940	0.21	0.44	0.36
Red-breasted Merganser	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	576 ±	248	901 ±	402	1477 ±	470	0.16	0.17	0.16	11 ±	14	95 ±	80	106 ±	81	0.00	0.02	0.01
	1991	80 ±	77	151 ±	139	231 ±	158	0.02	0.03	0.03	0	0	0	0	0	0	0.00	0.00	0.00
	1993	93 ±	132	372 ±	383	465 ±	403	0.03	0.07	0.05	84 ±	76	268 ±	221	352 ±	233	0.02	0.05	0.04
	1994	402 ±	324	7422 ±	11170	7824 ±	11114	0.11	1.37	0.87									
	1996	1191 ±	1258	1233 ±	605	2424 ±	1382	0.33	0.23	0.27	<0.005 ±	<0.005	18 ±	22	18 ±	22	<0.005	0.00	0.00
	1998	468 ±	259	1794 ±	2192	2262 ±	2196	0.13	0.33	0.25	<0.005 ±	<0.005	69 ±	62	69 ±	62	<0.005	0.01	0.01
	2000	187 ±	246	1030 ±	814	1217 ±	846	0.05	0.19	0.14	6 ±	9	52 ±	39	58 ±	40	0.00	0.01	0.01
	2004	271 ±	257	727 ±	356	998 ±	436	0.08	0.13	0.11	17 ±	27	427 ±	338	444 ±	339	0.00	0.08	0.05
	2005	75 ±	92	887 ±	461	963 ±	467	0.02	0.16	0.11	38 ±	34	701 ±	861	739 ±	860	0.01	0.13	0.09
	2007	124 ±	111	666 ±	531	791 ±	540	0.03	0.12	0.09	14 ±	19	30 ±	27	44 ±	33	<0.005	0.01	0.01
Unidentified Merganser	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	352 ±	242	511 ±	483	863 ±	537	0.10	0.09	0.10	6 ±	9	404 ±	220	409 ±	219	0.00	0.07	0.05
	1991	291 ±	426	936 ±	1573	1226 ±	1621	0.08	0.17	0.14	29 ±	33	269 ±	203	299 ±	206	0.01	0.05	0.03
	1993	209 ±	131	2616 ±	3086	2825 ±	3072	0.06	0.48	0.31	93 ±	137	366 ±	194	459 ±	237	0.03	0.07	0.05
	1994	765 ±	706	5698 ±	5446	6464 ±	5461	0.21	1.05	0.72									
	1996	123 ±	123	1241 ±	1229	1364 ±	1228	0.03	0.23	0.15	0 ±	0	200 ±	124	200 ±	124	0.00	0.04	0.02
	1998	43 ±	50	120 ±	108	163 ±	118	0.01	0.02	0.02	14 ±	10	134 ±	111	149 ±	111	0.00	0.02	0.02
	2000	163 ±	205	1628 ±	1737	1791 ±	1740	0.05	0.30	0.20	3 ±	5	276 ±	393	279 ±	392	0.00	0.05	0.03
	2004	86 ±	86	262 ±	220	348 ±	234	0.02	0.05	0.04	<0.005 ±	<0.005	40 ±	50	40 ±	50	<0.005	0.01	0.00
	2005	95 ±	98	233 ±	171	328 ±	196	0.03	0.04	0.04	6 ±	7	67 ±	70	73 ±	71	0.00	0.01	0.01
	2007	61 ±	53	19 ±	28	80 ±	59	0.02	<0.005	0.01	17 ±	16	265 ±	453	281 ±	453	<0.005	0.05	0.03
Total Mergansers	1989										650 ±	306	2020 ±	1295	2670 ±	1326	0.18	0.37	0.30
	1990	1563 ±	501	1949 ±	726	3511 ±	875	0.44	0.36	0.39	583 ±	246	3358 ±	2020	3941 ±	2031	0.16	0.62	0.46
	1991	2226 ±	1089	3697 ±	3129	5924 ±	3294	0.62	0.68	0.66	470 ±	291	2218 ±	873	2688 ±	918	0.13	0.41	0.31
	1993	1727 ±	969	7516 ±	4617	9244 ±	4691	0.48	1.39	1.03	575 ±	222	3463 ±	977	4038 ±	1000	0.16	0.64	0.47
	1994	3497 ±	2139	18251 ±	18217	21748 ±	18241	0.98	3.38	2.42									
	1996	2209 ±	1609	4300 ±	1859	6509 ±	2439	0.62	0.80	0.72	625 ±	258	2479 ±	803	3104 ±	842	0.17	0.46	0.36
	1998	2555 ±	1804	20510 ±	18107	23065 ±	18103	0.71	3.80	2.57	458 ±	196	3382 ±	1245	3839 ±	1258	0.13	0.63	0.44
	2000	1151 ±	484	4637 ±	3146	5788 ±	3166	0.32	0.86	0.64	430 ±	197	2978 ±	1107	3408 ±	1122	0.12	0.55	0.39
	2004	1061 ±	739	4529 ±	3444	5590 ±	3502	0.30	0.84	0.62	629 ±	390	3942 ±	3196	4571 ±	3213	0.18	0.73	0.53
	2005	1422 ±	765	2877 ±	1725	4300 ±	1875	0.33	0.53	0.45	862 ±	635	4785 ±	2831	5648 ±	2895	0.24	0.89	0.65
	2007	1763 ±	795	2021 ±	822	3784 ±	1134	0.49	0.37	0.42	794 ±	315	2660 ±	995	3454 ±	1041	0.22	0.49	0.40

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Unidentified Diving/Sea Duck	1989										146 ±	246	230 ±	183	376 ±	305	0.04	0.04	0.04
	1990	226 ±	156	1975 ±	2728	2202 ±	2719	0.06	0.37	0.25	<0.005 ±	<0.005	98 ±	97	98 ±	97	<0.005	0.02	0.01
	1991	1110 ±	936	2116 ±	1168	3227 ±	1486	0.31	0.39	0.36	34 ±	46	974 ±	483	1008 ±	485	0.01	0.18	0.12
	1993	705 ±	638	970 ±	624	1675 ±	884	0.20	0.18	0.19	14 ±	13	641 ±	426	655 ±	425	0.00	0.12	0.08
	1994	263 ±	178	687 ±	501	950 ±	528	0.07	0.13	0.11									
	1996	31 ±	57	77 ±	143	107 ±	153	0.01	0.01	0.01	<0.005 ±	<0.005	60 ±	94	60 ±	94	<0.005	0.01	0.01
	1998	1 ±	2	29 ±	32	30 ±	32	0.00	0.01	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	12 ±	23	60 ±	77	72 ±	79	0.00	0.01	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Duck	1989										1 ±	2	64 ±	82	65 ±	82	0.00	0.01	0.01
	1990	93 ±	187	309 ±	347	402 ±	392	0.03	0.06	0.04	0	0	0	0	0	0	0.00	0.00	0.00
	1991	31 ±	55	45 ±	61	76 ±	81	0.01	0.01	0.01	<0.005 ±	<0.005	20 ±	27	20 ±	27	<0.005	0.00	0.00
	1993	62 ±	77	346 ±	492	408 ±	496	0.02	0.06	0.05	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1994	<0.005 ±	<0.005	24 ±	45	24 ±	45	<0.005	0.00	0.00									
	1996	61 ±	115	207 ±	321	269 ±	339	0.02	0.04	0.03	<0.005 ±	<0.005	39 ±	41	39 ±	41	<0.005	0.01	0.00
	1998	<0.005 ±	<0.005	382 ±	698	382 ±	694	<0.005	0.07	0.04	9 ±	14	79 ±	96	87 ±	97	0.00	0.01	0.01
	2000	1 ±	1	74 ±	72	75 ±	72	0.00	0.01	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2004	196 ±	271	6452 ±	10583	6648 ±	10529	0.05	1.19	0.74	<0.005 ±	<0.005	73 ±	110	73 ±	110	<0.005	0.01	0.01
	2005	433 ±	267	3597 ±	3603	4030 ±	3593	0.09	0.61	0.41	11 ±	19	109 ±	189	121 ±	189	0.00	0.02	0.01
	2007	102 ±	81	1448 ±	1776	1550 ±	1768	0.03	0.27	0.17	144 ±	214	176 ±	173	320 ±	275	0.04	0.03	0.04
Total Waterfowl	1989										4185 ±	3301	5002 ±	2401	9186 ±	4060	1.17	0.93	1.02
	1990	8388 ±	2122	44848 ±	12779	53236 ±	12884	2.34	8.30	5.93	2123 ±	2730	7694 ±	5007	9817 ±	5688	0.59	1.42	1.14
	1991	11494 ±	3126	53024 ±	20440	64518 ±	20567	3.21	9.81	7.18	3605 ±	4225	11307 ±	6770	14911 ±	7959	1.01	2.09	1.73
	1993	15018 ±	3917	84291 ±	21478	99309 ±	21710	4.20	15.60	11.06	9588 ±	8124	17985 ±	7459	27572 ±	10990	2.68	3.33	3.19
	1994	21349 ±	4600	111131 ±	36741	132480 ±	36821	5.97	20.56	14.75									
	1996	16312 ±	3216	81302 ±	16319	97615 ±	16543	4.56	15.04	10.87	2400 ±	847	17372 ±	4210	19772 ±	4286	0.67	3.21	2.29
	1998	14224 ±	3490	154686 ±	107315	168910 ±	106820	3.98	28.62	18.81	3400 ±	1762	15240 ±	4444	18641 ±	4770	0.95	2.82	2.16
	2000	16069 ±	5042	87973 ±	39850	104042 ±	39957	4.49	16.28	11.58	8227 ±	8426	16291 ±	4666	24519 ±	9592	2.30	3.01	2.84
	2004	13991 ±	4010	73525 ±	21800	87515 ±	22042	3.91	13.61	9.74	4094 ±	2958	15115 ±	6102	19209 ±	6764	1.14	2.80	2.22
	2005	15472 ±	10178	47465 ±	11577	62937 ±	15297	4.22	8.73	6.94	2297 ±	886	15190 ±	4150	17487 ±	4234	0.64	2.81	2.02
	2007	11858 ±	2872	51028 ±	10585	62886 ±	10907	3.31	9.44	7.00	2668 ±	1305	22233 ±	8847	24901 ±	8926	0.75	4.11	2.88
Falconiformes																			
Accipitridae:Eagles, Hawks, and Allies																			
Bald Eagle	1989										191 ±	59	929 ±	225	1120 ±	231	0.05	0.17	0.12
	1990	533 ±	147	1086 ±	332	1619 ±	361	0.15	0.20	0.18	311 ±	55	1162 ±	264	1473 ±	269	0.09	0.21	0.17
	1991	549 ±	211	1262 ±	438	1811 ±	483	0.15	0.23	0.20	754 ±	164	1571 ±	310	2325 ±	350	0.21	0.29	0.27
	1993	771 ±	415	1907 ±	805	2678 ±	900	0.22	0.35	0.30	461 ±	82	1925 ±	672	2387 ±	675	0.13	0.36	0.28
	1994	1150 ±	319	3461 ±	2094	4612 ±	2106	0.32	0.64	0.51									
	1996	1022 ±	300	2871 ±	770	3893 ±	821	0.29	0.53	0.43	595 ±	165	2452 ±	712	3046 ±	730	0.17	0.45	0.35
	1998	1928 ±	1418	3001 ±	839	4928 ±	1632	0.54	0.56	0.55	1136 ±	212	3122 ±	879	4258 ±	903	0.32	0.58	0.49
	2000	1195 ±	417	2672 ±	539	3868 ±	677	0.33	0.49	0.43	706 ±	178	1708 ±	512	2414 ±	541	0.20	0.32	0.28
	2004	1699 ±	674	1740 ±	428	3439 ±	791	0.47	0.32	0.38	641 ±	126	1604 ±	445	2245 ±	462	0.18	0.30	0.26
	2005	1264 ±	322	3115 ±	782	4379 ±	840	0.35	0.58	0.49	655 ±	105	1788 ±	390	2443 ±	404	0.18	0.33	0.28
	2007	694 ±	266	2722 ±	1310	3416 ±	1330	0.19	0.50	0.38	684 ±	136	1534 ±	345	2217 ±	370	0.19	0.28	0.26
Northern Harrier	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Sharp-shinned Hawk	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	6 ±	11	<0.005 ±	<0.005	6 ±	11	0.00	<0.005	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Northern Goshawk	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	<0.005 ±	<0.005	7 ±	14	7 ±	13	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	5 ±	10	1 ±	1	6 ±	10	<0.005	<0.005	<0.005	0	0	0	0	0	0	0.00	0.00	0.00
Red-tailed Hawk	1989										<0.005 ±	<0.005	4 ±	7	4 ±	7	<0.005	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	7 ±	7	7 ±	7	<0.005	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Rough-legged Hawk	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Golden Eagle	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	6 ±	11	0	0	6 ±	11	<0.005	0.00	<0.005	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Eagle	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	**Year**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**
Falconidae: Falcons																			
American Kestrel	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Peregrine Falcon	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	3 ±	5	6 ±	7	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	4 ±	8	7 ±	9	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	0	0	3 ±	5	<0.005	0.00	<0.005
Gyrfalcon	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Falcon	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Raptor	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	6 ±	11	<0.005 ±	<0.005	6 ±	11	0.00	<0.005	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		March DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		July DENSITIES Oil	Unoil	Total
Galliformes																			
Phasianoidea: Grouse and Ptarmigan																			
Unidentified Ptarmigan	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Gruiformes																			
Rallidae: Rails, Gallinules, and Coots																			
Sandhill Crane	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Charadriiformes																			
Charadriidae: Plovers																			
Semipalmated Plover	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0 ±	0	6 ±	10	7 ±	10	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Plover	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Haematopodidae: Oystercatchers																			
Black Oystercatcher	1989										114 ±	55	318 ±	111	432 ±	124	0.03	0.06	0.05
	1990	0 ±	0	15 ±	19	15 ±	19	0.00	0.00	0.00	162 ±	76	604 ±	184	766 ±	199	0.05	0.11	0.09
	1991	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	146 ±	73	627 ±	303	773 ±	311	0.04	0.12	0.09
	1993	12 ±	16	<0.005 ±	<0.005	12 ±	16	0.00	<0.005	0.00	218 ±	81	645 ±	206	864 ±	221	0.06	0.12	0.10
	1994	6 ±	12	8 ±	15	14 ±	19	0.00	0.00	0.00									
	1996	19 ±	25	15 ±	27	34 ±	37	0.01	0.00	0.00	199 ±	63	555 ±	179	754 ±	189	0.06	0.10	0.09
	1998	1 ±	2	66 ±	84	67 ±	84	0.00	0.01	0.01	196 ±	58	819 ±	239	1014 ±	246	0.05	0.15	0.12
	2000	3 ±	5	116 ±	213	119 ±	212	0.00	0.02	0.01	182 ±	64	710 ±	273	893 ±	280	0.05	0.13	0.10
	2004	0	0	0	0	0	0	0.00	0.00	0.00	196 ±	126	599 ±	249	794 ±	278	0.05	0.11	0.09
	2005	37 ±	68	214 ±	349	251 ±	353	0.01	0.04	0.03	141 ±	57	679 ±	276	819 ±	281	0.04	0.13	0.09
	2007	0	0	0	0	0	0	0.00	0.00	0.00	126 ±	56	553 ±	236	680 ±	242	0.04	0.10	0.08

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Charadriidaae: Plovers										
Black-bellied Plover	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	6 ±	11	<0.005 ±	<0.005	6 ±	11	0.00	<0.005	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Scolopacidae: Sandpipers, Phalaropes, and Allies										
Greater Yellowlegs	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Lesser Yellowlegs	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Yellowlegs	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Solitary Sandpiper	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Wandering Tattler	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Spotted Sandpiper	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Charadriidaae: Plovers										
Black-bellied Plover	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	7 ±	11	7 ±	11	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Scolopacidae: Sandpipers, Phalaropes, and Allies										
Greater Yellowlegs	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	20 ±	32	20 ±	32	<0.005	0.00	0.00
	1998	0 ±	1	17 ±	22	18 ±	22	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Lesser Yellowlegs	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	<0.005 ±	<0.005	11 ±	13	11 ±	13	<0.005	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	18 ±	24	18 ±	24	<0.005	0.00	0.00
	2005	<0.005 ±	<0.005	5 ±	8	5 ±	8	<0.005	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Yellowlegs	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Solitary Sandpiper	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	6 ±	6	<0.005 ±	<0.005	6 ±	6	0.00	<0.005	0.00
	2005	23 ±	38	10 ±	16	33 ±	41	0.01	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Wandering Tattler	1989	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1990	3 ±	5	82 ±	72	84 ±	72	0.00	0.02	0.01
	1991	<0.005 ±	<0.005	8 ±	9	8 ±	9	<0.005	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	6 ±	6	91 ±	49	96 ±	49	0.00	0.02	0.01
	1998	0 ±	0	21 ±	32	21 ±	32	0.00	0.00	0.00
	2000	6 ±	10	30 ±	22	36 ±	24	0.00	0.01	0.00
	2004	<0.005 ±	<0.005	14 ±	14	14 ±	14	<0.005	0.00	0.00
	2005	3 ±	5	8 ±	10	11 ±	11	0.00	0.00	0.00
	2007	0	0	3 ±	5	3 ±	5	0.00	<0.005	<0.005
Spotted Sandpiper	1989	<0.005 ±	<0.005	13 ±	13	13 ±	13	<0.005	0.00	0.00
	1990	6 ±	9	43 ±	24	48 ±	25	0.00	0.01	0.01

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Whimbrel	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Black Turnstone	1989									
	1990	37 ±	59	<0.005 ±	<0.005	37 ±	59	0.01	<0.005	0.00
	1991	<0.005 ±	<0.005	303 ±	550	303 ±	547	<0.005	0.06	0.03
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	31 ±	57	<0.005 ±	<0.005	31 ±	57	0.01	<0.005	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	166 ±	264	240 ±	423	405 ±	495	0.05	0.04	0.05
	2000	12 ±	23	<0.005 ±	<0.005	12 ±	23	0.00	<0.005	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Ruddy Turnstone	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	1 ±	1	30 ±	55	31 ±	55	0.00	0.01	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Turnstone	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Surfbird	1989									
	1990	626 ±	1150	280 ±	520	906 ±	1250	0.17	0.05	0.10
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	250 ±	384	250 ±	382	<0.005	0.05	0.03
	1996	614 ±	1161	92 ±	167	706 ±	1160	0.17	0.02	0.08
	1998	258 ±	357	<0.005 ±	<0.005	258 ±	354	0.07	<0.005	0.03
	2000	491 ±	851	150 ±	165	641 ±	858	0.14	0.03	0.07
	2004	294 ±	552	658 ±	688	952 ±	875	0.08	0.12	0.11
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	408 ±	575	408 ±	572	0.00	0.08	0.05

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
	1991	8 ±	10	12 ±	12	21 ±	16	0.00	0.00	0.00
	1993	8 ±	10	<0.005 ±	<0.005	8 ±	10	0.00	<0.005	0.00
	1994									
	1996	20 ±	13	65 ±	38	85 ±	40	0.01	0.01	0.01
	1998	6 ±	7	57 ±	78	63 ±	78	0.00	0.01	0.01
	2000	3 ±	5	63 ±	33	66 ±	34	0.00	0.01	0.01
	2004	14 ±	12	13 ±	10	27 ±	16	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	6 ±	6	8 ±	9	13 ±	11	<0.005	<0.005	<0.005
Whimbrel	1989	<0.005 ±	<0.005	108 ±	132	108 ±	131	<0.005	0.02	0.01
	1990	17 ±	27	22 ±	28	39 ±	39	0.00	0.00	0.00
	1991	14 ±	22	16 ±	27	30 ±	35	0.00	0.00	0.00
	1993	6 ±	9	58 ±	74	64 ±	74	0.00	0.01	0.01
	1994									
	1996	3 ±	5	57 ±	63	60 ±	64	0.00	0.01	0.01
	1998	<0.005 ±	<0.005	20 ±	32	20 ±	32	<0.005	0.00	0.00
	2000	<0.005 ±	<0.005	67 ±	93	67 ±	93	<0.005	0.01	0.01
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	5 ±	8	5 ±	8	<0.005	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Black Turnstone	1989	16 ±	26	5153 ±	8880	5169 ±	8853	0.00	0.95	0.58
	1990	319 ±	361	484 ±	661	802 ±	751	0.09	0.09	0.09
	1991	22 ±	26	<0.005 ±	<0.005	22 ±	26	0.01	<0.005	0.00
	1993	42 ±	46	27 ±	46	69 ±	65	0.01	0.00	0.01
	1994									
	1996	11 ±	13	28 ±	28	39 ±	31	0.00	0.01	0.00
	1998	38 ±	41	152 ±	198	190 ±	201	0.01	0.03	0.02
	2000	<0.005 ±	<0.005	49 ±	84	49 ±	84	<0.005	0.01	0.01
	2004	45 ±	72	<0.005 ±	<0.005	45 ±	72	0.01	<0.005	0.01
	2005	9 ±	14	<0.005 ±	<0.005	9 ±	14	0.00	<0.005	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Ruddy Turnstone	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	22 ±	37	111 ±	182	134 ±	185	0.01	0.02	0.02
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Turnstone	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Surfbird	1989	558 ±	762	121 ±	210	679 ±	786	0.16	0.02	0.08
	1990	592 ±	674	94 ±	101	686 ±	678	0.17	0.02	0.08
	1991	2361 ±	2354	1519 ±	2377	3880 ±	3334	0.66	0.28	0.45
	1993	421 ±	645	3864 ±	4493	4285 ±	4530	0.12	0.72	0.50
	1994									
	1996	892 ±	879	751 ±	862	1642 ±	1227	0.25	0.14	0.19
	1998	3021 ±	2295	768 ±	693	3789 ±	2386	0.84	0.14	0.44
	2000	376 ±	485	428 ±	691	803 ±	841	0.11	0.08	0.09
	2004	436 ±	606	96 ±	130	532 ±	617	0.12	0.02	0.06
	2005	5143 ±	8634	563 ±	622	5706 ±	8614	1.44	0.10	0.66
	2007	292 ±	345	373 ±	417	664 ±	539	0.08	0.07	0.08

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Sanderling	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Semipalmated Sandpiper	1989										<0.005 ±	<0.005	9 ±	15	9 ±	15	<0.005	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Western Sandpiper	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0 ±	1	16 ±	26	16 ±	26	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Least Sandpiper	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	11 ±	14	<0.005 ±	<0.005	11 ±	14	0.00	<0.005	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	222 ±	413	222 ±	411	0.00	0.04	0.02	0	0	0	0	0	0	0.00	0.00	0.00
Pectoral Sandpiper	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Rock Sandpiper	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	<0.005 ±	<0.005	435 ±	728	435 ±	724	<0.005	0.08	0.05	109 ±	132	<0.005 ±	<0.005	109 ±	131	0.03	<0.005	0.01
	1994	344 ±	341	1315 ±	1963	1659 ±	1981	0.10	0.24	0.18									
	1996	<0.005 ±	<0.005	169 ±	196	169 ±	195	<0.005	0.03	0.02	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1998	433 ±	791	2241 ±	2218	2674 ±	2341	0.12	0.41	0.30	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	6170 ±	6253	6170 ±	6221	<0.005	1.14	0.69	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	861 ±	1240	861 ±	1234	<0.005	0.16	0.10	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	12 ±	22	564 ±	965	575 ±	960	<0.005	0.10	0.06	0	0	4 ±	8	4 ±	8	0.00	<0.005	<0.005

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Dunlin	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	8 ±	14	<0.005 ±	<0.005	8 ±	14	0.00	<0.005	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Short-billed Dowitcher	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	16 ±	26	16 ±	26	<0.005	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Long-billed Dowitcher	1989										6 ±	10	<0.005 ±	<0.005	6 ±	10	0.00	<0.005	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Dowitcher	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Red-necked Phalarope	1989										1639 ±	1845	8062 ±	8864	9701 ±	9025	0.46	1.49	1.08
	1990	0	0	0	0	0	0	0.00	0.00	0.00	721 ±	642	1693 ±	1137	2414 ±	1303	0.20	0.31	0.28
	1991	0	0	0	0	0	0	0.00	0.00	0.00	3045 ±	2577	16173 ±	27045	19218 ±	27116	0.85	2.99	2.22
	1993	0	0	0	0	0	0	0.00	0.00	0.00	235 ±	407	1703 ±	1667	1938 ±	1713	0.07	0.32	0.22
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	1176 ±	1038	6251 ±	4115	7427 ±	4236	0.33	1.16	0.86
	1998	0	0	0	0	0	0	0.00	0.00	0.00	589 ±	564	2114 ±	1729	2703 ±	1815	0.16	0.39	0.31
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	111 ±	182	23 ±	40	134 ±	186	0.03	0.00	0.02
	2005	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	273 ±	472	273 ±	471	<0.005	0.05	0.03
	2007	0	0	0	0	0	0	0.00	0.00	0.00	223 ±	367	4137 ±	2801	4360 ±	2820	0.06	0.77	0.50
Red Phalarope	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	259 ±	450	259 ±	449	<0.005	0.05	0.03
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Unidentified Phalarope	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	15 ±	23	148 ±	257	163 ±	258	0.00	0.03	0.02
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	121 ±	202	121 ±	202	<0.005	0.02	0.01
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	604 ±	1086	<0.005 ±	<0.005	604 ±	1081	0.17	<0.005	0.07
	1998	0	0	0	0	0	0	0.00	0.00	0.00	167 ±	157	667 ±	1034	834 ±	1044	0.05	0.12	0.10
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	302 ±	475	302 ±	474	<0.005	0.06	0.03
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Calidris sp.	1989										<0.005 ±	<0.005	603 ±	852	603 ±	849	<0.005	0.11	0.07
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	14 ±	23	27 ±	29	41 ±	37	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	172 ±	252	172 ±	251	<0.005	0.03	0.02
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentifed Sandpiper	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	18 ±	31	18 ±	31	<0.005	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	124 ±	165	124 ±	165	<0.005	0.02	0.01
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	82 ±	134	82 ±	134	<0.005	0.02	0.01
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	26 ±	37	26 ±	37	0.00	<0.005	<0.005
Unidentified Shorebird	1989										361 ±	431	184 ±	127	545 ±	446	0.10	0.03	0.06
	1990	3 ±	5	2544 ±	3128	2547 ±	3112	0.00	0.47	0.28	75 ±	94	679 ±	513	754 ±	521	0.02	0.13	0.09
	1991	31 ±	57	<0.005 ±	<0.005	31 ±	56	0.01	<0.005	0.00	27 ±	29	116 ±	83	143 ±	88	0.01	0.02	0.02
	1993	37 ±	69	155 ±	289	192 ±	296	0.01	0.03	0.02	48 ±	56	71 ±	52	118 ±	76	0.01	0.01	0.01
	1994	92 ±	172	323 ±	605	415 ±	625	0.03	0.06	0.05									
	1996	6 ±	11	1136 ±	1489	1142 ±	1481	0.00	0.21	0.13	<0.005 ±	<0.005	13 ±	24	13 ±	24	<0.005	0.00	0.00
	1998	<0.005 ±	<0.005	187 ±	337	187 ±	336	<0.005	0.03	0.02	<0.005 ±	<0.005	287 ±	416	287 ±	415	<0.005	0.05	0.03
	2000	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	3 ±	5	6 ±	7	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	1957 ±	2636	1957 ±	2622	<0.005	0.36	0.22	1222 ±	2172	21 ±	20	1243 ±	2162	0.34	0.00	0.14
	2005	<0.005 ±	<0.005	41 ±	69	41 ±	68	<0.005	0.01	0.00	247 ±	351	209 ±	258	456 ±	434	0.07	0.04	0.05
	2007	0	0	0	0	0	0	0.00	0.00	0.00	62 ±	92	13 ±	16	75 ±	93	0.02	<0.005	0.01
Total Shorebirds	1989										1058 ±	882	6509 ±	9777	7567 ±	9787	0.30	1.20	0.84
	1990	665 ±	1164	2839 ±	3164	3504 ±	3351	0.19	0.53	0.39	1172 ±	918	2012 ±	879	3184 ±	1267	0.33	0.37	0.37
	1991	31 ±	57	310 ±	550	341 ±	550	0.01	0.06	0.04	2593 ±	2407	2325 ±	2394	4919 ±	3383	0.72	0.43	0.57
	1993	50 ±	71	620 ±	782	670 ±	781	0.01	0.11	0.07	855 ±	703	4715 ±	4503	5570 ±	4549	0.24	0.87	0.64
	1994	472 ±	499	1896 ±	2066	2369 ±	2113	0.13	0.35	0.26									
	1996	638 ±	1162	1412 ±	1495	2050 ±	1879	0.18	0.26	0.23	1166 ±	947	1697 ±	961	2863 ±	1345	0.33	0.31	0.33
	1998	863 ±	1406	2734 ±	2290	3597 ±	2669	0.24	0.51	0.40	3261 ±	2332	2459 ±	1183	5720 ±	2604	0.91	0.46	0.66
	2000	506 ±	875	6436 ±	6245	6942 ±	6273	0.14	1.19	0.77	570 ±	511	1351 ±	781	1921 ±	931	0.16	0.25	0.22
	2004	294 ±	552	3476 ±	2985	3770 ±	3019	0.08	0.64	0.42	1917 ±	2266	843 ±	317	2761 ±	2278	0.54	0.16	0.32
	2005	37 ±	68	255 ±	356	292 ±	360	0.01	0.05	0.03	5567 ±	8642	1478 ±	726	7045 ±	8629	1.56	0.27	0.82
	2007	12 ±	22	971 ±	1121	983 ±	1115	<0.005	0.18	0.11	485 ±	358	980 ±	495	1466 ±	610	0.14	0.18	0.17
Laridae: Gulls and Terns																			
Pomarine Jaeger	1989										382 ±	335	1125 ±	687	1508 ±	762	0.11	0.21	0.17
	1990	0	0	0	0	0	0	0.00	0.00	0.00	279 ±	214	419 ±	327	699 ±	390	0.08	0.08	0.08
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	89 ±	85	280 ±	246	369 ±	259	0.03	0.05	0.04
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	39 ±	64	105 ±	125	144 ±	140	0.01	0.02	0.02
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	40 ±	68	40 ±	67	<0.005	0.01	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	37 ±	61	81 ±	135	119 ±	148	0.01	0.02	0.01
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Parasitic Jaeger	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Long-tailed Jaeger	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Jaeger	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Total Jaegers	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Bonaparte's Gull	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	94 ±	177	<0.005 ±	<0.005	94 ±	175	0.03	<0.005	0.01
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	7 ±	14	7 ±	14	0.00	<0.005	<0.005
Mew Gull	1989									
	1990	406 ±	252	2137 ±	1258	2543 ±	1276	0.11	0.40	0.28
	1991	3825 ±	1974	5960 ±	2670	9785 ±	3296	1.07	1.10	1.09
	1993	653 ±	357	8416 ±	9961	9069 ±	9914	0.18	1.56	1.01
	1994	5709 ±	2109	6882 ±	2558	12590 ±	3290	1.60	1.27	1.40
	1996	5912 ±	4785	14413 ±	10595	20324 ±	11553	1.65	2.67	2.26
	1998	2480 ±	2136	4337 ±	2603	6817 ±	3342	0.69	0.80	0.76
	2000	972 ±	963	2133 ±	1402	3106 ±	1689	0.27	0.39	0.35
	2004	721 ±	636	1041 ±	521	1762 ±	815	0.20	0.19	0.20
	2005	6334 ±	3406	2592 ±	942	8926 ±	3497	1.77	0.48	0.99
	2007	3975 ±	1517	25738 ±	34003	29713 ±	33863	1.11	4.76	3.31

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Parasitic Jaeger	1989	228 ±	227	277 ±	206	505 ±	305	0.06	0.05	0.06
	1990	<0.005 ±	<0.005	56 ±	93	56 ±	93	<0.005	0.01	0.01
	1991	100 ±	124	270 ±	210	371 ±	243	0.03	0.05	0.04
	1993	40 ±	64	87 ±	91	127 ±	111	0.01	0.02	0.01
	1994									
	1996	61 ±	102	280 ±	300	341 ±	316	0.02	0.05	0.04
	1998	<0.005 ±	<0.005	9 ±	15	9 ±	15	<0.005	0.00	0.00
	2000	39 ±	64	174 ±	173	213 ±	184	0.01	0.03	0.02
	2004	127 ±	228	121 ±	144	248 ±	269	0.04	0.02	0.03
	2005	<0.005 ±	<0.005	180 ±	178	180 ±	178	<0.005	0.03	0.02
	2007	40 ±	62	333 ±	404	374 ±	408	0.01	0.06	0.04
Long-tailed Jaeger	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1991	<0.005 ±	<0.005	63 ±	93	63 ±	93	<0.005	0.01	0.01
	1993	75 ±	123	<0.005 ±	<0.005	75 ±	122	0.02	<0.005	0.01
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	4 ±	8	102 ±	125	106 ±	125	0.00	0.02	0.01
	2005	3 ±	5	50 ±	86	53 ±	86	0.00	0.01	0.01
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Jaeger	1989	815 ±	810	728 ±	486	1543 ±	939	0.23	0.13	0.17
	1990	304 ±	264	233 ±	213	538 ±	338	0.09	0.04	0.06
	1991	75 ±	83	41 ±	68	115 ±	106	0.02	0.01	0.01
	1993	<0.005 ±	<0.005	186 ±	157	186 ±	157	<0.005	0.03	0.02
	1994									
	1996	6 ±	9	<0.005 ±	<0.005	6 ±	9	0.00	<0.005	0.00
	1998	<0.005 ±	<0.005	171 ±	193	171 ±	193	<0.005	0.03	0.02
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	53 ±	93	53 ±	93	<0.005	0.01	0.01
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	21 ±	32	192 ±	171	214 ±	174	0.01	0.04	0.02
Total Jaegers	1989	1426 ±	876	2130 ±	947	3556 ±	1284	0.40	0.39	0.40
	1990	584 ±	468	712 ±	408	1296 ±	619	0.16	0.13	0.15
	1991	175 ±	146	374 ±	230	549 ±	272	0.05	0.07	0.06
	1993	204 ±	191	553 ±	339	757 ±	388	0.06	0.10	0.09
	1994									
	1996	106 ±	120	385 ±	323	491 ±	344	0.03	0.07	0.06
	1998	<0.005 ±	<0.005	225 ±	205	225 ±	205	<0.005	0.04	0.03
	2000	39 ±	64	174 ±	173	213 ±	184	0.01	0.03	0.02
	2004	168 ±	237	357 ±	245	525 ±	339	0.05	0.07	0.06
	2005	3 ±	5	230 ±	196	233 ±	195	0.00	0.04	0.03
	2007	61 ±	68	526 ±	414	587 ±	418	0.02	0.10	0.07
Bonaparte's Gull	1989	221 ±	173	2249 ±	1811	2469 ±	1814	0.06	0.42	0.27
	1990	45 ±	72	1378 ±	1136	1423 ±	1136	0.01	0.26	0.16
	1991	14 ±	11	809 ±	679	823 ±	678	0.00	0.15	0.10
	1993	<0.005 ±	<0.005	2108 ±	1624	2108 ±	1621	<0.005	0.39	0.24
	1994									
	1996	106 ±	130	1513 ±	1319	1620 ±	1322	0.03	0.28	0.19
	1998	42 ±	63	558 ±	625	600 ±	627	0.01	0.10	0.07
	2000	6 ±	6	2563 ±	4059	2568 ±	4051	0.00	0.47	0.30
	2004	6 ±	6	679 ±	775	685 ±	773	0.00	0.13	0.08
	2005	56 ±	68	1559 ±	1702	1615 ±	1700	0.02	0.29	0.19
	2007	52 ±	92	1254 ±	783	1306 ±	787	0.01	0.23	0.15
Mew Gull	1989	624 ±	219	5021 ±	1873	5645 ±	1879	0.17	0.93	0.63
	1990	1112 ±	647	7142 ±	2679	8254 ±	2751	0.31	1.32	0.95
	1991	288 ±	99	2990 ±	1077	3278 ±	1080	0.08	0.55	0.38
	1993	759 ±	276	4594 ±	1306	5353 ±	1332	0.21	0.85	0.62
	1994									
	1996	1258 ±	396	12906 ±	5438	14164 ±	5443	0.35	2.39	1.64
	1998	686 ±	250	4932 ±	1631	5618 ±	1647	0.19	0.91	0.65
	2000	723 ±	266	6041 ±	1836	6764 ±	1852	0.20	1.12	0.78
	2004	388 ±	139	2713 ±	1006	3101 ±	1014	0.11	0.50	0.36
	2005	188 ±	78	2260 ±	829	2448 ±	831	0.05	0.42	0.28
	2007	571 ±	301	4718 ±	1907	5290 ±	1927	0.16	0.87	0.61

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Herring Gull	1989										3 ±	5	4 ±	8	7 ±	9	0.00	0.00	0.00
	1990	98 ±	157	56 ±	71	154 ±	170	0.03	0.01	0.02	8 ±	8	117 ±	127	125 ±	127	0.00	0.02	0.01
	1991	39 ±	77	56 ±	107	96 ±	131	0.01	0.01	0.01	124 ±	145	91 ±	103	214 ±	177	0.03	0.02	0.02
	1993	318 ±	256	540 ±	481	858 ±	541	0.09	0.10	0.10	28 ±	32	20 ±	19	48 ±	37	0.01	0.00	0.01
	1994	357 ±	398	1630 ±	1993	1987 ±	2020	0.10	0.30	0.22									
	1996	12 ±	16	48 ±	69	60 ±	71	0.00	0.01	0.01	49 ±	63	9 ±	11	58 ±	63	0.01	0.00	0.01
	1998	114 ±	97	562 ±	781	676 ±	783	0.03	0.10	0.08	44 ±	63	9 ±	15	53 ±	64	0.01	0.00	0.01
	2000	139 ±	172	168 ±	173	306 ±	242	0.04	0.03	0.03	6 ±	6	139 ±	135	144 ±	135	0.00	0.03	0.02
	2004	666 ±	557	243 ±	209	910 ±	588	0.19	0.05	0.10	55 ±	63	727 ±	438	782 ±	442	0.02	0.13	0.09
	2005	1231 ±	714	800 ±	405	2031 ±	813	0.34	0.15	0.23	37 ±	61	<0.005 ±	<0.005	37 ±	61	0.01	<0.005	0.00
	2007	149 ±	140	158 ±	115	307 ±	180	0.04	0.03	0.03	36 ±	39	382 ±	269	419 ±	271	0.01	0.07	0.05
Thayer's Gull	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Glaucous-winged Gull	1989										5035 ±	1867	16220 ±	4441	21255 ±	4801	1.41	3.00	2.37
	1990	4322 ±	1562	4120 ±	1059	8442 ±	1870	1.21	0.76	0.94	10506 ±	3272	21473 ±	6960	31979 ±	7672	2.94	3.97	3.70
	1991	3659 ±	2020	6567 ±	3066	10226 ±	3646	1.02	1.22	1.14	6634 ±	2942	18473 ±	4571	25107 ±	5421	1.85	3.42	2.90
	1993	4302 ±	3206	5751 ±	3349	10053 ±	4596	1.20	1.06	1.12	7624 ±	3700	25991 ±	9740	33616 ±	10395	2.13	4.81	3.89
	1994	18103 ±	16571	24377 ±	8658	42480 ±	18515	5.06	4.51	4.73									
	1996	6894 ±	4597	7042 ±	2880	13936 ±	5373	1.93	1.30	1.55	6779 ±	4696	18316 ±	4451	25095 ±	6449	1.89	3.39	2.90
	1998	3868 ±	1980	10755 ±	7086	14623 ±	7317	1.08	1.99	1.63	7672 ±	3582	16381 ±	5030	24053 ±	6157	2.14	3.03	2.78
	2000	2742 ±	2295	10015 ±	4291	12757 ±	4835	0.77	1.85	1.42	6650 ±	3052	20935 ±	6503	27585 ±	7166	1.86	3.87	3.19
	2004	3946 ±	2407	5439 ±	2679	9385 ±	3573	1.10	1.01	1.04	9023 ±	4226	27237 ±	6619	36260 ±	7831	2.52	5.04	4.20
	2005	19087 ±	7169	16277 ±	5325	35364 ±	8852	5.34	3.01	3.94	7896 ±	3104	20011 ±	7886	27907 ±	8455	2.21	3.70	3.23
	2007	4867 ±	2655	8007 ±	3139	12874 ±	4081	1.36	1.48	1.43	19282 ±	13034	28821 ±	15395	48103 ±	20110	5.39	5.33	5.57
Glaucous Gull	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	4	<0.005 ±	<0.005	3 ±	4	0.00	<0.005	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	16 ±	30	197 ±	343	214 ±	344	0.00	0.04	0.02
	2000	6 ±	11	<0.005 ±	<0.005	6 ±	11	0.00	<0.005	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	76 ±	129	76 ±	128	<0.005	0.01	0.01	6 ±	7	<0.005 ±	<0.005	6 ±	7	0.00	<0.005	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Black-legged Kittiwake	1989										24968 ±	5511	33674 ±	7689	58642 ±	9420	6.98	6.23	6.53
	1990	56 ±	68	101 ±	96	157 ±	117	0.02	0.02	0.02	20603 ±	6728	21588 ±	5447	42191 ±	8625	5.76	3.99	4.88
	1991	401 ±	250	442 ±	377	843 ±	449	0.11	0.08	0.09	28015 ±	6208	33581 ±	7109	61596 ±	9409	7.83	6.21	7.13
	1993	2610 ±	2888	682 ±	427	3292 ±	2884	0.73	0.13	0.37	25221 ±	8801	47872 ±	23070	73093 ±	24637	7.05	8.86	8.46
	1994	956 ±	907	3495 ±	1976	4451 ±	2160	0.27	0.65	0.50									
	1996	1777 ±	959	3502 ±	1886	5279 ±	2102	0.50	0.65	0.59	12305 ±	4241	35921 ±	18147	48227 ±	18598	3.44	6.65	5.58
	1998	2098 ±	1123	10500 ±	5990	12598 ±	6062	0.59	1.94	1.40	12398 ±	3881	22678 ±	6280	35076 ±	7363	3.47	4.20	4.06
	2000	1671 ±	1464	4530 ±	2565	6201 ±	2934	0.47	0.84	0.69	12064 ±	4261	15919 ±	6144	27983 ±	7456	3.37	2.95	3.24
	2004	892 ±	821	8676 ±	11694	9568 ±	11659	0.25	1.61	1.07	6819 ±	1718	27590 ±	7421	34409 ±	7602	1.91	5.11	3.98
	2005	2486 ±	1070	13417 ±	5340	15903 ±	5416	0.69	2.48	1.77	22722 ±	6029	32395 ±	11980	55117 ±	13377	6.35	5.99	6.38
	2007	342 ±	310	608 ±	342	950 ±	458	0.10	0.11	0.11	47127 ±	35311	63193 ±	40016	110320 ±	53201	13.17	11.69	12.76
Sabine's Gull	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	127 ±	213	<0.005 ±	<0.005	127 ±	212	0.04	<0.005	0.01
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Unidentified Gull	1989									
	1990	753 ±	588	3472 ±	4678	4225 ±	4690	0.21	0.64	0.47
	1991	359 ±	246	1081 ±	934	1440 ±	960	0.10	0.20	0.16
	1993	5697 ±	7030	12850 ±	9622	18547 ±	11824	1.59	2.38	2.06
	1994	685 ±	467	3247 ±	2128	3932 ±	2166	0.19	0.60	0.44
	1996	37 ±	62	1354 ±	1447	1392 ±	1441	0.01	0.25	0.15
	1998	204 ±	199	343 ±	345	546 ±	396	0.06	0.06	0.06
	2000	461 ±	381	1031 ±	925	1492 ±	995	0.13	0.19	0.17
	2004	1436 ±	852	2283 ±	1441	3719 ±	1663	0.40	0.42	0.41
	2005	2391 ±	882	2270 ±	1006	4661 ±	1328	0.67	0.42	0.52
	2007	1418 ±	387	1032 ±	593	2451 ±	703	0.40	0.19	0.27
Total Gulls	1989									
	1990	5537 ±	1943	9830 ±	5123	15368 ±	5447	1.55	1.82	1.71
	1991	8339 ±	2921	14049 ±	4512	22388 ±	5338	2.33	2.60	2.49
	1993	13580 ±	8827	28238 ±	14703	41818 ±	17026	3.80	5.23	4.66
	1994	25810 ±	17236	39630 ±	12424	65441 ±	21055	7.21	7.33	7.29
	1996	14632 ±	5855	26359 ±	14092	40991 ±	15167	4.09	4.88	4.56
	1998	8650 ±	3853	25934 ±	10552	34585 ±	11168	2.42	4.80	3.85
	2000	5853 ±	3276	17709 ±	5935	23562 ±	6735	1.64	3.28	2.62
	2004	7661 ±	3013	17682 ±	12337	25343 ±	12627	2.14	3.27	2.82
	2005	31529 ±	9907	35432 ±	7798	66961 ±	12498	8.81	6.56	7.46
	2007	10751 ±	3214	35550 ±	33989	46301 ±	33965	3.01	6.58	5.16
Caspian Tern	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Arctic Tern	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Aleutian Tern	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Tern	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Unidentified Gull	1989	1888 ±	2760	11175 ±	7619	13063 ±	8075	0.53	2.07	1.45
	1990	553 ±	268	4422 ±	2096	4975 ±	2109	0.15	0.82	0.58
	1991	156 ±	120	3968 ±	1789	4124 ±	1790	0.04	0.73	0.48
	1993	31 ±	21	2479 ±	2147	2510 ±	2143	0.01	0.46	0.29
	1994									
	1996	177 ±	144	411 ±	248	587 ±	286	0.05	0.08	0.07
	1998	127 ±	123	2015 ±	1770	2142 ±	1771	0.04	0.37	0.25
	2000	11 ±	14	4883 ±	8185	4894 ±	8169	0.00	0.90	0.57
	2004	163 ±	127	1993 ±	1684	2155 ±	1685	0.05	0.37	0.25
	2005	328 ±	219	3578 ±	1909	3905 ±	1917	0.09	0.66	0.45
	2007	680 ±	615	1654 ±	741	2334 ±	960	0.19	0.31	0.27
Total Gulls	1989	32735 ±	7165	68339 ±	14025	101075 ±	15689	9.15	12.65	11.25
	1990	32818 ±	9218	56004 ±	12424	88822 ±	15425	9.17	10.36	10.28
	1991	35106 ±	7780	59822 ±	10080	94928 ±	12696	9.81	11.07	10.98
	1993	33666 ±	10108	83064 ±	25552	116730 ±	27416	9.41	15.37	13.51
	1994									
	1996	20677 ±	7191	69076 ±	20113	89753 ±	21313	5.78	12.78	10.38
	1998	21068 ±	6174	46761 ±	11419	67829 ±	12948	5.89	8.65	7.85
	2000	19454 ±	5674	50340 ±	14680	69794 ±	15704	5.44	9.32	8.08
	2004	16452 ±	5246	60940 ±	11646	77392 ±	12742	4.60	11.28	8.95
	2005	31233 ±	7921	59802 ±	15698	91035 ±	17538	8.73	11.07	10.53
	2007	67749 ±	47054	100023 ±	53337	167772 ±	70903	18.94	18.51	19.41
Caspian Tern	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	40 ±	67	40 ±	67	<0.005	0.01	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	2000	<0.005 ±	<0.005	41 ±	34	41 ±	34	<0.005	0.01	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	4 ±	8	4 ±	8	0.00	<0.005	<0.005
Arctic Tern	1989	2531 ±	1570	4748 ±	1852	7279 ±	2417	0.71	0.88	0.81
	1990	2370 ±	912	3870 ±	1505	6240 ±	1755	0.66	0.72	0.72
	1991	1263 ±	627	4961 ±	1214	6224 ±	1363	0.35	0.92	0.72
	1993	1321 ±	1000	7236 ±	4725	8558 ±	4820	0.37	1.34	0.99
	1994									
	1996	1777 ±	1053	3075 ±	1252	4852 ±	1631	0.50	0.57	0.56
	1998	946 ±	493	1472 ±	875	2418 ±	1002	0.26	0.27	0.28
	2000	1124 ±	548	1772 ±	1139	2896 ±	1261	0.31	0.33	0.34
	2004	269 ±	196	2295 ±	1472	2563 ±	1482	0.08	0.42	0.30
	2005	821 ±	717	1569 ±	1555	2389 ±	1708	0.23	0.29	0.28
	2007	1126 ±	1431	954 ±	846	2079 ±	1656	0.31	0.18	0.24
Aleutian Tern	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	15 ±	25	308 ±	476	323 ±	476	0.00	0.06	0.04
	1993	89 ±	124	25 ±	43	114 ±	131	0.02	0.00	0.01
	1994									
	1996	<0.005 ±	<0.005	320 ±	542	320 ±	541	<0.005	0.06	0.04
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	457 ±	677	767 ±	949	1224 ±	1163	0.13	0.14	0.14
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	40 ±	67	40 ±	67	0.00	0.01	<0.005
Unidentified Tern	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	86 ±	124	191 ±	286	278 ±	311	0.02	0.04	0.03
	1993	188 ±	308	293 ±	261	481 ±	403	0.05	0.05	0.06
	1994									
	1996	127 ±	228	98 ±	95	224 ±	246	0.04	0.02	0.03
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	1366 ±	2227	1366 ±	2222	<0.005	0.25	0.16
	2007	0	0	0	0	0	0	0.00	0.00	0.00

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Total Terns	1989										2531 ±	1570	4748 ±	1852	7279 ±	2417	0.71	0.88	0.81
	1990	0	0	0	0	0	0	0.00	0.00	0.00	2370 ±	912	3870 ±	1505	6240 ±	1755	0.66	0.72	0.72
	1991	0	0	0	0	0	0	0.00	0.00	0.00	1364 ±	632	5501 ±	1386	6865 ±	1520	0.38	1.02	0.79
	1993	0	0	0	0	0	0	0.00	0.00	0.00	1598 ±	1006	7554 ±	4731	9153 ±	4828	0.45	1.40	1.06
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	1904 ±	1063	3493 ±	1313	5396 ±	1684	0.53	0.65	0.62
	1998	0	0	0	0	0	0	0.00	0.00	0.00	946 ±	493	1477 ±	875	2423 ±	1002	0.26	0.27	0.28
	2000	0	0	0	0	0	0	0.00	0.00	0.00	1124 ±	548	1813 ±	1140	2937 ±	1262	0.31	0.34	0.34
	2004	0	0	0	0	0	0	0.00	0.00	0.00	726 ±	693	3061 ±	1745	3787 ±	1873	0.20	0.57	0.44
	2005	0	0	0	0	0	0	0.00	0.00	0.00	821 ±	717	2935 ±	3735	3756 ±	3796	0.23	0.54	0.43
	2007	0	0	0	0	0	0	0.00	0.00	0.00	1126 ±	1431	998 ±	841	2124 ±	1653	0.31	0.18	0.25
Alcidae: Auks, Murres, and Puffins																			
Common Murre	1989										23 ±	30	246 ±	204	268 ±	206	0.01	0.05	0.03
	1990	1911 ±	1298	2952 ±	1617	4864 ±	2059	0.53	0.55	0.54	108 ±	118	768 ±	509	875 ±	522	0.03	0.14	0.10
	1991	3655 ±	3330	8080 ±	5695	11735 ±	6553	1.02	1.50	1.31	1248 ±	597	3285 ±	1349	4533 ±	1472	0.35	0.61	0.52
	1993	21744 ±	11933	135433 ±	140928	157177 ±	140665	6.08	25.06	17.50	11625 ±	5633	4380 ±	2959	16005 ±	6337	3.25	0.81	1.85
	1994	15286 ±	11244	32055 ±	14047	47340 ±	17856	4.27	5.93	5.27									
	1996	8895 ±	4623	35960 ±	18899	44856 ±	19348	2.49	6.65	4.99	408 ±	404	2344 ±	2084	2752 ±	2118	0.11	0.43	0.32
	1998	12967 ±	6205	74320 ±	48572	87287 ±	48711	3.62	13.75	9.72	1303 ±	1302	2519 ±	2616	3823 ±	2915	0.36	0.47	0.44
	2000	2219 ±	1500	24771 ±	12129	26990 ±	12158	0.62	4.58	3.01	95 ±	83	966 ±	707	1061 ±	711	0.03	0.18	0.12
	2004	13522 ±	5522	48709 ±	22626	62231 ±	23158	3.78	9.01	6.93	750 ±	477	2449 ±	1229	3199 ±	1315	0.21	0.45	0.37
	2005	29530 ±	11580	61373 ±	20272	90902 ±	23191	8.25	11.36	10.12	3833 ±	1898	8393 ±	5234	12225 ±	5555	1.07	1.55	1.41
	2007	5737 ±	5589	25544 ±	8787	31281 ±	10344	1.60	4.73	3.48	2311 ±	1182	12949 ±	6793	15260 ±	6882	0.65	2.40	1.77
Thick-billed Murre	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	60 ±	109	<0.005 ±	<0.005	60 ±	108	0.02	<0.005	0.01
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	264 ±	505	<0.005 ±	<0.005	264 ±	499	0.07	<0.005	0.03	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	53 ±	92	53 ±	92	<0.005	0.01	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	37 ±	75	60 ±	116	97 ±	138	0.01	0.01	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	612 ±	768	612 ±	766	<0.005	0.11	0.07
	2005	0	0	0	0	0	0	0.00	0.00	0.00	374 ±	486	138 ±	181	511 ±	516	0.10	0.03	0.06
	2007	0	0	41 ±	68	41 ±	68	0.00	0.01	<0.005	108 ±	118	66 ±	78	174 ±	141	0.03	0.01	0.02
Unidentified Murre	1989										712 ±	578	1203 ±	1296	1914 ±	1414	0.20	0.22	0.21
	1990	655 ±	417	1920 ±	1864	2575 ±	1900	0.18	0.36	0.29	84 ±	84	492 ±	547	576 ±	553	0.02	0.09	0.07
	1991	6533 ±	6043	5835 ±	3284	12368 ±	6811	1.83	1.08	1.38	794 ±	475	1711 ±	1179	2505 ±	1268	0.22	0.32	0.29
	1993	19170 ±	17383	44358 ±	33579	63528 ±	37553	5.36	8.21	7.07	152 ±	203	212 ±	279	364 ±	344	0.04	0.04	0.04
	1994	1121 ±	683	3265 ±	1717	4387 ±	1836	0.31	0.60	0.49									
	1996	504 ±	338	719 ±	560	1223 ±	650	0.14	0.13	0.14	269 ±	272	205 ±	337	475 ±	432	0.08	0.04	0.05
	1998	82 ±	85	345 ±	352	427 ±	361	0.02	0.06	0.05	42 ±	62	92 ±	110	133 ±	126	0.01	0.02	0.02
	2000	970 ±	490	3102 ±	1697	4071 ±	1756	0.27	0.57	0.45	<0.005 ±	<0.005	53 ±	90	53 ±	90	<0.005	0.01	0.01
	2004	3618 ±	2706	5086 ±	2586	8703 ±	3712	1.01	0.94	0.97	86 ±	124	454 ±	536	540 ±	549	0.02	0.08	0.06
	2005	235 ±	119	1639 ±	981	1874 ±	983	0.07	0.30	0.21	78 ±	123	3 ±	5	81 ±	122	0.02	0.00	0.01
	2007	977 ±	563	2183 ±	917	3160 ±	1069	0.27	0.40	0.35	94 ±	84	143 ±	146	237 ±	168	0.03	0.03	0.03
Total Murres	1989										734 ±	578	1448 ±	1368	2183 ±	1479	0.21	0.27	0.24
	1990	2566 ±	1545	4873 ±	2483	7439 ±	2904	0.72	0.90	0.83	252 ±	177	1260 ±	765	1512 ±	784	0.07	0.23	0.17
	1991	10188 ±	9133	13915 ±	7823	24103 ±	11923	2.85	2.57	2.68	2042 ±	761	4996 ±	1887	7038 ±	2030	0.57	0.92	0.81
	1993	41178 ±	28244	179792 ±	158955	220969 ±	160542	11.51	33.27	24.60	11776 ±	5635	4592 ±	2968	16368 ±	6343	3.29	0.85	1.89
	1994	16407 ±	11431	35320 ±	14669	51727 ±	18458	4.59	6.54	5.76									
	1996	9399 ±	4607	36679 ±	18877	46079 ±	19323	2.63	6.79	5.13	678 ±	477	2602 ±	2095	3280 ±	2145	0.19	0.48	0.38
	1998	13049 ±	6199	74665 ±	48522	87714 ±	48661	3.65	13.82	9.77	1345 ±	1297	2611 ±	2680	3956 ±	2971	0.38	0.48	0.46
	2000	3226 ±	1616	27933 ±	12144	31159 ±	12187	0.90	5.17	3.47	95 ±	83	1019 ±	730	1114 ±	734	0.03	0.19	0.13
	2004	17140 ±	8015	53795 ±	22776	70935 ±	24001	4.79	9.95	7.90	836 ±	490	3515 ±	1868	4351 ±	1928	0.23	0.65	0.50
	2005	29765 ±	11601	63012 ±	20529	92777 ±	23424	8.32	11.66	10.33	4284 ±	2174	8534 ±	5276	12818 ±	5693	1.20	1.58	1.48
	2007	6714 ±	5739	27768 ±	9185	34482 ±	10758	1.88	5.14	3.84	2513 ±	1244	13158 ±	6808	15671 ±	6908	0.70	2.43	1.81
Pigeon Guillemot	1989										1548 ±	876	2522 ±	1181	4070 ±	1464	0.43	0.47	0.45
	1990	253 ±	205	557 ±	276	810 ±	341	0.07	0.10	0.09	1226 ±	469	1734 ±	589	2961 ±	750	0.34	0.32	0.34
	1991	777 ±	383	2064 ±	2128	2842 ±	2151	0.22	0.38	0.32	984 ±	347	5641 ±	4864	6625 ±	4867	0.28	1.04	0.77
	1993	428 ±	522	1212 ±	747	1640 ±	905	0.12	0.22	0.18	1480 ±	619	2467 ±	710	3947 ±	939	0.41	0.46	0.46
	1994	455 ±	316	821 ±	575	1276 ±	652	0.13	0.15	0.14									
	1996	991 ±	720	1549 ±	766	2541 ±	1043	0.28	0.29	0.28	891 ±	313	2091 ±	837	2982 ±	892	0.25	0.39	0.35
	1998	222 ±	252	685 ±	663	907 ±	705	0.06	0.13	0.10	1050 ±	360	2427 ±	746	3477 ±	827	0.29	0.45	0.40
	2000	166 ±	143	961 ±	1086	1127 ±	1090	0.05	0.18	0.13	884 ±	361	913 ±	364	1797 ±	511	0.25	0.17	0.21
	2004	484 ±	272	462 ±	445	946 ±	518	0.14	0.09	0.11	726 ±	349	1507 ±	515	2233 ±	620	0.20	0.28	0.26
	2005	354 ±	263	1131 ±	862	1486 ±	896	0.10	0.21	0.17	581 ±	211	1466 ±	486	2047 ±	529	0.16	0.27	0.24
	2007	161 ±	174	1785 ±	1955	1946 ±	1952	0.04	0.33	0.22	577 ±	270	1563 ±	584	2140 ±	642	0.16	0.29	0.25

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Marbled Murrelet	1989										29010 ±	8718	30274 ±	7802	59284 ±	11640	8.11	5.60	6.60
	1990	4451 ±	3022	9236 ±	5032	13687 ±	5831	1.24	1.71	1.52	14935 ±	7207	24551 ±	6743	39486 ±	9836	4.17	4.54	4.57
	1991	2440 ±	1752	5278 ±	4215	7717 ±	4537	0.68	0.98	0.86	14758 ±	4696	27719 ±	7723	42477 ±	9014	4.13	5.13	4.91
	1993	3302 ±	3017	4057 ±	2743	7360 ±	4040	0.92	0.75	0.82	5335 ±	2094	8841 ±	3918	14177 ±	4431	1.49	1.64	1.64
	1994	7670 ±	5117	15590 ±	14569	23260 ±	15347	2.14	2.88	2.59									
	1996	10670 ±	7276	15130 ±	5294	25801 ±	8917	2.98	2.80	2.87	17906 ±	7911	45550 ±	13727	63455 ±	15802	5.01	8.43	7.34
	1998	12563 ±	8151	16630 ±	7881	29193 ±	11245	3.51	3.08	3.25	24854 ±	6586	25067 ±	6614	49921 ±	9303	6.95	4.64	5.78
	2000	3850 ±	1793	13554 ±	10154	17404 ±	10256	1.08	2.51	1.94	22179 ±	8516	30099 ±	11477	52278 ±	14250	6.20	5.57	6.05
	2004	3661 ±	1682	16079 ±	15966	19740 ±	15967	1.02	2.98	2.20	8583 ±	2805	27010 ±	7194	35593 ±	7703	2.40	5.00	4.12
	2005	2135 ±	1071	7297 ±	3133	9432 ±	3292	0.60	1.35	1.05	11852 ±	5239	21945 ±	4993	33797 ±	7211	3.31	4.06	3.91
	2007	323 ±	286	2821 ±	1892	3144 ±	1904	0.09	0.52	0.35	8954 ±	5246	20004 ±	6089	28958 ±	8013	2.50	3.70	3.35
Kittlitz's Murrelet	1989										166 ±	232	6270 ±	3103	6436 ±	3102	0.05	1.16	0.72
	1990	943 ±	1596	15 ±	28	958 ±	1579	0.26	0.00	0.11	45 ±	36	5186 ±	8345	5231 ±	8329	0.01	0.96	0.61
	1991	119 ±	138	347 ±	371	466 ±	393	0.03	0.06	0.05	73 ±	84	1111 ±	1103	1184 ±	1104	0.02	0.21	0.14
	1993	150 ±	195	298 ±	260	448 ±	322	0.04	0.06	0.05	794 ±	332	1916 ±	1284	2710 ±	1323	0.22	0.35	0.31
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	<0.005 ±	<0.005	181 ±	236	181 ±	235	<0.005	0.03	0.02	250 ±	329	1030 ±	1305	1280 ±	1343	0.07	0.19	0.15
	1998	37 ±	64	41 ±	71	78 ±	95	0.01	0.01	0.01	7 ±	9	272 ±	189	279 ±	189	0.00	0.05	0.03
	2000	0	0	0	0	0	0	0.00	0.00	0.00	80 ±	127	953 ±	1315	1033 ±	1318	0.02	0.18	0.12
	2004	0	0	0	0	0	0	0.00	0.00	0.00	71 ±	105	710 ±	500	780 ±	510	0.02	0.13	0.09
	2005	0	0	0	0	0	0	0.00	0.00	0.00	266 ±	402	2423 ±	3013	2689 ±	3034	0.07	0.45	0.31
	2007	0	0	7 ±	14	7 ±	14	0.00	<0.005	<0.005	0 ±	0	2346 ±	1835	2346 ±	1832	<0.005	0.43	0.27
Unidentified Brachyramphus Murrelet	1989										13256 ±	3547	28378 ±	7308	41634 ±	8093	3.71	5.25	4.64
	1990	1452 ±	863	9794 ±	6783	11245 ±	6801	0.41	1.81	1.25	13807 ±	4184	22817 ±	6597	36624 ±	7791	3.86	4.22	4.24
	1991	7079 ±	4814	8249 ±	5424	15328 ±	7196	1.98	1.53	1.71	29182 ±	10566	33634 ±	8956	62816 ±	13802	8.16	6.22	7.27
	1993	2131 ±	1708	4045 ±	2766	6176 ±	3228	0.60	0.75	0.69	49921 ±	21296	92625 ±	35453	142546 ±	41248	13.95	17.14	16.49
	1994	4669 ±	2907	8389 ±	3997	13058 ±	4906	1.31	1.55	1.45									
	1996	7608 ±	4785	10743 ±	4726	18351 ±	6671	2.13	1.99	2.04	7386 ±	5033	10043 ±	3123	17429 ±	5900	2.06	1.86	2.02
	1998	2501 ±	2487	2122 ±	1212	4623 ±	2739	0.70	0.39	0.51	2169 ±	1816	869 ±	1076	3038 ±	2102	0.61	0.16	0.35
	2000	2853 ±	1443	2987 ±	1495	5839 ±	2061	0.80	0.55	0.65	132 ±	128	915 ±	991	1046 ±	997	0.04	0.17	0.12
	2004	185 ±	230	1932 ±	1176	2117 ±	1192	0.05	0.36	0.24	455 ±	314	381 ±	189	836 ±	365	0.13	0.07	0.10
	2005	1013 ±	596	2196 ±	1098	3209 ±	1242	0.28	0.41	0.36	1469 ±	571	5107 ±	1793	6576 ±	1877	0.41	0.94	0.76
	2007	316 ±	513	993 ±	917	1309 ±	1044	0.09	0.18	0.15	700 ±	469	1553 ±	911	2253 ±	1022	0.20	0.29	0.26
Total Brachyramphus Murrelets	1989										42432 ±	10636	64922 ±	13626	107354 ±	17210	11.86	12.01	11.95
	1990	6846 ±	3492	19045 ±	8802	25890 ±	9412	1.91	3.52	2.88	28788 ±	8656	52553 ±	15251	81341 ±	17491	8.05	9.72	9.41
	1991	9637 ±	6051	13873 ±	9313	23510 ±	11029	2.69	2.57	2.62	44013 ±	13895	62465 ±	14187	106478 ±	19793	12.30	11.56	12.32
	1993	5583 ±	3686	8400 ±	5057	13983 ±	6210	1.56	1.55	1.56	56051 ±	21584	103382 ±	35491	159433 ±	41428	15.67	19.13	18.45
	1994	12339 ±	6682	23979 ±	16275	36318 ±	17483	3.45	4.44	4.04									
	1996	18278 ±	10256	26055 ±	8160	44333 ±	12991	5.11	4.82	4.94	25542 ±	11777	56623 ±	14512	82165 ±	18633	7.14	10.48	9.51
	1998	15101 ±	9242	18793 ±	8560	33894 ±	12492	4.22	3.48	3.77	27029 ±	7746	26208 ±	7030	53238 ±	10424	7.56	4.85	6.16
	2000	6702 ±	2623	16541 ±	11090	23244 ±	11334	1.87	3.06	2.59	22391 ±	8521	31966 ±	11637	54357 ±	14381	6.26	5.92	6.29
	2004	3846 ±	1768	18011 ±	15789	21857 ±	15801	1.08	3.33	2.43	9108 ±	2775	28100 ±	7248	37209 ±	7743	2.55	5.20	4.31
	2005	3149 ±	1385	9492 ±	3670	12641 ±	3899	0.88	1.76	1.41	13587 ±	5601	29475 ±	6515	43061 ±	8564	3.80	5.45	4.98
	2007	639 ±	615	3822 ±	2412	4461 ±	2475	0.18	0.71	0.50	9654 ±	5220	23903 ±	7005	33557 ±	8710	2.70	4.42	3.88
Ancient Murrelet	1989										<0.005 ±	<0.005	26 ±	26	26 ±	26	<0.005	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	100 ±	152	165 ±	207	265 ±	256	0.03	0.03	0.03
	1991	<0.005 ±	<0.005	81 ±	144	81 ±	143	<0.005	0.02	0.01	206 ±	216	25 ±	43	231 ±	219	0.06	0.00	0.03
	1993	0	0	0	0	0	0	0.00	0.00	0.00	822 ±	969	1052 ±	816	1874 ±	1262	0.23	0.19	0.22
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	4 ±	8	184 ±	182	188 ±	182	0.00	0.03	0.02
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	82 ±	136	82 ±	136	<0.005	0.02	0.01
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	162 ±	270	162 ±	269	<0.005	0.03	0.02
	2005	89 ±	169	<0.005 ±	<0.005	89 ±	167	0.02	<0.005	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2007	39 ±	64	0	0	39 ±	63	0.01	0.00	<0.005	0	0	163 ±	272	163 ±	272	0.00	0.03	0.02
Cassin's Auklet	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	19 ±	32	20 ±	36	39 ±	47	0.01	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Parakeet Auklet	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Crested Auklet	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	9375 ±	5606	4948 ±	3490	14323 ±	6542	2.62	0.92	1.59
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Rhinoceros Auklet	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Tufted Puffin	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	23 ±	42	23 ±	42	<0.005	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Horned Puffin	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	81 ±	136	81 ±	135	<0.005	0.02	0.01
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	81 ±	136	81 ±	135	<0.005	0.01	0.01
	2005	88 ±	160	<0.005 ±	<0.005	88 ±	159	0.02	<0.005	0.01
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Puffin	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Parakeet Auklet	1989	150 ±	247	351 ±	609	501 ±	655	0.04	0.07	0.06
	1990	561 ±	450	281 ±	267	842 ±	521	0.16	0.05	0.10
	1991	<0.005 ±	<0.005	7 ±	11	7 ±	11	<0.005	0.00	0.00
	1993	159 ±	145	565 ±	623	725 ±	638	0.04	0.10	0.08
	1994									
	1996	688 ±	399	122 ±	112	809 ±	412	0.19	0.02	0.09
	1998	299 ±	275	292 ±	282	590 ±	393	0.08	0.05	0.07
	2000	300 ±	430	162 ±	270	462 ±	505	0.08	0.03	0.05
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Crested Auklet	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Rhinoceros Auklet	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	3 ±	4	<0.005 ±	<0.005	3 ±	4	0.00	<0.005	0.00
	2005	4 ±	8	49 ±	86	53 ±	86	0.00	0.01	0.01
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Tufted Puffin	1989	1567 ±	948	715 ±	590	2282 ±	1110	0.44	0.13	0.25
	1990	1910 ±	970	1909 ±	1233	3819 ±	1564	0.53	0.35	0.44
	1991	2418 ±	1192	2625 ±	1589	5043 ±	1981	0.68	0.49	0.58
	1993	2574 ±	1170	1518 ±	656	4092 ±	1336	0.72	0.28	0.47
	1994									
	1996	3277 ±	1939	1772 ±	813	5049 ±	2094	0.92	0.33	0.58
	1998	2067 ±	1195	2419 ±	2608	4486 ±	2862	0.58	0.45	0.52
	2000	610 ±	229	4097 ±	3898	4707 ±	3897	0.17	0.76	0.54
	2004	983 ±	543	1102 ±	748	2084 ±	922	0.27	0.20	0.24
	2005	1444 ±	990	861 ±	618	2305 ±	1162	0.40	0.16	0.27
	2007	646 ±	543	710 ±	894	1355 ±	1044	0.18	0.13	0.16
Horned Puffin	1989	385 ±	263	1472 ±	1824	1856 ±	1837	0.11	0.27	0.21
	1990	559 ±	453	693 ±	629	1252 ±	773	0.16	0.13	0.14
	1991	476 ±	310	821 ±	746	1297 ±	806	0.13	0.15	0.15
	1993	1048 ±	1162	472 ±	287	1520 ±	1191	0.29	0.09	0.18
	1994									
	1996	343 ±	364	156 ±	131	499 ±	386	0.10	0.03	0.06
	1998	837 ±	566	158 ±	188	995 ±	594	0.23	0.03	0.12
	2000	211 ±	308	167 ±	255	378 ±	399	0.06	0.03	0.04
	2004	122 ±	126	443 ±	757	564 ±	766	0.03	0.08	0.07
	2005	408 ±	315	738 ±	972	1146 ±	1020	0.11	0.14	0.13
	2007	45 ±	72	0	0	45 ±	72	0.01	0.00	0.01
Unidentified Puffin	1989	106 ±	133	<0.005 ±	<0.005	106 ±	132	0.03	<0.005	0.01
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	38 ±	62	<0.005 ±	<0.005	38 ±	62	0.01	<0.005	0.00
	1993	319 ±	380	23 ±	38	342 ±	380	0.09	0.00	0.04
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	214 ±	309	28 ±	43	242 ±	310	0.06	0.01	0.03
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	53 ±	90	53 ±	90	<0.005	0.01	0.01
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	3 ±	5	0	0	3 ±	4	<0.005	0.00	<0.005

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Total Puffins	1989										2057 ±	1084	2187 ±	1904	4244 ±	2183	0.58	0.40	0.47
	1990	0	0	0	0	0	0	0.00	0.00	0.00	2468 ±	1172	2603 ±	1542	5071 ±	1931	0.69	0.48	0.59
	1991	<0.005 ±	<0.005	104 ±	143	104 ±	142	<0.005	0.02	0.01	2932 ±	1256	3445 ±	1797	6378 ±	2186	0.82	0.64	0.74
	1993	0	0	0	0	0	0	0.00	0.00	0.00	3942 ±	2194	2013 ±	799	5954 ±	2325	1.10	0.37	0.69
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	3620 ±	2115	1928 ±	851	5548 ±	2270	1.01	0.36	0.64
	1998	0	0	0	0	0	0	0.00	0.00	0.00	3118 ±	1574	2604 ±	2637	5722 ±	3063	0.87	0.48	0.66
	2000	0	0	0	0	0	0	0.00	0.00	0.00	821 ±	321	4264 ±	3895	5085 ±	3900	0.23	0.79	0.59
	2004	<0.005 ±	<0.005	81 ±	136	81 ±	135	<0.005	0.01	0.01	1105 ±	613	1597 ±	1050	2702 ±	1213	0.31	0.30	0.31
	2005	88 ±	160	<0.005 ±	<0.005	88 ±	159	0.02	<0.005	0.01	1852 ±	1171	1599 ±	1215	3451 ±	1682	0.52	0.30	0.40
	2007	0	0	0	0	0	0	0.00	0.00	0.00	693 ±	602	710 ±	894	1403 ±	1075	0.19	0.13	0.16
Unidentified Alcid	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	251 ±	409	251 ±	407	<0.005	0.05	0.03	392 ±	257	227 ±	191	619 ±	319	0.11	0.04	0.07
	1991	333 ±	346	288 ±	265	621 ±	432	0.09	0.05	0.07	1287 ±	970	297 ±	373	1584 ±	1035	0.36	0.06	0.18
	1993	160 ±	274	308 ±	264	468 ±	377	0.04	0.06	0.05	103 ±	127	102 ±	94	205 ±	158	0.03	0.02	0.02
	1994	186 ±	174	182 ±	172	368 ±	242	0.05	0.03	0.04									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	100 ±	126	369 ±	277	468 ±	303	0.03	0.07	0.05
	1998	0	0	0	0	0	0	0.00	0.00	0.00	152 ±	136	122 ±	128	275 ±	186	0.04	0.02	0.03
	2000	37 ±	62	<0.005 ±	<0.005	37 ±	61	0.01	<0.005	0.00	75 ±	123	<0.005 ±	<0.005	75 ±	123	0.02	<0.005	0.01
	2004	227 ±	265	315 ±	354	542 ±	439	0.06	0.06	0.06	158 ±	138	139 ±	184	297 ±	230	0.04	0.03	0.03
	2005	317 ±	244	552 ±	335	868 ±	411	0.09	0.10	0.10	94 ±	79	197 ±	262	291 ±	273	0.03	0.04	0.03
	2007	0	0	316 ±	383	316 ±	381	0.00	0.06	0.04	149 ±	188	40 ±	67	189 ±	198	0.04	0.01	0.02
Unidentified Small Alcid	1989										<0.005 ±	<0.005	9 ±	11	9 ±	11	<0.005	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	65 ±	106	65 ±	106	<0.005	0.01	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	62 ±	102	62 ±	102	<0.005	0.01	0.01
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Total Alcids	1989										46921 ±	11562	71457 ±	13617	118378 ±	17782	13.12	13.22	13.18
	1990	9665 ±	4393	24725 ±	9540	34390 ±	10437	2.70	4.58	3.83	33786 ±	9098	58824 ±	15248	92610 ±	17709	9.44	10.89	10.72
	1991	20954 ±	10497	30346 ±	13740	51300 ±	17164	5.86	5.62	5.71	51464 ±	13889	76876 ±	16549	128340 ±	21539	14.39	14.23	14.85
	1993	47349 ±	29864	189711 ±	158958	237060 ±	160831	13.24	35.11	26.39	74333 ±	21761	114173 ±	36242	188507 ±	42161	20.78	21.13	21.81
	1994	29388 ±	15338	60302 ±	22845	89690 ±	27320	8.21	11.16	9.99									
	1996	28668 ±	13687	64283 ±	18791	92952 ±	23079	8.01	11.90	10.35	31522 ±	11646	63917 ±	15228	95440 ±	19114	8.81	11.83	11.04
	1998	28372 ±	13461	94143 ±	49698	122515 ±	51203	7.93	17.42	13.64	32993 ±	7857	34265 ±	8601	67258 ±	11612	9.22	6.34	7.78
	2000	10132 ±	3512	45435 ±	20258	55567 ±	20451	2.83	8.41	6.19	24566 ±	8586	38405 ±	12212	62971 ±	14886	6.87	7.11	7.29
	2004	21698 ±	8939	72662 ±	28102	94361 ±	29315	6.07	13.45	10.51	11935 ±	3160	35021 ±	7745	46955 ±	8345	3.34	6.48	5.43
	2005	33762 ±	11793	74187 ±	21198	107948 ±	24097	9.44	13.73	12.02	20401 ±	6675	41320 ±	8237	61722 ±	10569	5.70	7.65	7.14
	2007	7553 ±	5791	33690 ±	9596	41243 ±	11133	2.11	6.23	4.59	13587 ±	5336	39537 ±	9500	53124 ±	10869	3.80	7.32	6.15
Strigiformes																			
Strigidae: Owls																			
Snowy Owl	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

Taxon	Year	March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
		Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Northern Hawk Owl	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Apodiformes																			
Trochilidae: Hummingbirds																			
Rufous Hummingbird	1989										<0.005 ±	<0.005	53 ±	94	53 ±	94	<0.005	0.01	0.01
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	10 ±	9	10 ±	9	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	6 ±	6	0 ±	0	6 ±	6	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	4 ±	8	7 ±	9	<0.005	<0.005	<0.005
Unidentified Hummingbird	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	8 ±	9	11 ±	11	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	8 ±	9	11 ±	10	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	7 ±	7	7 ±	7	<0.005	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	3 ±	5	6 ±	7	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Coraciiformes																			
Alcedinidae: Kingfishers																			
Belted Kingfisher	1989										12 ±	13	9 ±	10	21 ±	16	0.00	0.00	0.00
	1990	12 ±	15	1 ±	1	12 ±	15	0.00	0.00	0.00	5 ±	5	5 ±	8	10 ±	10	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	12 ±	12	12 ±	12	<0.005	0.00	0.00
	1993	25 ±	22	8 ±	15	32 ±	26	0.01	0.00	0.00	28 ±	24	36 ±	32	64 ±	40	0.01	0.01	0.01
	1994	25 ±	26	56 ±	36	81 ±	44	0.01	0.01	0.01									
	1996	25 ±	25	23 ±	23	48 ±	34	0.01	0.00	0.01	14 ±	10	106 ±	52	121 ±	53	0.00	0.02	0.01
	1998	67 ±	98	45 ±	32	112 ±	101	0.02	0.01	0.01	9 ±	8	39 ±	25	48 ±	26	0.00	0.01	0.01
	2000	1 ±	2	36 ±	55	37 ±	55	0.00	0.01	0.00	<0.005 ±	<0.005	8 ±	9	8 ±	9	<0.005	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	5 ±	8	7 ±	9	0.00	0.00	0.00
	2005	6 ±	11	15 ±	20	21 ±	22	0.00	0.00	0.00	<0.005 ±	<0.005	24 ±	21	24 ±	21	<0.005	0.00	0.00
	2007	6 ±	11	0	0	6 ±	11	<0.005	0.00	<0.005	8 ±	10	17 ±	14	25 ±	17	<0.005	<0.005	<0.005
Piciformes																			
Picidae: Woodpeckers																			
Northern Flicker	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

Passeriformes

Hirundinidae: Swallows

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Tree Swallow	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Bank Swallow	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Violet-green Swallow	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Barn Swallow	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Swallow	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Tree Swallow	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	9 ±	15	9 ±	15	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	13 ±	23	13 ±	23	0.00	<0.005	<0.005
Bank Swallow	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Violet-green Swallow	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0 ±	0	59 ±	85	59 ±	85	0.00	0.01	0.01
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1998	6 ±	9	7 ±	8	12 ±	12	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	19 ±	19	19 ±	19	0.00	<0.005	<0.005
Barn Swallow	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	13 ±	23	13 ±	23	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Swallow	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	3 ±	5	73 ±	71	76 ±	71	0.00	0.01	0.01
	1994									
	1996	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	170 ±	183	170 ±	182	<0.005	0.03	0.02
	2007	0	0	0	0	0	0	0.00	0.00	0.00

Taxon	Year	March POPULATION ESTIMATES: Oiled Area		Unoiled Area		Total		DENSITIES: Oil	Unoil	Total	July POPULATION ESTIMATES: Oiled Area		Unoiled Area		Total		DENSITIES: Oil	Unoil	Total
Corvidae: Jays, Magpies, and Crows																			
Steller's Jay	1989										3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	6 ±	9	4 ±	8	10 ±	12	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	8 ±	15	8 ±	15	<0.005	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	8 ±	8	9 ±	11	17 ±	13	0.00	0.00	0.00
	1998	12 ±	15	<0.005 ±	<0.005	12 ±	15	0.00	<0.005	0.00	9 ±	10	54 ±	25	63 ±	27	0.00	0.01	0.01
	2000	<0.005 ±	<0.005	22 ±	42	22 ±	42	<0.005	0.00	0.00	<0.005 ±	<0.005	16 ±	17	16 ±	17	<0.005	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	54 ±	65	54 ±	64	<0.005	0.01	0.01	3 ±	5	13 ±	13	16 ±	14	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	4 ±	8	7 ±	9	<0.005	<0.005	<0.005
Gray Jay	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Jay	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Black-billed Magpie	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	43 ±	40	45 ±	69	88 ±	79	0.01	0.01	0.01	22 ±	21	28 ±	25	50 ±	33	0.01	0.01	0.01
	1991	6 ±	11	45 ±	49	52 ±	50	0.00	0.01	0.01	25 ±	18	18 ±	22	43 ±	29	0.01	0.00	0.00
	1993	31 ±	29	70 ±	45	101 ±	53	0.01	0.01	0.01	22 ±	20	7 ±	8	29 ±	21	0.01	0.00	0.00
	1994	111 ±	87	411 ±	191	522 ±	209	0.03	0.08	0.06									
	1996	115 ±	86	268 ±	212	383 ±	228	0.03	0.05	0.04	53 ±	30	11 ±	11	64 ±	32	0.01	0.00	0.01
	1998	79 ±	84	375 ±	156	454 ±	176	0.02	0.07	0.05	26 ±	30	9 ±	11	35 ±	31	0.01	0.00	0.00
	2000	170 ±	78	249 ±	219	419 ±	231	0.05	0.05	0.05	16 ±	12	17 ±	14	33 ±	19	0.00	0.00	0.00
	2004	46 ±	38	255 ±	189	301 ±	192	0.01	0.05	0.03	26 ±	22	25 ±	30	51 ±	38	0.01	0.00	0.01
	2005	61 ±	47	314 ±	258	374 ±	261	0.02	0.06	0.04	23 ±	24	8 ±	10	31 ±	26	0.01	0.00	0.00
	2007	24 ±	25	111 ±	54	135 ±	59	0.01	0.02	0.02	11 ±	9	4 ±	8	16 ±	12	<0.005	<0.005	<0.005
Northwestern Crow	1989										332 ±	218	1147 ±	561	1479 ±	600	0.09	0.21	0.16
	1990	868 ±	670	2173 ±	1744	3041 ±	1857	0.24	0.40	0.34	379 ±	131	1259 ±	500	1638 ±	516	0.11	0.23	0.19
	1991	186 ±	160	3139 ±	1587	3325 ±	1586	0.05	0.58	0.37	384 ±	109	1677 ±	590	2061 ±	598	0.11	0.31	0.24
	1993	492 ±	394	2414 ±	1150	2905 ±	1208	0.14	0.45	0.32	450 ±	147	1494 ±	576	1944 ±	594	0.13	0.28	0.22
	1994	1374 ±	572	4616 ±	1915	5990 ±	1987	0.38	0.85	0.67									
	1996	710 ±	331	6342 ±	3779	7053 ±	3774	0.20	1.17	0.79	597 ±	185	1978 ±	668	2574 ±	692	0.17	0.37	0.30
	1998	1132 ±	586	5064 ±	2430	6196 ±	2486	0.32	0.94	0.69	838 ±	211	1782 ±	484	2620 ±	526	0.23	0.33	0.30
	2000	1272 ±	698	3673 ±	1718	4945 ±	1843	0.36	0.68	0.55	865 ±	260	1387 ±	405	2252 ±	479	0.24	0.26	0.26
	2004	783 ±	382	3353 ±	1883	4136 ±	1910	0.22	0.62	0.46	494 ±	179	880 ±	327	1374 ±	372	0.14	0.16	0.16
	2005	440 ±	209	3905 ±	4304	4345 ±	4286	0.09	0.72	0.47	532 ±	171	1515 ±	445	2047 ±	476	0.15	0.28	0.24
	2007	408 ±	248	3771 ±	1324	4179 ±	1340	0.11	0.70	0.47	626 ±	167	1256 ±	435	1882 ±	465	0.18	0.23	0.22
Common Raven	1989										0 ±	0	121 ±	188	121 ±	187	0.00	0.02	0.01
	1990	49 ±	39	129 ±	174	178 ±	177	0.01	0.02	0.02	11 ±	9	146 ±	146	157 ±	146	0.00	0.03	0.02
	1991	37 ±	51	265 ±	271	302 ±	274	0.01	0.05	0.03	8 ±	7	54 ±	79	62 ±	79	0.00	0.01	0.01
	1993	200 ±	255	251 ±	196	451 ±	319	0.06	0.05	0.05	39 ±	25	40 ±	31	79 ±	40	0.01	0.01	0.01
	1994	68 ±	47	40 ±	40	108 ±	61	0.02	0.01	0.01									
	1996	96 ±	138	156 ±	161	252 ±	211	0.03	0.03	0.03	36 ±	34	9 ±	11	45 ±	36	0.01	0.00	0.01
	1998	92 ±	74	82 ±	50	174 ±	88	0.03	0.02	0.02	11 ±	9	48 ±	41	59 ±	41	0.00	0.01	0.01
	2000	37 ±	38	1353 ±	2415	1391 ±	2403	0.01	0.25	0.15	6 ±	9	58 ±	86	64 ±	87	0.00	0.01	0.01
	2004	220 ±	211	103 ±	68	323 ±	219	0.06	0.02	0.04	3 ±	4	171 ±	145	174 ±	145	0.00	0.03	0.02
	2005	18 ±	25	77 ±	56	95 ±	61	0.01	0.01	0.01	14 ±	10	49 ±	38	63 ±	39	0.00	0.01	0.01
	2007	53 ±	43	60 ±	52	112 ±	67	0.01	0.01	0.01	41 ±	32	260 ±	250	301 ±	251	0.01	0.05	0.03

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Muscicapidae: Thrushes										
Hermit Thrush	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Varied Thrush	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
American Robin	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Thrush	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Troglodytidae: Wrens										
Winter Wren	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Muscicapidae: Thrushes										
Hermit Thrush	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1998	1 ±	1	3 ±	4	3 ±	4	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	9 ±	15	9 ±	15	0.00	<0.005	<0.005
Varied Thrush	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	6 ±	9	8 ±	9	13 ±	13	0.00	0.00	0.00
	1998	<0.005 ±	<0.005	8 ±	9	8 ±	9	<0.005	0.00	0.00
	2000	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	2004	3 ±	4	5 ±	8	7 ±	9	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	5 ±	8	5 ±	8	<0.005	0.00	0.00
	2007	0	0	3 ±	5	3 ±	5	0.00	<0.005	<0.005
American Robin	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	13 ±	23	13 ±	23	<0.005	0.00	0.00
	1998	3 ±	5	43 ±	50	46 ±	50	0.00	0.01	0.01
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	1 ±	1	26 ±	40	26 ±	40	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	5 ±	8	5 ±	8	<0.005	0.00	0.00
	2007	0	0	12 ±	12	12 ±	12	0.00	<0.005	<0.005
Unidentified Thrush	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Troglodytidae: Wrens										
Winter Wren	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

March

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Cinclidae: Dippers										
American Dipper	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	8 ±	15	8 ±	15	<0.005	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Bombycillidae: Waxwings										
Bohemian Waxwing	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Emberizidae: Emberizids										
Unidentified Warbler	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Fox Sparrow	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	8 ±	15	8 ±	15	<0.005	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Snow Bunting	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	<0.005 ±	<0.005	15 ±	28	15 ±	28	<0.005	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	161 ±	302	161 ±	300	<0.005	0.03	0.02
	1996	<0.005 ±	<0.005	46 ±	83	46 ±	83	<0.005	0.01	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

July

Taxon	Year	POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		DENSITIES Oil	Unoil	Total
Cinclidae: Dippers										
American Dipper	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	16 ±	14	16 ±	14	<0.005	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Bombycillidae: Waxwings										
Bohemian Waxwing	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Emberizidae: Emberizids										
Unidentified Warbler	1989	<0.005 ±	<0.005	22 ±	37	22 ±	37	<0.005	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Fox Sparrow	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	3 ±	5	0	0	3 ±	5	<0.005	0.00	<0.005
Snow Bunting	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Unidentified Sparrow	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	8 ±	10	8 ±	10	<0.005	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Blackbird	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Fringillidae: Finches and Allies																			
Pine Grosbeak	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	7 ±	11	7 ±	11	<0.005	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	7 ±	11	7 ±	11	<0.005	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Redpoll	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	8 ±	15	8 ±	15	<0.005	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Gray-crowned Rosy-Finch	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Pine Siskin	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	<0.005 ±	<0.005	73 ±	131	73 ±	130	<0.005	0.01	0.01									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	**Year**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**
Unidentified Passerine	1989										19 ±	27	9 ±	10	27 ±	28	0.01	0.00	0.00
	1990	<0.005 ±	<0.005	150 ±	271	150 ±	269	<0.005	0.03	0.02	<0.005 ±	<0.005	12 ±	16	12 ±	16	<0.005	0.00	0.00
	1991	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	23 ±	18	20 ±	17	42 ±	24	0.01	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	20 ±	17	11 ±	13	31 ±	22	0.01	0.00	0.00
	1994	6 ±	10	154 ±	152	160 ±	152	0.00	0.03	0.02									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	<0.005 ±	<0.005	60 ±	109	60 ±	108	<0.005	0.01	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	4 ±	4	2 ±	3	6 ±	5	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Bird	1989										1417 ±	792	640 ±	555	2056 ±	962	0.40	0.12	0.23
	1990	86 ±	88	1188 ±	1169	1275 ±	1166	0.02	0.22	0.14	295 ±	138	576 ±	449	871 ±	469	0.08	0.11	0.10
	1991	1862 ±	2314	427 ±	442	2288 ±	2330	0.52	0.08	0.25	52 ±	66	229 ±	211	281 ±	221	0.01	0.04	0.03
	1993	237 ±	273	945 ±	715	1182 ±	760	0.07	0.17	0.13	204 ±	191	<0.005 ±	<0.005	204 ±	191	0.06	<0.005	0.02
	1994	17 ±	17	505 ±	466	522 ±	463	0.00	0.09	0.06									
	1996	6 ±	11	8 ±	14	14 ±	18	0.00	0.00	0.00	5 ±	6	62 ±	92	67 ±	92	0.00	0.01	0.01
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	6 ±	12	395 ±	533	401 ±	530	0.00	0.07	0.04	126 ±	190	<0.005 ±	<0.005	126 ±	189	0.04	<0.005	0.01
	2004	<0.005 ±	<0.005	8 ±	15	8 ±	14	<0.005	0.00	0.00	60 ±	70	19 ±	28	79 ±	75	0.02	0.00	0.01
	2005	18 ±	31	102 ±	152	120 ±	154	0.01	0.02	0.01	201 ±	212	212 ±	204	412 ±	293	0.06	0.04	0.05
	2007	6 ±	10	7 ±	14	13 ±	17	<0.005	<0.005	<0.005	205 ±	232	29 ±	37	234 ±	234	0.06	0.01	0.03

Appendix I: Population estimates, confidence intervals, and densities (individuals/km2) for mammals recorded in PWS surveys, 1989-2005. nd = no data recorded.

Taxon	Year	March POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		March DENSITIES Oil	Unoil	Total	July POPULATION ESTIMATES Oiled Area		Unoiled Area		Total		July DENSITIES Oil	Unoil	Total
MAMMALS																			
Rodentia																			
Sciuridae: Squirrels																			
Red Squirrel	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Hoary Marmot	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	7 ±	7	9 ±	9	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Castoridae: Beavers																			
Beaver	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Erethizontidae: New World Porcupines																			
Porcupine	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Cetacea																			
Delphinidae: Dolphins,Porpoises and Killer Whales																			
Harbor Porpoise	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	194 ±	354	194 ±	352	<0.005	0.04	0.02	0	0	0	0	0	0	0.00	0.00	0.00
	1991	155 ±	256	<0.005 ±	<0.005	155 ±	253	0.04	<0.005	0.02	<0.005 ±	<0.005	112 ±	189	112 ±	189	<0.005	0.02	0.01
	1993	306 ±	289	66 ±	116	372 ±	308	0.09	0.01	0.04	309 ±	247	480 ±	548	789 ±	600	0.09	0.09	0.09
	1994	75 ±	124	<0.005 ±	<0.005	75 ±	122	0.02	<0.005	0.01									
	1996	<0.005 ±	<0.005	413 ±	436	413 ±	433	<0.005	0.08	0.05	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	41 ±	68	41 ±	68	<0.005	0.01	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2004	<0.005 ±	<0.005	81 ±	136	81 ±	135	<0.005	0.02	0.01	75 ±	83	121 ±	203	196 ±	218	0.02	0.02	0.02
	2005	176 ±	321	80 ±	152	256 ±	351	0.05	0.01	0.03	254 ±	340	<0.005 ±	<0.005	254 ±	339	0.07	<0.005	0.03
	2007	0	0	22 ±	24	22 ±	24	0.00	<0.005	<0.005	352 ±	427	188 ±	227	540 ±	481	0.10	0.03	0.06

Taxon	Year	March: POPULATION ESTIMATES – Oiled Area		Unoiled Area		Total		DENSITIES – Oil	Unoil	Total	July: POPULATION ESTIMATES – Oiled Area		Unoiled Area		Total		DENSITIES – Oil	Unoil	Total
Dall Porpoise	1989										105 ±	128	48 ±	83	153 ±	152	0.03	0.01	0.02
	1990	441 ±	388	879 ±	1192	1320 ±	1246	0.12	0.16	0.15	561 ±	731	452 ±	677	1012 ±	993	0.16	0.08	0.12
	1991	0	0	0	0	0	0	0.00	0.00	0.00	196 ±	207	286 ±	211	482 ±	294	0.05	0.05	0.06
	1993	<0.005 ±	<0.005	1394 ±	1668	1394 ±	1659	<0.005	0.26	0.16	431 ±	497	4 ±	8	435 ±	495	0.12	0.00	0.05
	1994	451 ±	476	494 ±	503	944 ±	687	0.13	0.09	0.11									
	1996	821 ±	665	907 ±	905	1728 ±	1115	0.23	0.17	0.19	612 ±	478	492 ±	518	1104 ±	702	0.17	0.09	0.13
	1998	530 ±	455	1829 ±	1378	2359 ±	1443	0.15	0.34	0.26	2060 ±	1721	202 ±	356	2263 ±	1749	0.58	0.04	0.26
	2000	111 ±	132	2627 ±	2623	2739 ±	2613	0.03	0.49	0.30	424 ±	523	485 ±	457	909 ±	692	0.12	0.09	0.11
	2004	1521 ±	1171	819 ±	1206	2340 ±	1667	0.43	0.15	0.26	1180 ±	894	291 ±	289	1471 ±	935	0.33	0.05	0.17
	2005	3201 ±	2171	2980 ±	2460	6181 ±	3256	0.89	0.55	0.69	2196 ±	1147	444 ±	394	2640 ±	1207	0.61	0.08	0.31
	2007	5781 ±	4184	3169 ±	2918	8950 ±	5055	1.62	0.59	1.00	1053 ±	605	1277 ±	764	2330 ±	972	0.29	0.24	0.27
Pacific White-sided Dolphin	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Killer Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	15 ±	24	21 ±	37	36 ±	44	0.00	0.00	0.00
	1993	<0.005 ±	<0.005	16 ±	28	16 ±	28	<0.005	0.00	0.00	37 ±	61	<0.005 ±	<0.005	37 ±	61	0.01	<0.005	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	6 ±	9	<0.005 ±	<0.005	6 ±	9	0.00	<0.005	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	81 ±	144	81 ±	143	<0.005	0.02	0.01	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	249 ±	450	<0.005 ±	<0.005	249 ±	445	0.07	<0.005	0.03	0	0	0	0	0	0	0.00	0.00	0.00
	2007	554 ±	937	41 ±	68	594 ±	930	0.15	0.01	0.07	0	0	250 ±	409	250 ±	408	0.00	0.05	0.03
Pilot Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Beluga Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Porpoise	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	<0.005 ±	<0.005	41 ±	68	41 ±	68	<0.005	0.01	0.00	19 ±	32	20 ±	35	39 ±	47	0.01	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	37 ±	61	3 ±	5	40 ±	61	0.01	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	224 ±	247	<0.005 ±	<0.005	224 ±	246	0.06	<0.005	0.03
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	77 ±	127	<0.005 ±	<0.005	77 ±	126	0.02	<0.005	0.01
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	203 ±	273	203 ±	273	0.00	0.04	0.02

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	**Year**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**	**Oiled Area**		**Unoiled Area**		**Total**		**Oil**	**Unoil**	**Total**
Eschrichtidae: Gray Whales																			
Gray Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Balaenopteridae: Rorquals and Humpback Whales																			
Sei Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Minke Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	19 ±	32	20 ±	35	39 ±	47	0.01	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	38 ±	62	<0.005 ±	<0.005	38 ±	62	0.01	<0.005	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Fin Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Humpback Whale	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	188 ±	154	37 ±	66	225 ±	167	0.05	0.01	0.03
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	349 ±	290	181 ±	264	530 ±	391	0.10	0.03	0.06
	1998	0	0	0	0	0	0	0.00	0.00	0.00	181 ±	216	59 ±	82	240 ±	229	0.05	0.01	0.03
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	37 ±	61	<0.005 ±	<0.005	37 ±	61	0.01	<0.005	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

March

Taxon	Year	POPULATION ESTIMATES: Oiled Area		Unoiled Area		Total		DENSITIES: Oil	Unoil	Total
Balaenidae: Right Whales										
Bowhead Whale	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Right Whale	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Whale	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Carnivora										
Canidae:Wolves, coyotes										
Coyote	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	<0.005 ±	<0.005	22 ±	41	22 ±	41	<0.005	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Ursidae: Bears										
Brown Bear	1989									
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00

July

Taxon	Year	POPULATION ESTIMATES: Oiled Area		Unoiled Area		Total		DENSITIES: Oil	Unoil	Total
Balaenidae: Right Whales										
Bowhead Whale	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Right Whale	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Whale	1989	62 ±	105	<0.005 ±	<0.005	62 ±	104	0.02	<0.005	0.01
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Carnivora										
Canidae:Wolves, coyotes										
Coyote	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00
Ursidae: Bears										
Brown Bear	1989	0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00
	1994									
	1996	0	0	0	0	0	0	0.00	0.00	0.00
	1998	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	2000	<0.005 ±	<0.005	11 ±	13	11 ±	13	<0.005	0.00	0.00
	2004	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0 ±	0	6 ±	10	6 ±	10	<0.005	<0.005	<0.005

Taxon	Year	March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
		Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Black Bear	1989										9 ±	16	13 ±	13	22 ±	20	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	4	7 ±	11	9 ±	12	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	14 ±	14	14 ±	14	<0.005	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	24 ±	23	27 ±	23	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	38 ±	27	41 ±	27	0.00	0.01	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	9 ±	10	4 ±	8	13 ±	13	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	8 ±	8	13 ±	13	22 ±	15	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	20 ±	19	22 ±	16	41 ±	25	0.01	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	11 ±	8	22 ±	20	33 ±	21	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	6 ±	11	6 ±	11	0.00	<0.005	<0.005
Mustelidae: Minks, Martens and Otters																			
Mink	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	8 ±	9	8 ±	9	<0.005	0.00	0.00
	1994	<0.005 ±	<0.005	16 ±	29	16 ±	29	<0.005	0.00	0.00									
	1996	5 ±	9	1 ±	3	6 ±	9	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	6 ±	9	<0.005 ±	<0.005	6 ±	9	0.00	<0.005	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Marten	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Wolverine	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	<0.005 ±	<0.005	8 ±	14	8 ±	14	<0.005	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Sea Otter	1989										1761 ±	668	6477 ±	1918	8238 ±	2024	0.49	1.20	0.92
	1990	2019 ±	1255	3890 ±	1090	5909 ±	1648	0.56	0.72	0.66	1252 ±	564	4471 ±	2788	5723 ±	2839	0.35	0.83	0.66
	1991	1012 ±	497	3330 ±	838	4342 ±	968	0.28	0.62	0.48	1053 ±	477	4193 ±	1404	5246 ±	1480	0.29	0.78	0.61
	1993	1687 ±	1015	5125 ±	1549	6813 ±	1838	0.47	0.95	0.76	1528 ±	626	6688 ±	2320	8216 ±	2398	0.43	1.24	0.95
	1994	1149 ±	382	6597 ±	2023	7746 ±	2047	0.32	1.22	0.86									
	1996	1647 ±	437	6491 ±	2147	8139 ±	2179	0.46	1.20	0.91	1629 ±	515	9147 ±	3902	10776 ±	3928	0.46	1.69	1.25
	1998	1326 ±	754	5257 ±	3128	6583 ±	3200	0.37	0.97	0.73	1545 ±	749	6512 ±	3950	8057 ±	4013	0.43	1.21	0.93
	2000	837 ±	382	3812 ±	1093	4649 ±	1151	0.23	0.71	0.52	1401 ±	868	3662 ±	1422	5064 ±	1661	0.39	0.68	0.59
	2004	1314 ±	770	4371 ±	1351	5684 ±	1544	0.37	0.81	0.63	1120 ±	479	7957 ±	6042	9077 ±	6049	0.31	1.47	1.05
	2005	983 ±	583	5568 ±	2137	6551 ±	2202	0.27	1.03	0.73	1564 ±	1497	3695 ±	1519	5260 ±	2125	0.44	0.68	0.61
	2007	706 ±	547	4608 ±	1492	5314 ±	1580	0.20	0.85	0.59	1106 ±	485	7200 ±	3112	8306 ±	3144	0.31	1.33	0.96
River Otter	1989										9 ±	16	<0.005 ±	<0.005	9 ±	15	0.00	<0.005	0.00
	1990	37 ±	35	37 ±	40	75 ±	53	0.01	0.01	0.01	8 ±	12	7 ±	8	15 ±	15	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	20 ±	23	3 ±	5	23 ±	24	0.01	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	17 ±	23	60 ±	40	77 ±	46	0.00	0.01	0.01
	1994	43 ±	47	57 ±	56	100 ±	72	0.01	0.01	0.01									
	1996	37 ±	48	23 ±	24	60 ±	53	0.01	0.00	0.01	29 ±	23	107 ±	80	135 ±	84	0.01	0.02	0.02
	1998	26 ±	25	21 ±	22	47 ±	33	0.01	0.00	0.01	3 ±	5	43 ±	28	46 ±	28	0.00	0.01	0.01
	2000	37 ±	39	30 ±	34	67 ±	52	0.01	0.01	0.01	8 ±	8	68 ±	41	77 ±	42	0.00	0.01	0.01
	2004	31 ±	47	63 ±	55	93 ±	72	0.01	0.01	0.01	22 ±	28	8 ±	10	30 ±	30	0.01	0.00	0.00
	2005	<0.005 ±	<0.005	69 ±	64	69 ±	64	<0.005	0.01	0.01	11 ±	9	26 ±	27	37 ±	29	0.00	0.00	0.00
	2007	0	0	104 ±	77	104 ±	76	0.00	0.02	0.01	28 ±	32	13 ±	21	41 ±	38	0.01	<0.005	<0.005

		March									July								
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Unidentified Otter	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	6 ±	12	<0.005 ±	<0.005	6 ±	11	0.00	<0.005	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	4	0.00	<0.005	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	6 ±	10	1 ±	1	6 ±	10	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Pinnipedia																			
Otariidae: Sea Lions, Fur Seals																			
Steller Sea Lion	1989										1565 ±	2071	793 ±	1094	2358 ±	2329	0.44	0.15	0.26
	1990	6116 ±	10032	143 ±	172	6260 ±	9923	1.71	0.03	0.70	3495 ±	3031	207 ±	143	3702 ±	3020	0.98	0.04	0.43
	1991	3247 ±	4516	548 ±	824	3795 ±	4541	0.91	0.10	0.42	2150 ±	2338	161 ±	94	2312 ±	2329	0.60	0.03	0.27
	1993	2424 ±	3515	835 ±	1129	3260 ±	3649	0.68	0.15	0.36	947 ±	787	52 ±	38	1000 ±	784	0.26	0.01	0.12
	1994	1662 ±	2348	418 ±	496	2080 ±	2374	0.46	0.08	0.23									
	1996	1385 ±	1583	571 ±	469	1955 ±	1634	0.39	0.11	0.22	828 ±	860	124 ±	119	953 ±	864	0.23	0.02	0.11
	1998	1914 ±	1824	312 ±	190	2226 ±	1813	0.54	0.06	0.25	876 ±	951	78 ±	50	954 ±	948	0.24	0.01	0.11
	2000	1873 ±	2033	373 ±	292	2246 ±	2031	0.52	0.07	0.25	736 ±	778	97 ±	122	834 ±	784	0.21	0.02	0.10
	2004	2031 ±	1798	378 ±	592	2409 ±	1874	0.57	0.07	0.27	421 ±	460	59 ±	70	479 ±	464	0.12	0.01	0.06
	2005	1562 ±	1374	47 ±	61	1608 ±	1361	0.44	0.01	0.18	369 ±	362	145 ±	203	514 ±	413	0.10	0.03	0.06
	2007	864 ±	1070	142 ±	203	1006 ±	1077	0.24	0.03	0.11	373 ±	391	98 ±	163	471 ±	422	0.10	0.02	0.05
California Sea Lion	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	4 ±	8	4 ±	8	<0.005	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Northern Fur Seal	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	40 ±	68	40 ±	67	<0.005	0.01	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Pinniped	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	12 ±	23	<0.005 ±	<0.005	12 ±	23	0.00	<0.005	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

		March										July									
		POPULATION ESTIMATES						DENSITIES			POPULATION ESTIMATES						DENSITIES		
Taxon	Year	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total	Oiled Area		Unoiled Area		Total		Oil	Unoil	Total
Phocidae: Seals																			
Harbor Seal	1989										730 ±	390	1698 ±	765	2428 ±	856	0.20	0.31	0.27
	1990	517 ±	248	1313 ±	731	1830 ±	768	0.14	0.24	0.20	527 ±	220	2139 ±	2762	2666 ±	2765	0.15	0.40	0.31
	1991	240 ±	228	671 ±	387	911 ±	446	0.07	0.12	0.10	646 ±	359	937 ±	326	1583 ±	484	0.18	0.17	0.18
	1993	268 ±	209	1245 ±	1287	1513 ±	1297	0.07	0.23	0.17	744 ±	326	16176 ±	26430	16920 ±	26382	0.21	2.99	1.96
	1994	210 ±	130	1224 ±	1152	1434 ±	1153	0.06	0.23	0.16									
	1996	153 ±	101	829 ±	402	983 ±	413	0.04	0.15	0.11	554 ±	290	641 ±	256	1195 ±	385	0.15	0.12	0.14
	1998	287 ±	200	923 ±	414	1210 ±	457	0.08	0.17	0.13	371 ±	222	1129 ±	633	1501 ±	669	0.10	0.21	0.17
	2000	548 ±	654	1016 ±	1046	1564 ±	1226	0.15	0.19	0.17	489 ±	214	708 ±	503	1197 ±	546	0.14	0.13	0.14
	2004	679 ±	360	495 ±	215	1174 ±	415	0.19	0.09	0.13	412 ±	237	5316 ±	7811	5729 ±	7799	0.12	0.98	0.66
	2005	190 ±	179	614 ±	420	804 ±	454	0.05	0.11	0.09	515 ±	366	735 ±	303	1251 ±	473	0.14	0.14	0.14
	2007	353 ±	213	1760 ±	1314	2113 ±	1324	0.10	0.33	0.24	372 ±	199	6517 ±	9441	6889 ±	9426	0.10	1.21	0.80
Artiodactyla: Even-toed Ungulates																			
Cervidae: Deer																			
Sitka Black-tailed Deer	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	234 ±	209	158 ±	107	392 ±	233	0.07	0.03	0.04	0	0	0	0	0	0	0.00	0.00	0.00
	1991	491 ±	532	552 ±	412	1043 ±	667	0.14	0.10	0.12	22 ±	17	9 ±	15	31 ±	23	0.01	0.00	0.00
	1993	100 ±	67	138 ±	128	238 ±	143	0.03	0.03	0.03	6 ±	6	24 ±	33	30 ±	34	0.00	0.00	0.00
	1994	100 ±	120	175 ±	198	275 ±	230	0.03	0.03	0.03									
	1996	646 ±	495	751 ±	667	1396 ±	825	0.18	0.14	0.16	20 ±	18	21 ±	19	41 ±	27	0.01	0.00	0.00
	1998	18 ±	25	15 ±	27	33 ±	36	0.01	0.00	0.00	26 ±	20	<0.005 ±	<0.005	26 ±	20	0.01	<0.005	0.00
	2000	25 ±	28	269 ±	254	294 ±	254	0.01	0.05	0.03	5 ±	6	57 ±	45	62 ±	45	0.00	0.01	0.01
	2004	209 ±	252	47 ±	53	256 ±	255	0.06	0.01	0.03	84 ±	113	26 ±	26	110 ±	116	0.02	0.00	0.01
	2005	<0.005 ±	<0.005	15 ±	20	15 ±	20	<0.005	0.00	0.00	6 ±	9	31 ±	42	36 ±	43	0.00	0.01	0.00
	2007	523 ±	658	1461 ±	944	1984 ±	1142	0.15	0.27	0.22	22 ±	26	12 ±	12	35 ±	29	0.01	<0.005	<0.005
Bovidae: Goats and Sheep																			
Mountain Goat	1989										0	0	0	0	0	0	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1991	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1993	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1994	0	0	0	0	0	0	0.00	0.00	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
Unidentified Mammal	1989										12 ±	10	13 ±	13	25 ±	16	0.00	0.00	0.00
	1990	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	3 ±	5	3 ±	5	<0.005	0.00	0.00
	1991	6 ±	11	89 ±	144	95 ±	144	0.00	0.02	0.01	3 ±	5	109 ±	120	112 ±	120	0.00	0.02	0.01
	1993	0	0	0	0	0	0	0.00	0.00	0.00	3 ±	5	<0.005 ±	<0.005	3 ±	5	0.00	<0.005	0.00
	1994	6 ±	11	<0.005 ±	<0.005	6 ±	11	0.00	<0.005	0.00									
	1996	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	1998	0	0	0	0	0	0	0.00	0.00	0.00	49 ±	62	54 ±	72	102 ±	94	0.01	0.01	0.01
	2000	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2004	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00
	2005	0	0	0	0	0	0	0.00	0.00	0.00	<0.005 ±	<0.005	8 ±	10	8 ±	10	<0.005	0.00	0.00
	2007	0	0	0	0	0	0	0.00	0.00	0.00	159 ±	247	4 ±	8	163 ±	246	0.04	<0.005	0.02
	2007	0	0	0	0	0	0	0.00	0.00	0.00	0	0	0	0	0	0	0.00	0.00	0.00

Appendix J. Estimated number of marine birds (± 95% CI) from small boat surveys of Prince William Sound during winter and summer of 1972-73 (Haddock et al., unpubl. data), 1989-91 (Klosiewski and Laing 1994), 1993 (Agler et al. 1994), 1994 (Agler et al. 1995), 1996 (Agler and Kendall 1997), 1998 (Lance et al. 1999), 2000 (Stephensen et al. 2001), and 2004.

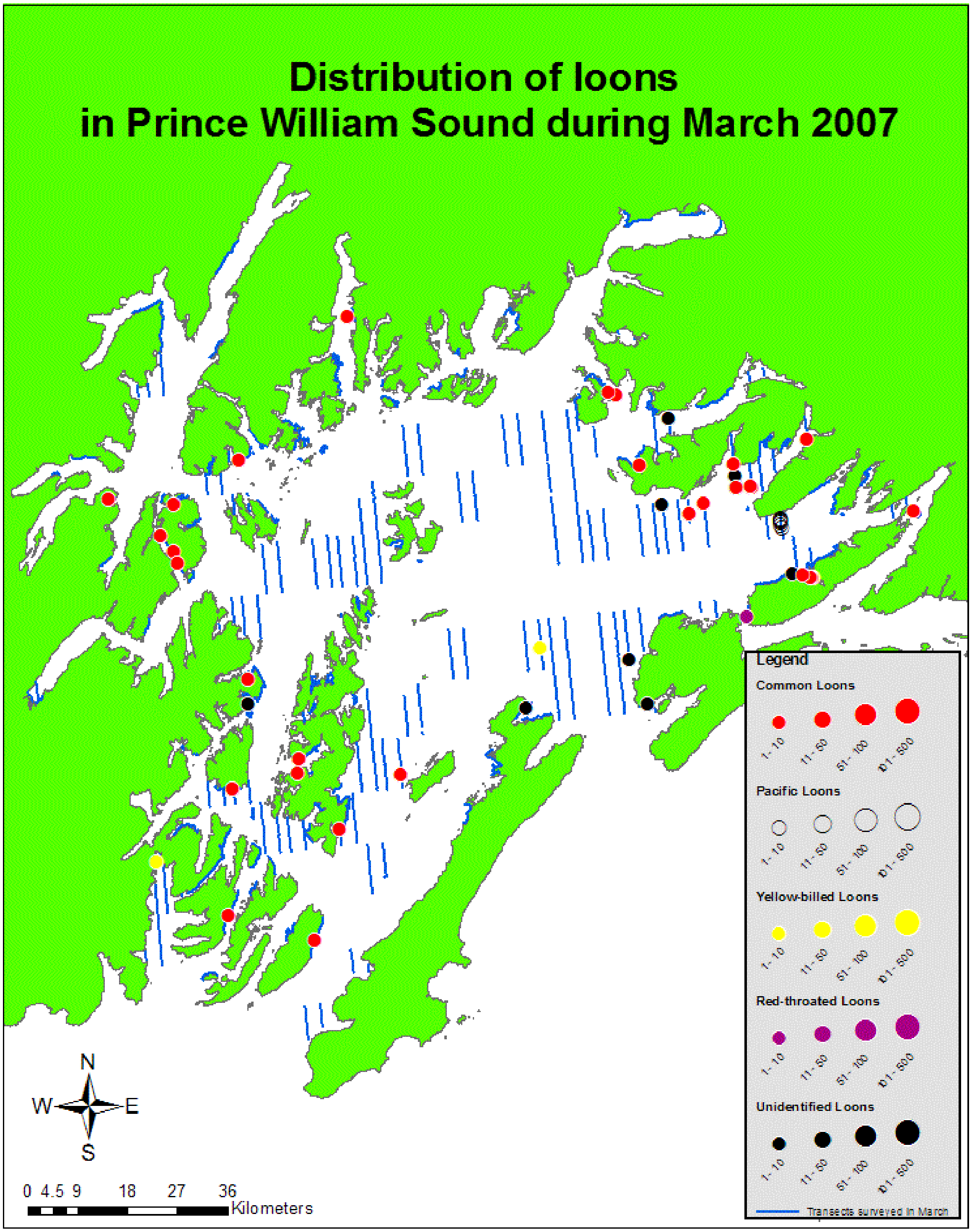
Year	Winter[a]			Summer[b]	
	N	CI		*N*	CI
1972	235,579	63,480		628,696	141,858
1973	328,091	59,955		475,618	144,213
1989	nd [c]	nd [c]		302,538	54,444
1990	141,911	22,902		237,900	32,570
1991	171,433	30,868		343,357	98,670
1993	402,760	167,697		371,327	58,189
1994	320,470	62,640		nd [c]	nd [c]
1996	253,001	34,917		246,572	41,400
1998	358,935	143,974		201,765	46,179
2000	210,945	52,471		204,349	35,071
2004	254,463	48,893		171,936	21,539
2005	273,067	39,379		194,780	25,053
2007	181,883	38,808		265,299	72,058

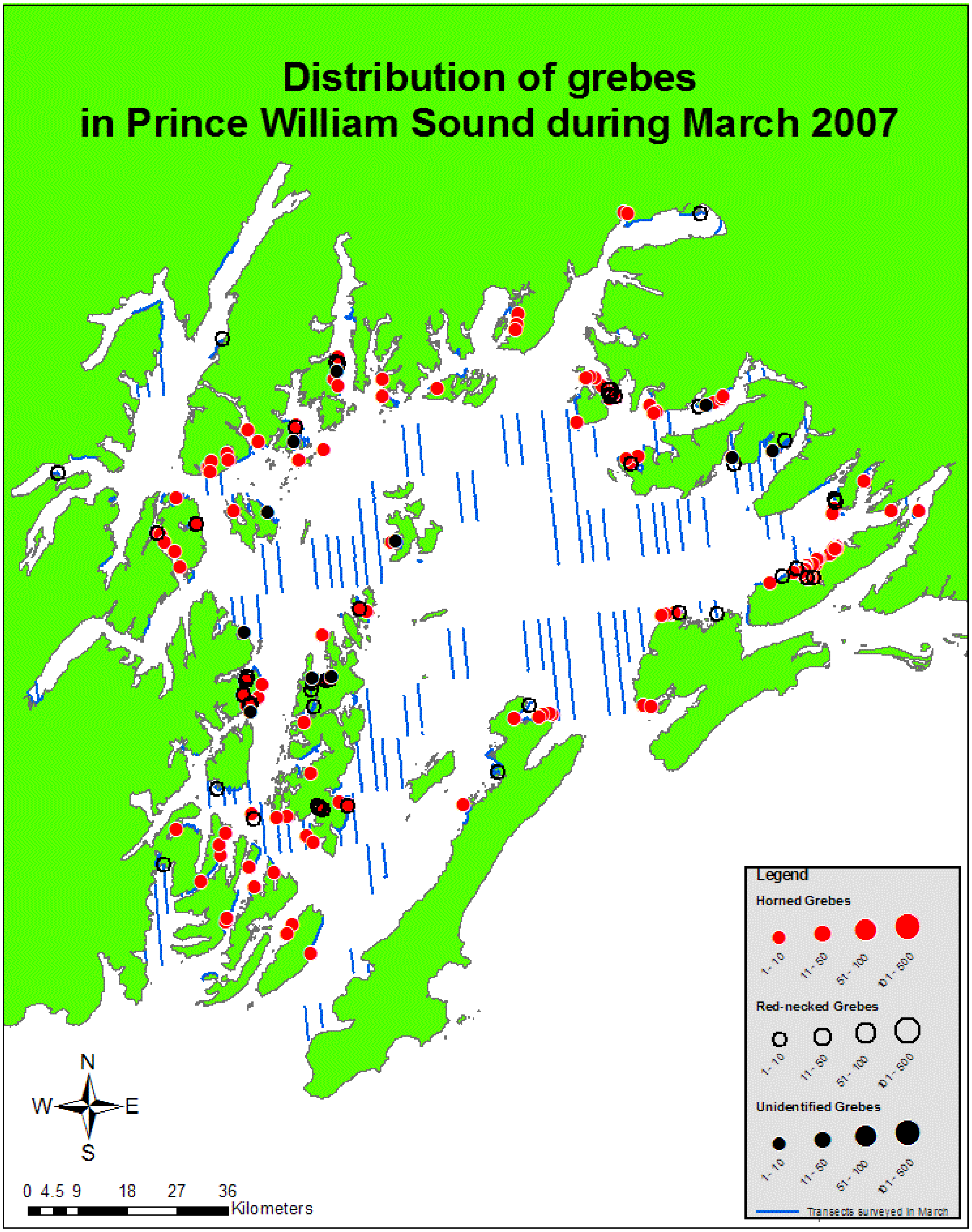
[a] All winter surveys were conducted in March, except for March 1989, when no survey was conducted.
[b] Surveys were conducted during July, except for 1973 and 1994, when the Sound was surveyed in August. There was no summer survey in 1994.
[c] nd = no data

Appendix K. Estimated number of marine birds (± 95% CI) from small boat surveys of Prince William Sound during March 1990-91 (Klosiewski and Laing 1994), 1993 (Agler et al. 1994), 1994 (Agler et al. 1995), and 1996, and July 1989-91 (Klosiewski and Laing 1994), 1993 (Agler et al. 1994), 1996 (Agler and Kendall 1997), 1998 (Lance et al. 1999), and 2000 listed by zone oiled by the *T/V Exxon Valdez* oil spill.

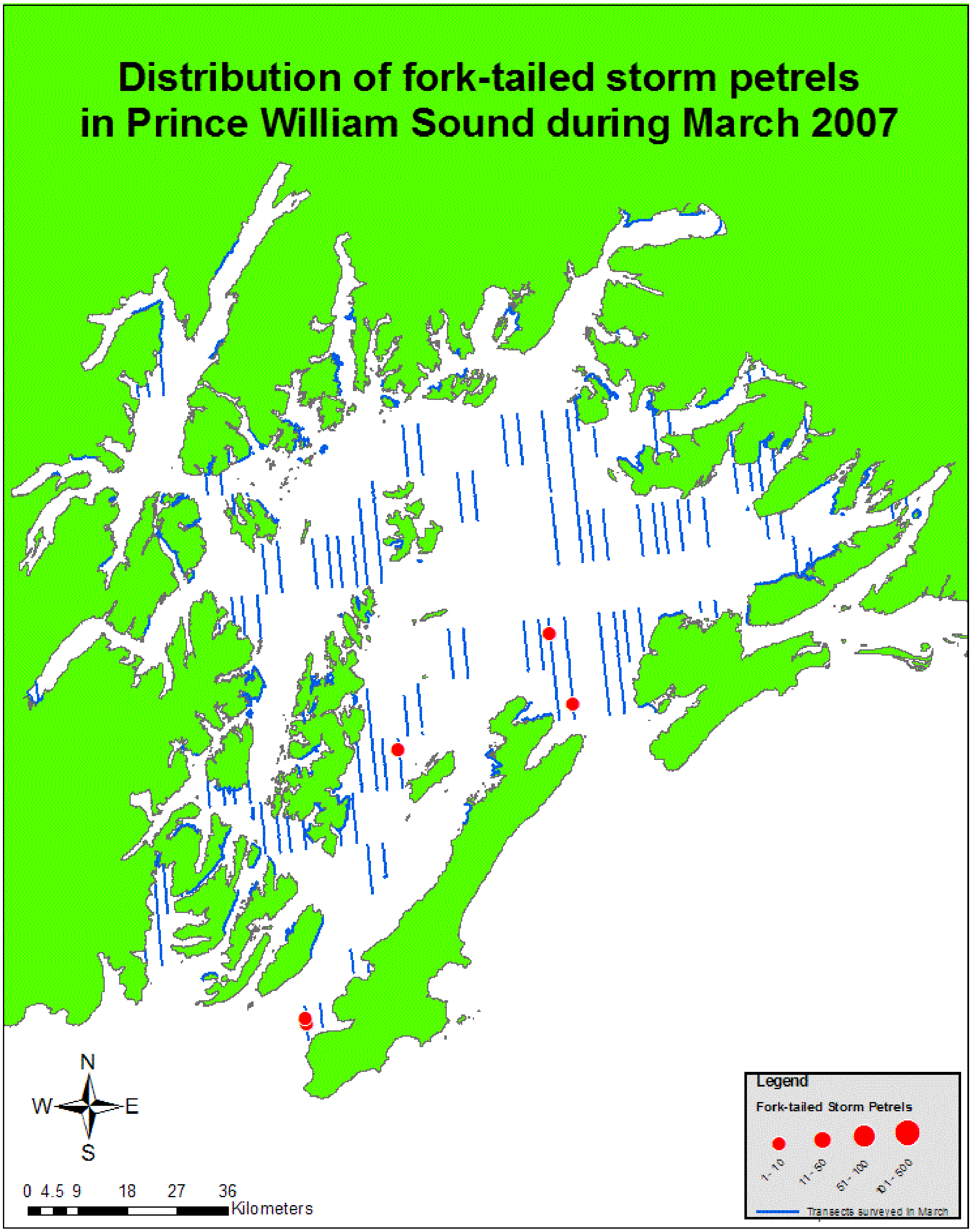
	Oiled Area			Unoiled Area	
Year	*N*	CI		*N*	CI
March					
1990	36,343	7,760		105,568	21,547
1991	49,649	13,422		121,784	27,797
1993	83,171	34,794		319,589	164,048
1994	86,045	27,031		234,425	56,507
1996	64,402	17,081		188,599	30,454
1998	58,304	16,511		300,632	143,024
2000	37,468	8,197		173,477	51,826
2004	64,696	12,175		189,768	47,644
2005	90,457	23,823		182,610	31,718
2007	36,995	8,584		144,888	38,062
July					
1989	102,402	20,032		200,136	50,625
1990	88,191	20,140		149,709	25,597
1991	116,115	24,129		227,242	95,674
1993	116,219	26,896		255,108	51,600
1996	74,039	25,200		172,533	32,846
1998	70,483	12,409		131,281	44,481
2000	80,388	26,215		123,960	23,297
2004	44,613	11,097		127,323	18,528
2005	65,103	14,521		129,677	20,508
2007	89,414	47,368		175,885	54,598

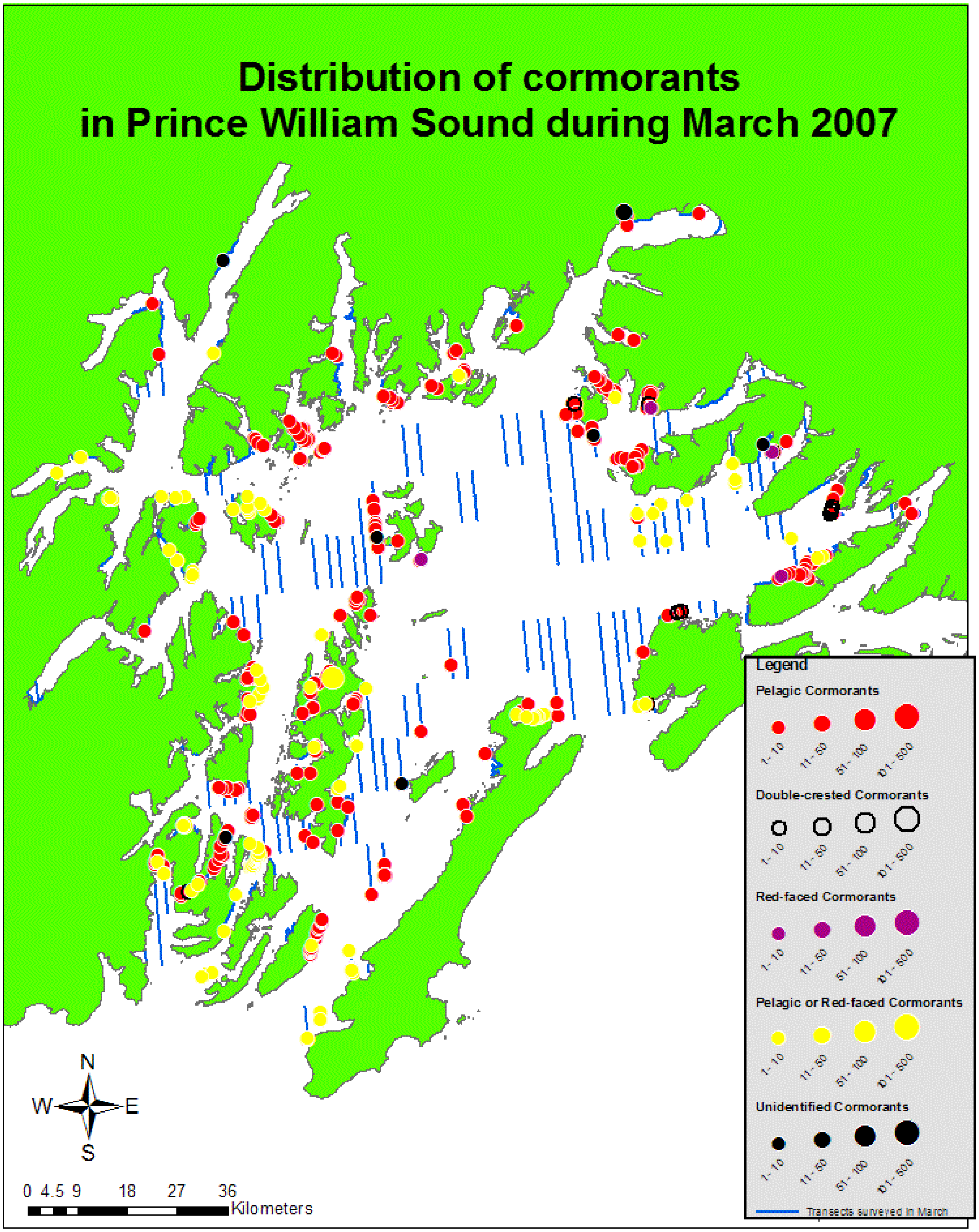
Appendix L: Distribution maps for species recorded during March 2007.



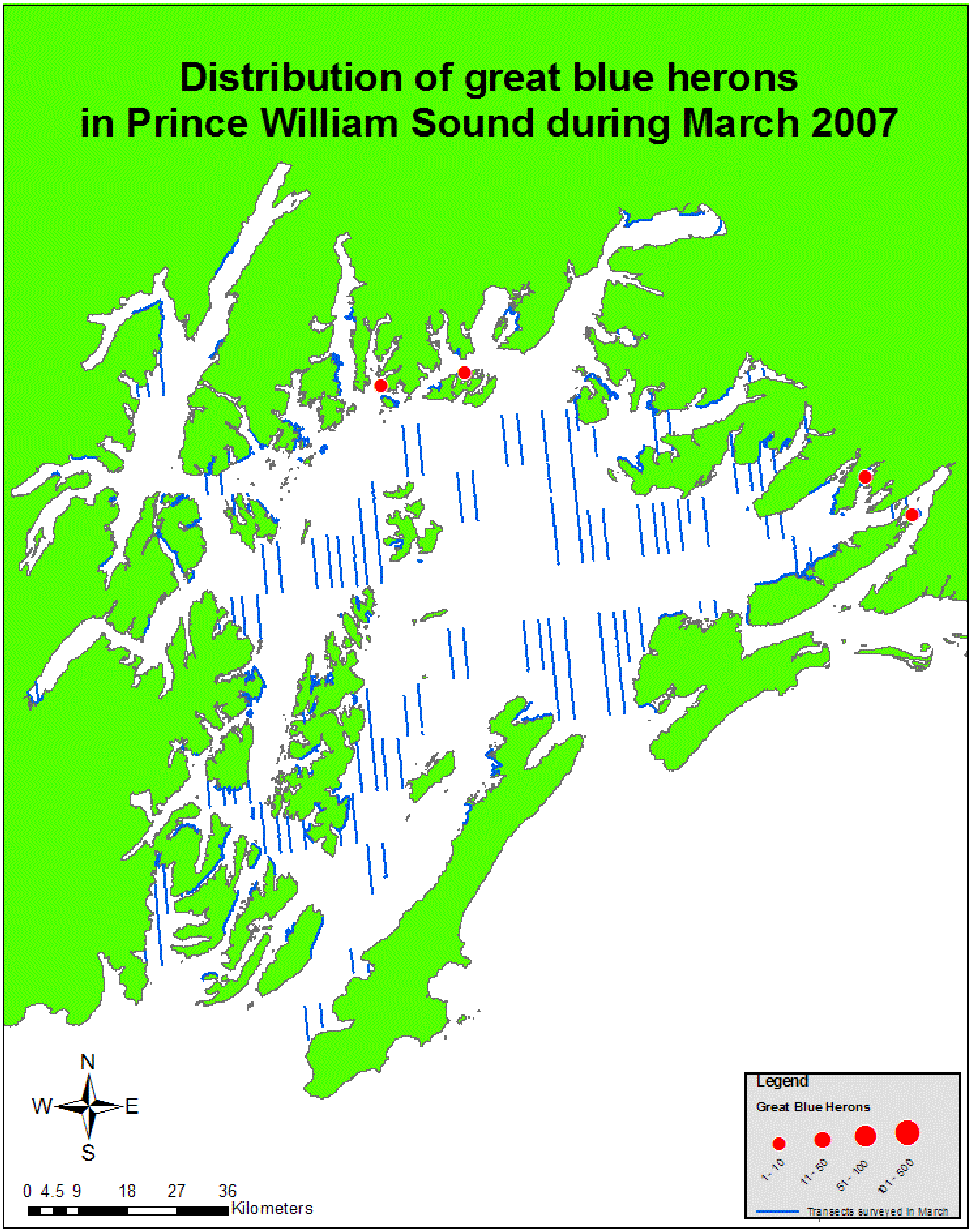


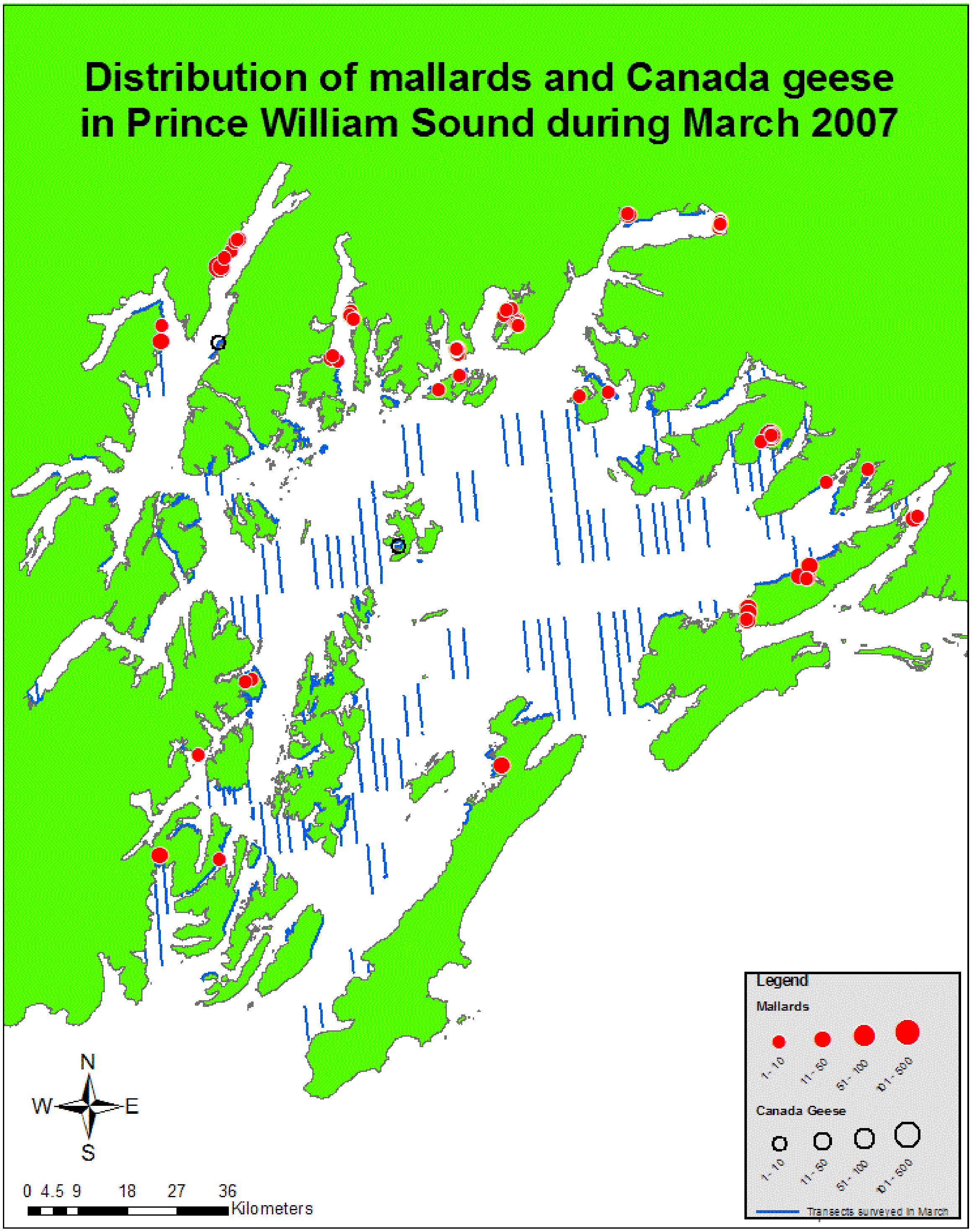
Distribution of grebes
in Prince William Sound during March 2007
Legend
Horned Grebes
1 - 10
11 - 50
51 - 100
101 - 500
Red-necked Grebes
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Grebes
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

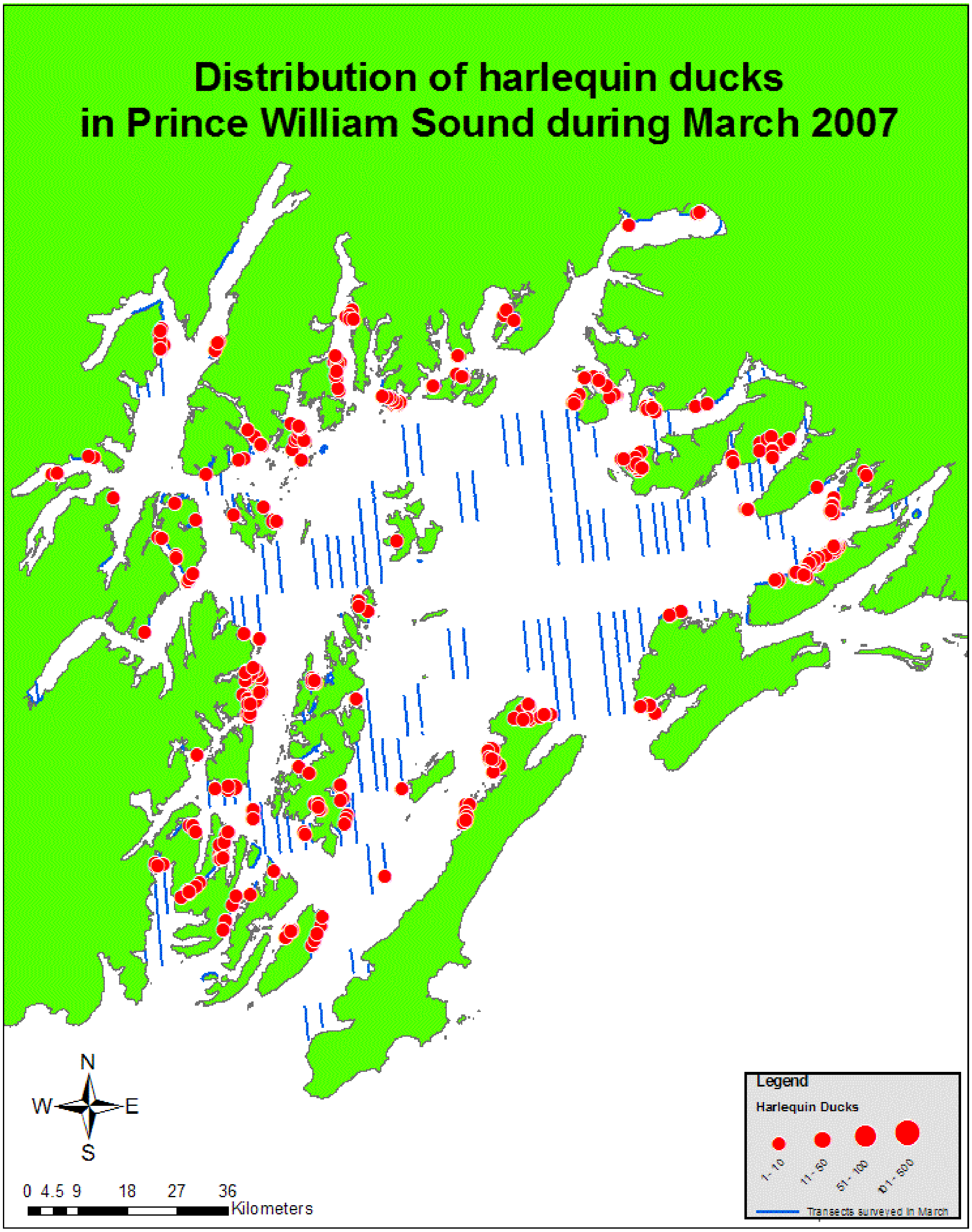

Distribution of fork-tailed storm petrels
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Fork-tailed Storm Petrels
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March

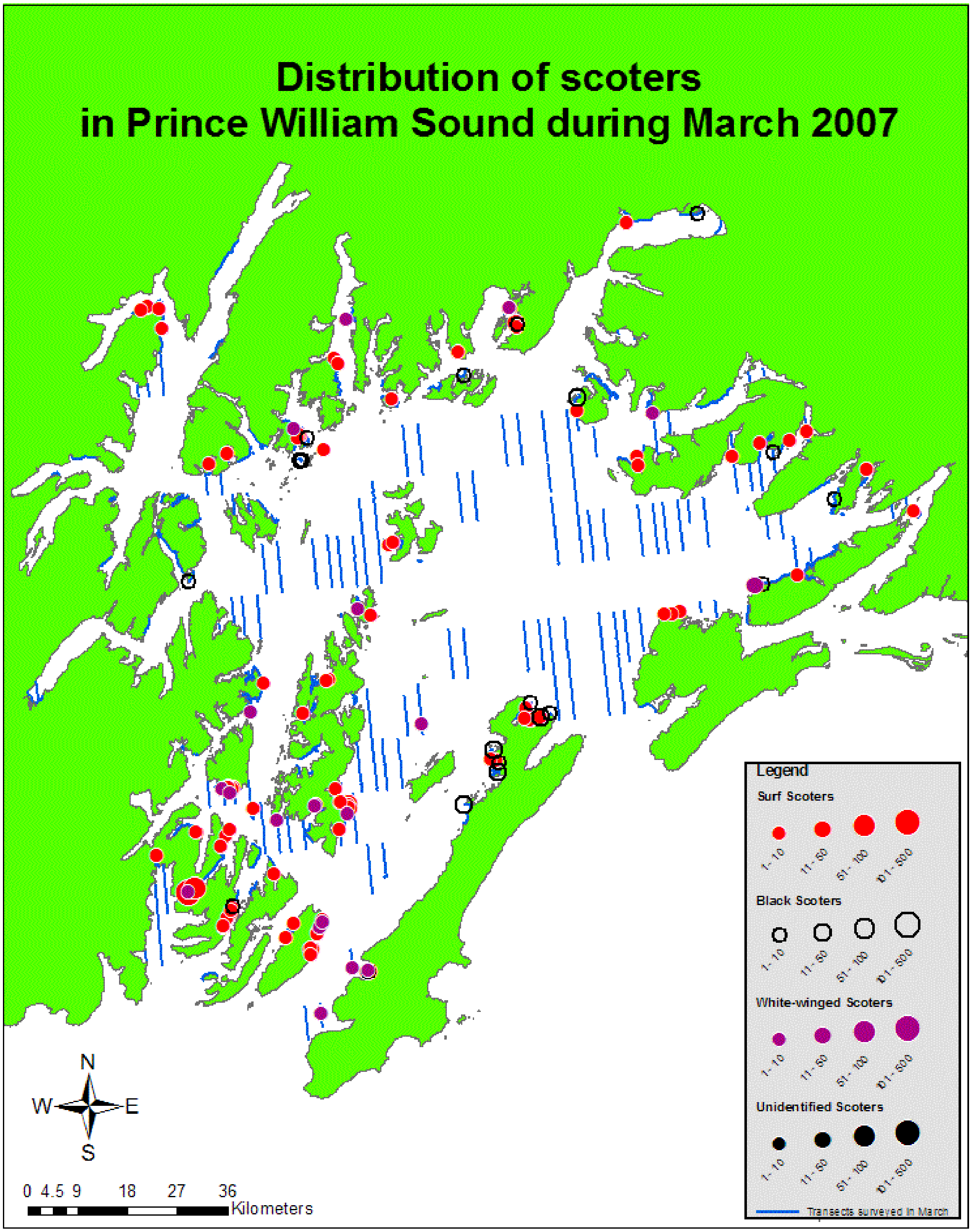


Distribution of cormorants
in Prince William Sound during March 2007
Legend
Pelagic Cormorants
1 - 10
11 - 50
51 - 100
101 - 500
Double-crested Cormorants
1 - 10
11 - 50
51 - 100
101 - 500
Red-faced Cormorants
1 - 10
11 - 50
51 - 100
101 - 500
Pelagic or Red-faced Cormorants
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Cormorants
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

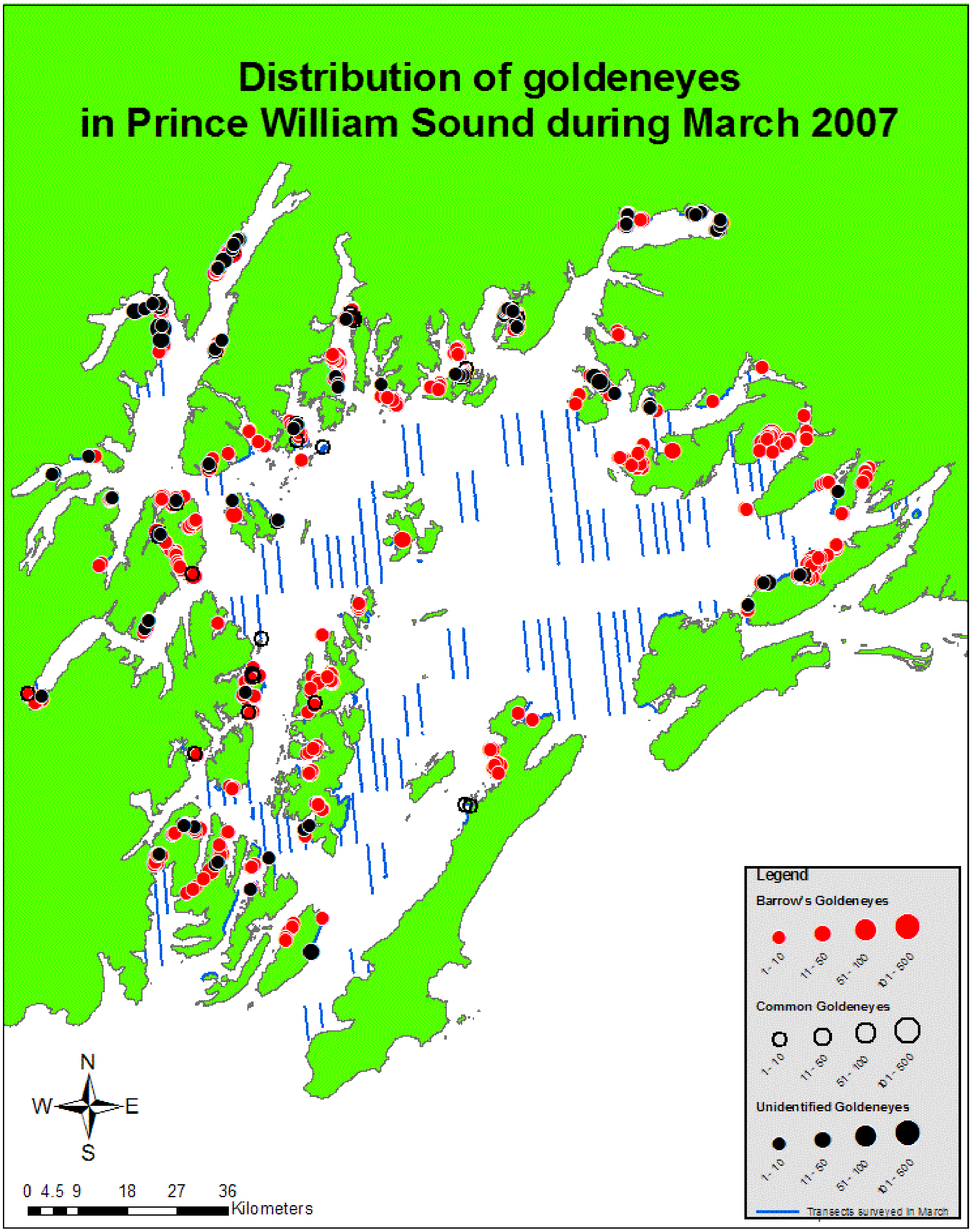

Distribution of great blue herons
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Great Blue Herons
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March

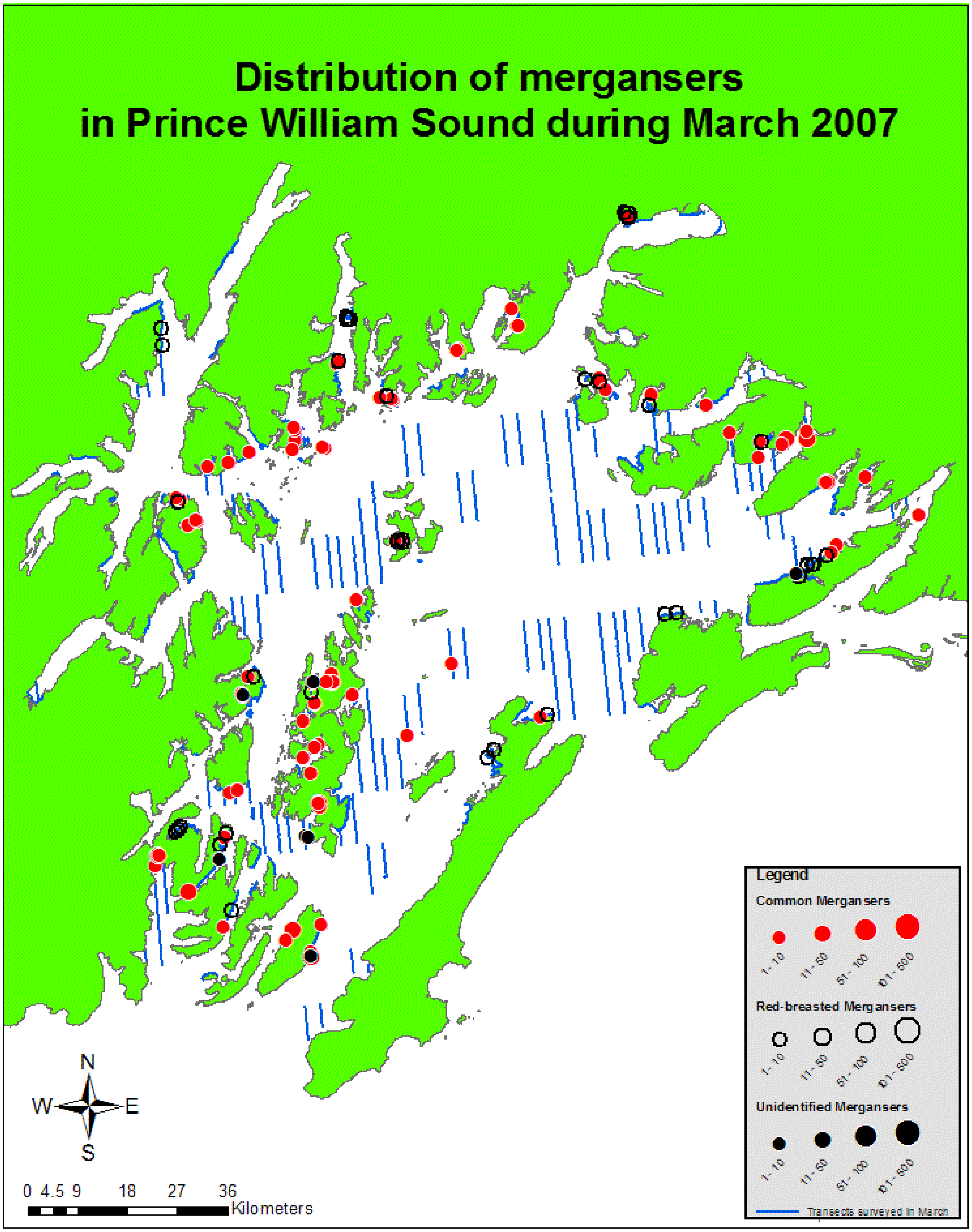

Distribution of mallards and Canada geese
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Mallards
1 - 10
11 - 50
51 - 100
101 - 500
Canada Geese
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March


Distribution of harlequin ducks
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Harlequin Ducks
1 - 10
11 - 50
51 - 100
Transects surveyed in March

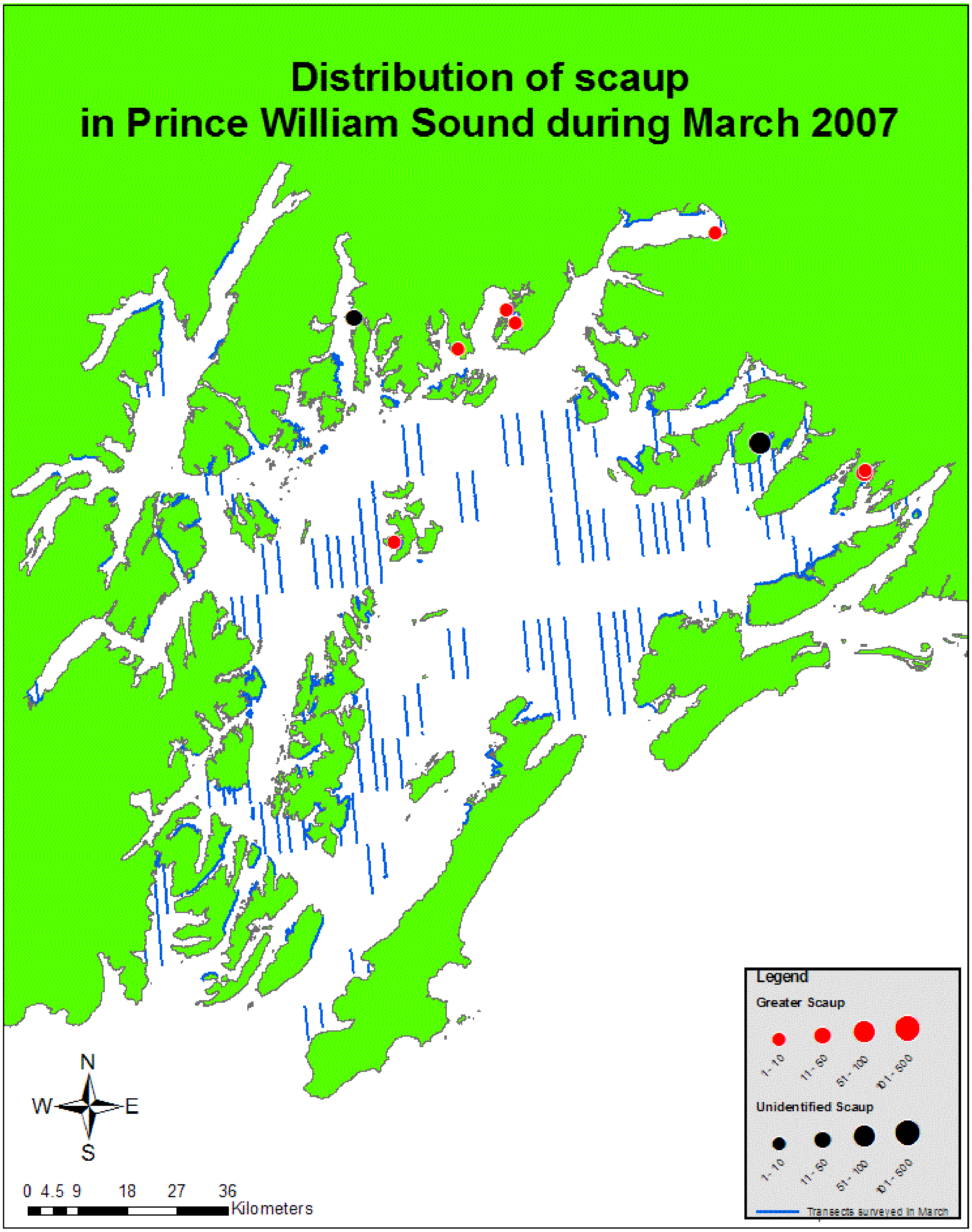


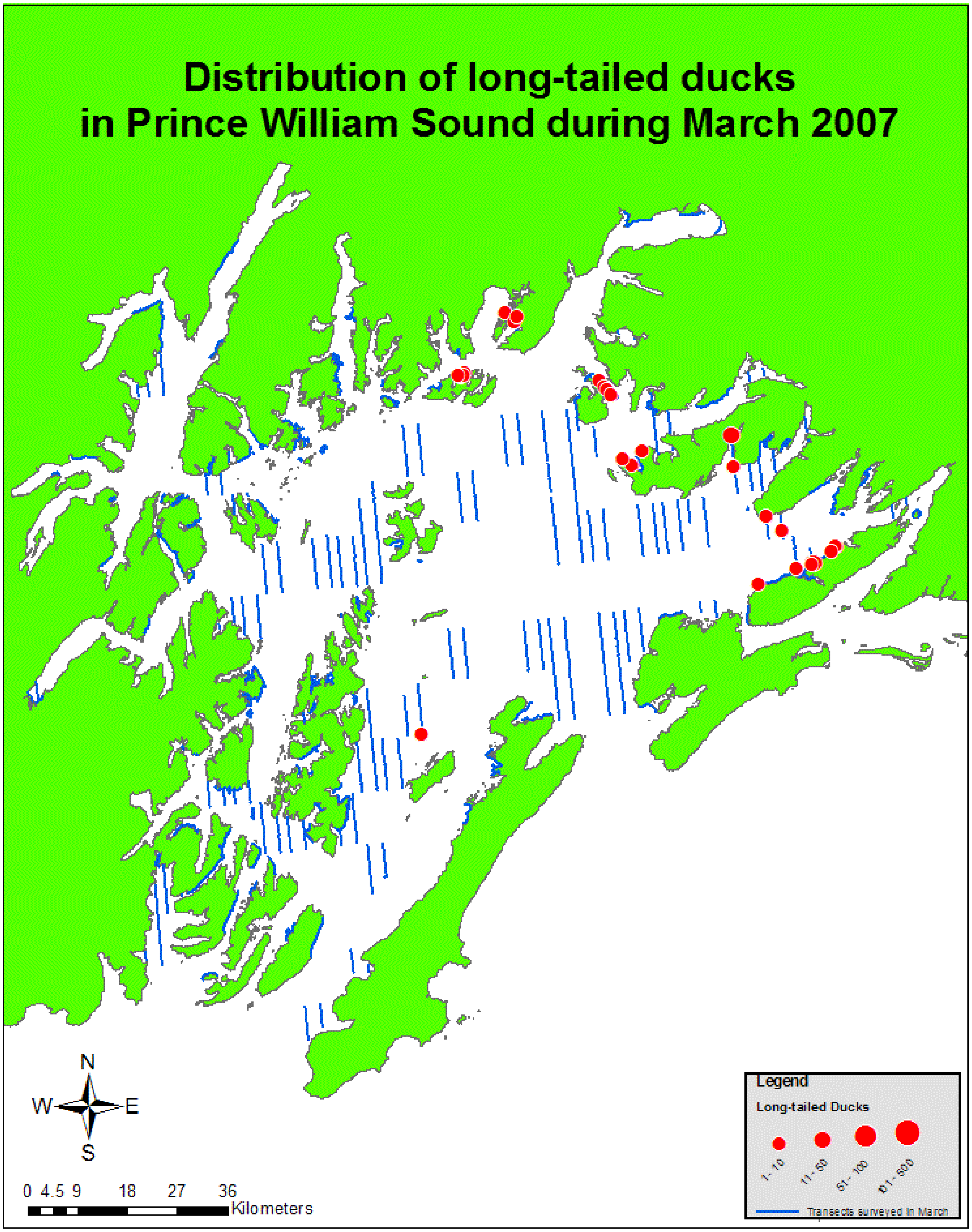
Distribution of scoters
in Prince William Sound during March 2007
Legend
Surf Scoters
Black Scoters
White-winged Scoters
Unidentified Scoters
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

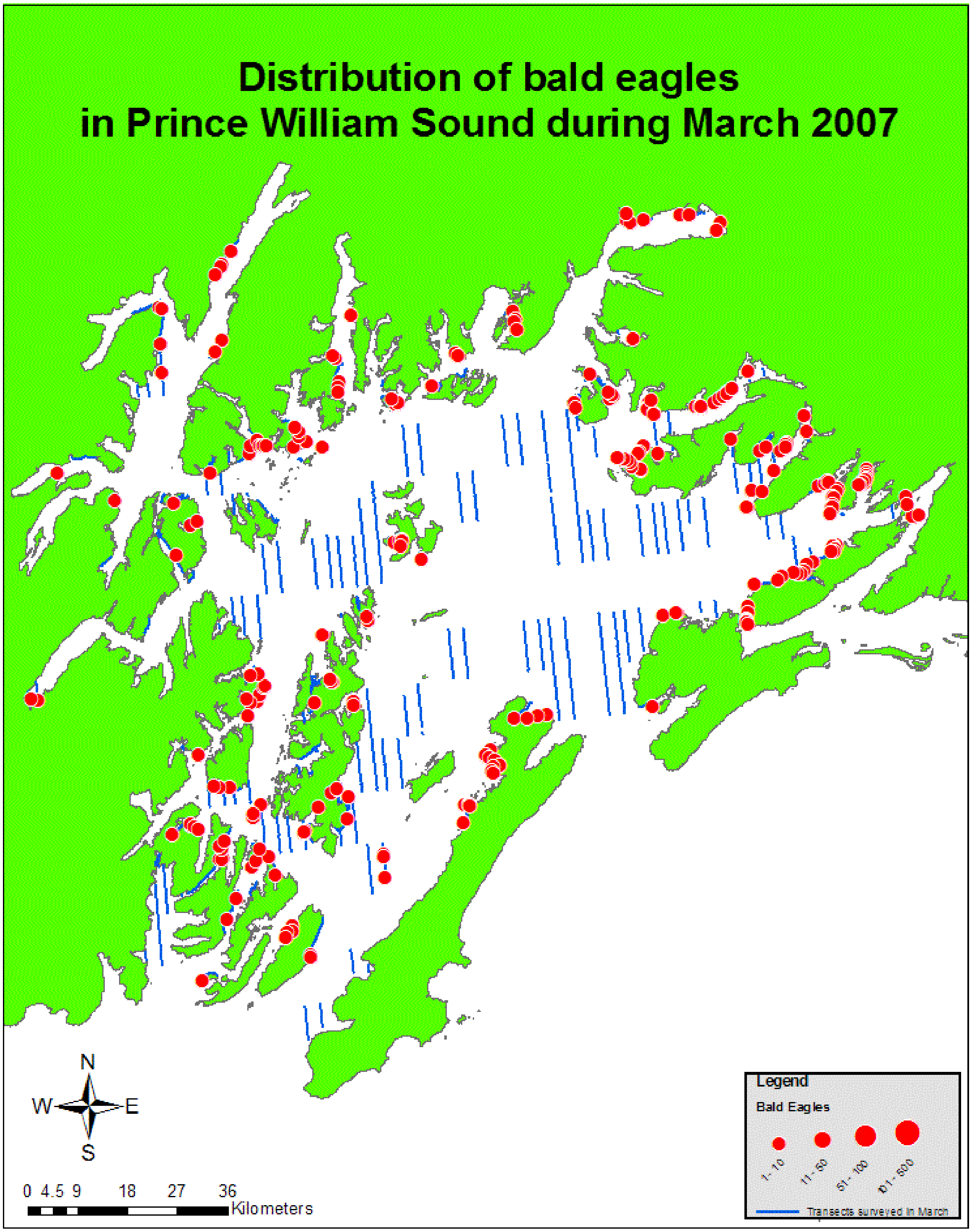

Distribution of goldeneyes
in Prince William Sound during March 2007
Legend
Barrow's Goldeneyes
1 - 10
11 - 50
51 - 100
101 - 500
Common Goldeneyes
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Goldeneyes
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers



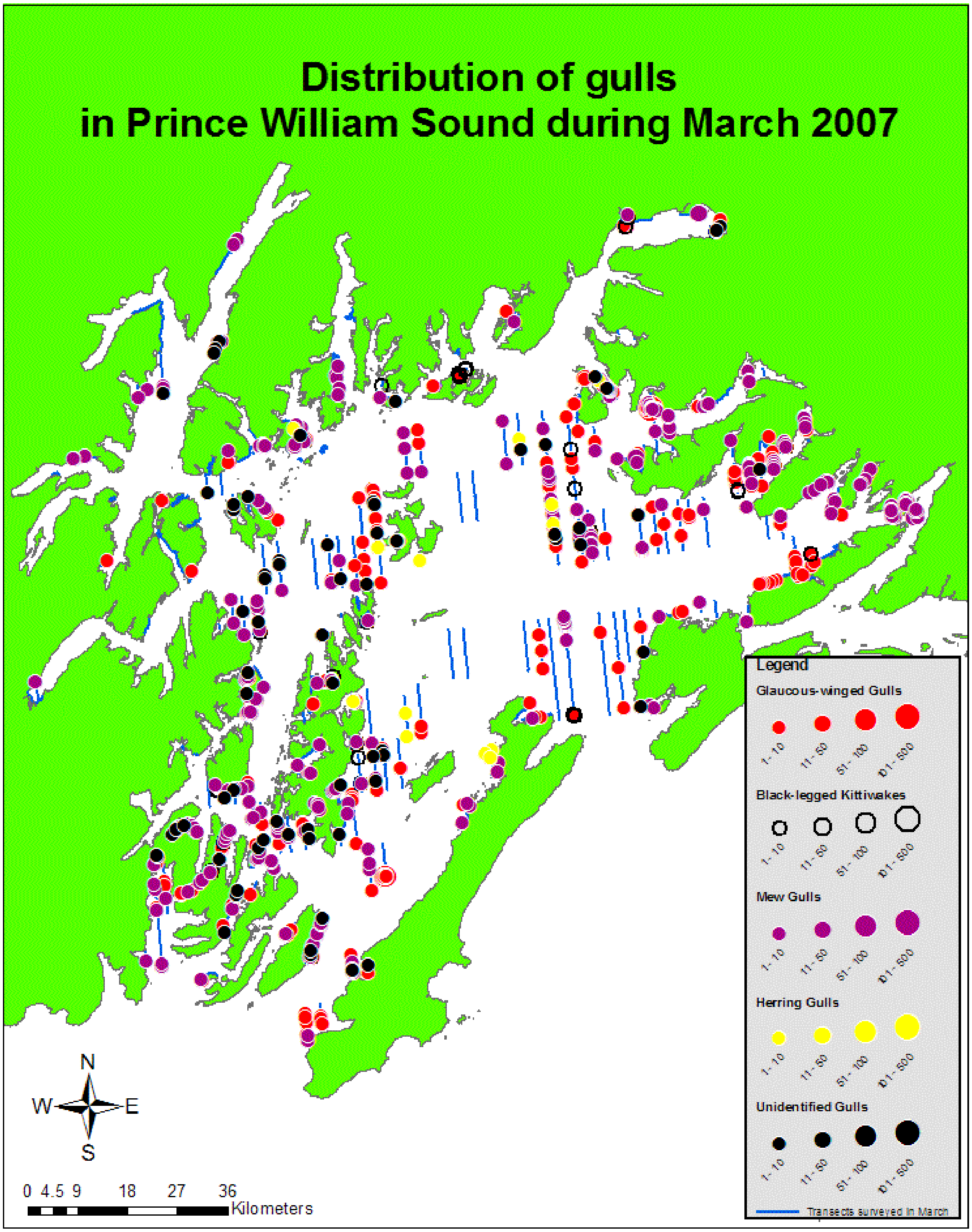
Distribution of mergansers
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Common Mergansers
1 - 10
11 - 50
51 - 100
Red-breasted Mergansers
1 - 10
11 - 50
51 - 100
Unidentified Mergansers
1 - 10
11 - 50
51 - 100
Transects surveyed in March


Distribution of scaup
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Greater Scaup
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Scaup
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March

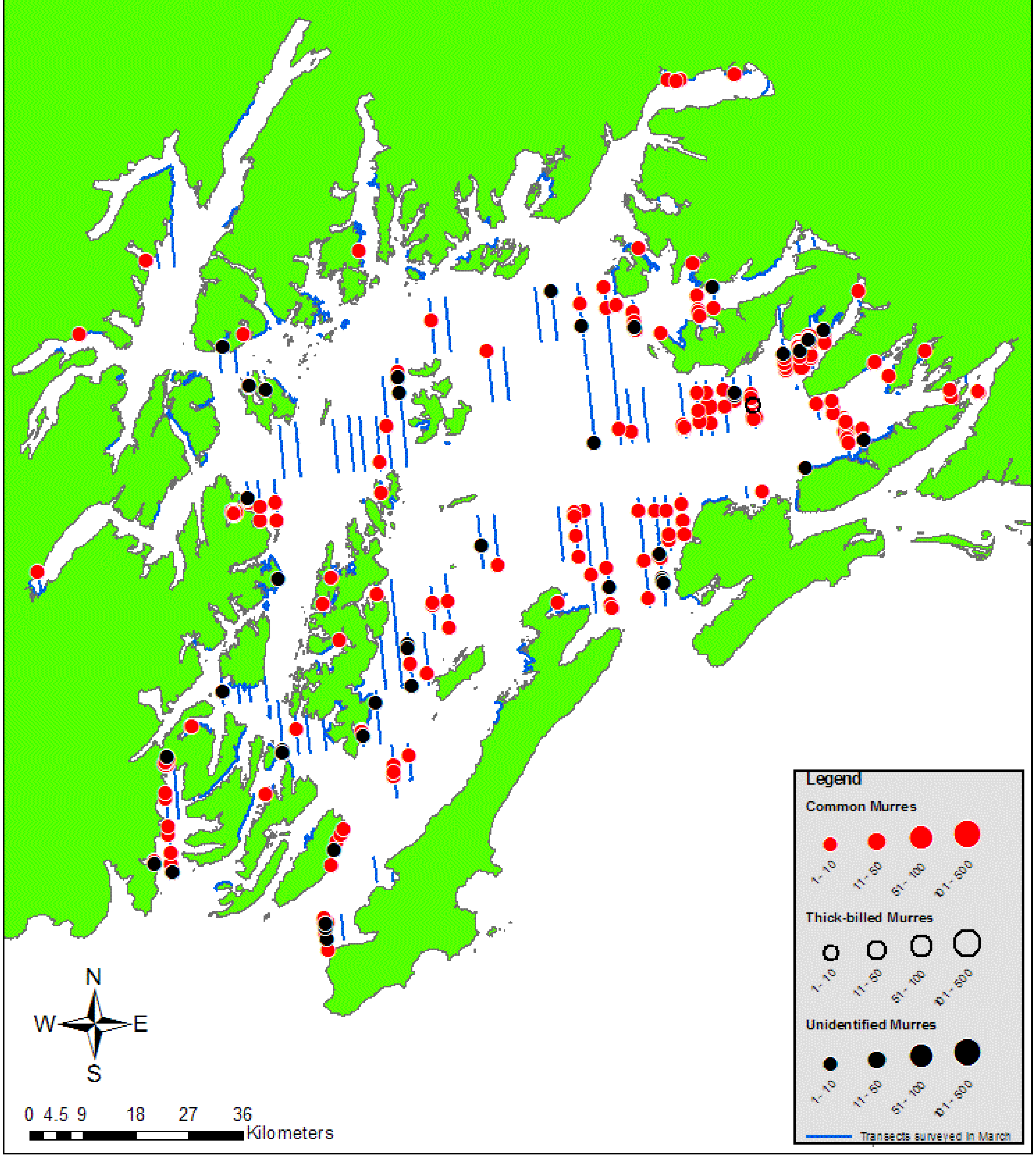

Distribution of long-tailed ducks
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Long-tailed Ducks
1 - 10
11 - 50
51 - 100
01 - 500
Transects surveyed in March

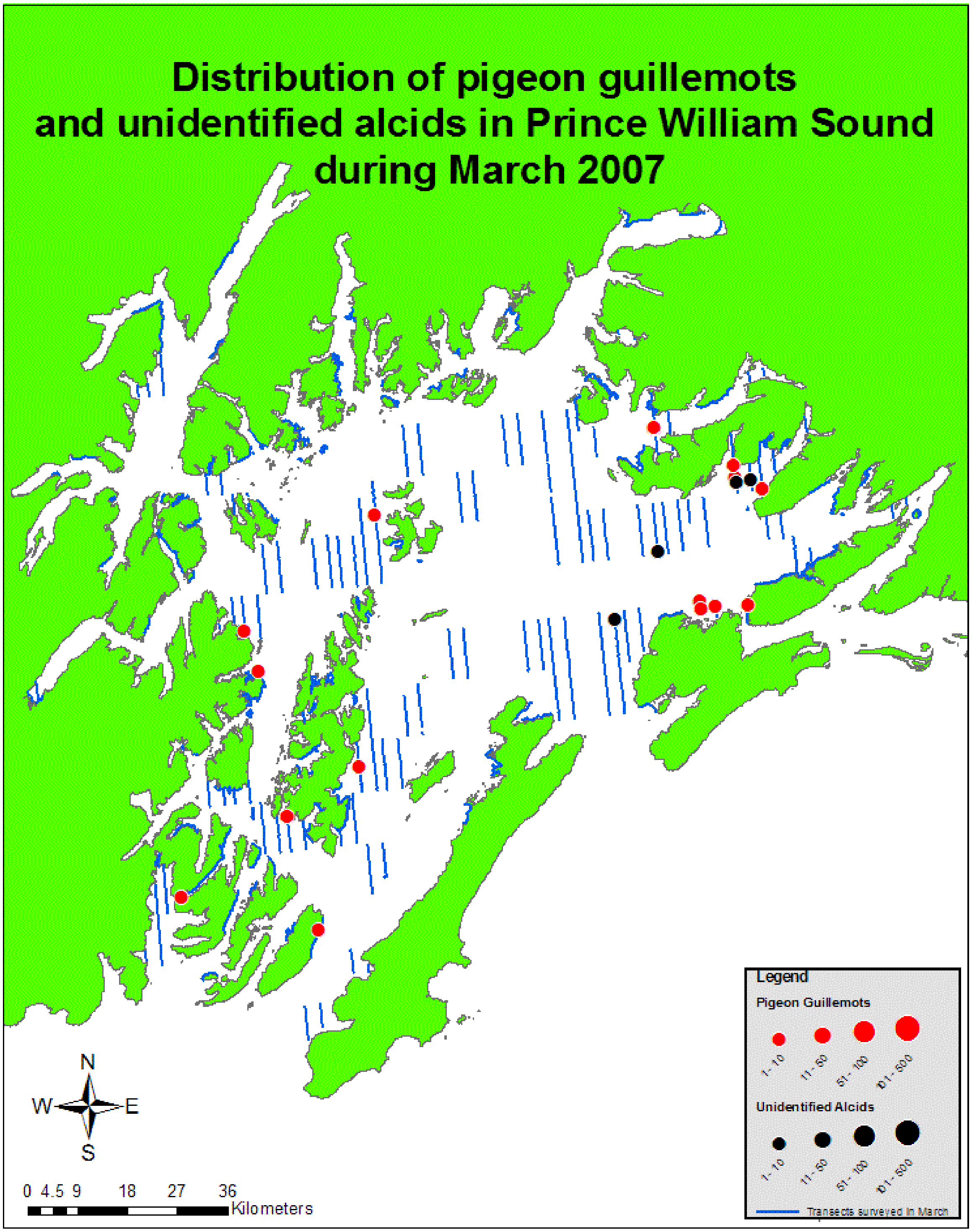


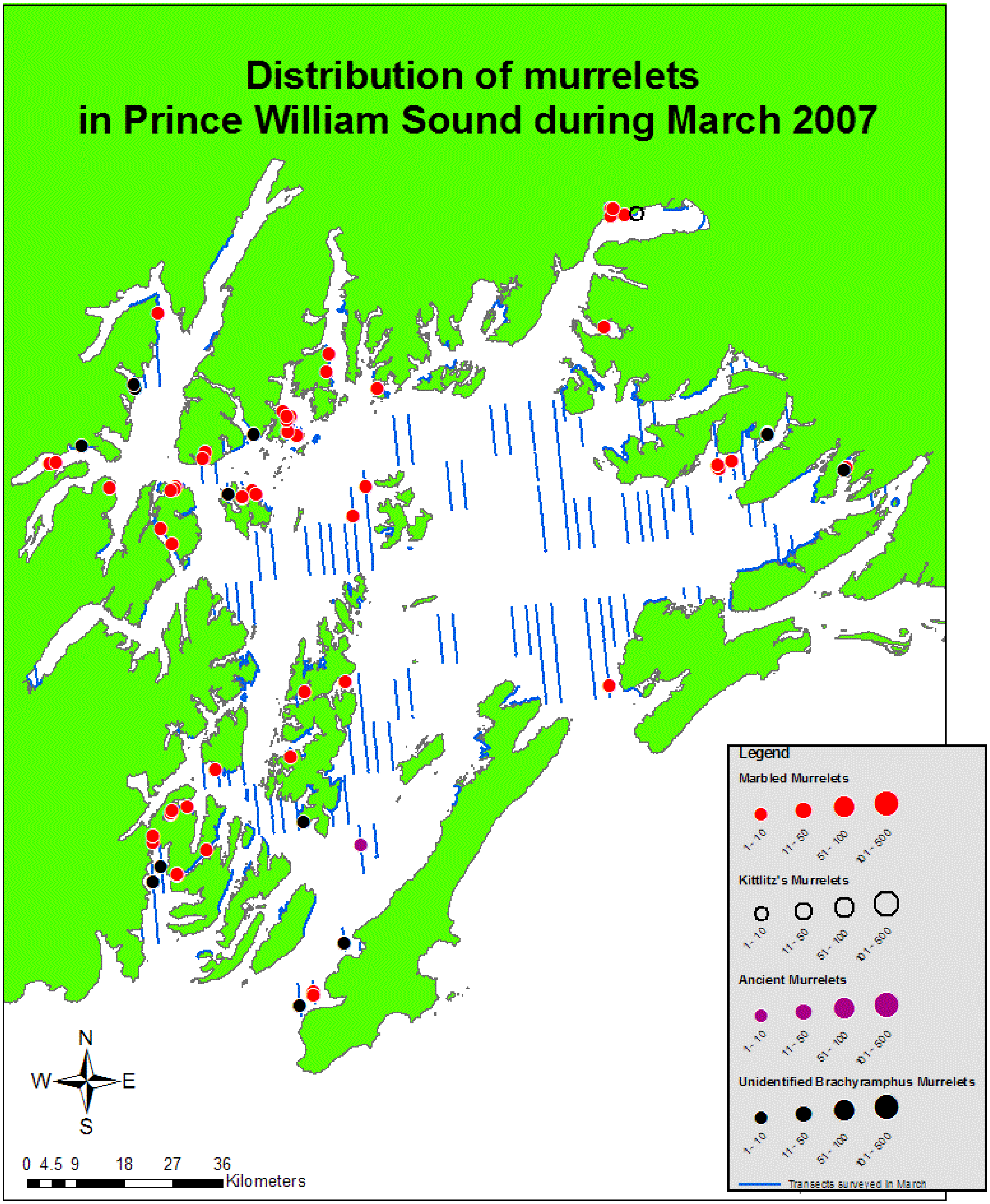
Distribution of bald eagles in Prince William Sound during March 2007


Distribution of gulls
in Prince William Sound during March 2007
Legend
Glaucous-winged Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Black-legged Kittiwakes
1 - 10
11 - 50
51 - 100
101 - 500
Mew Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Herring Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

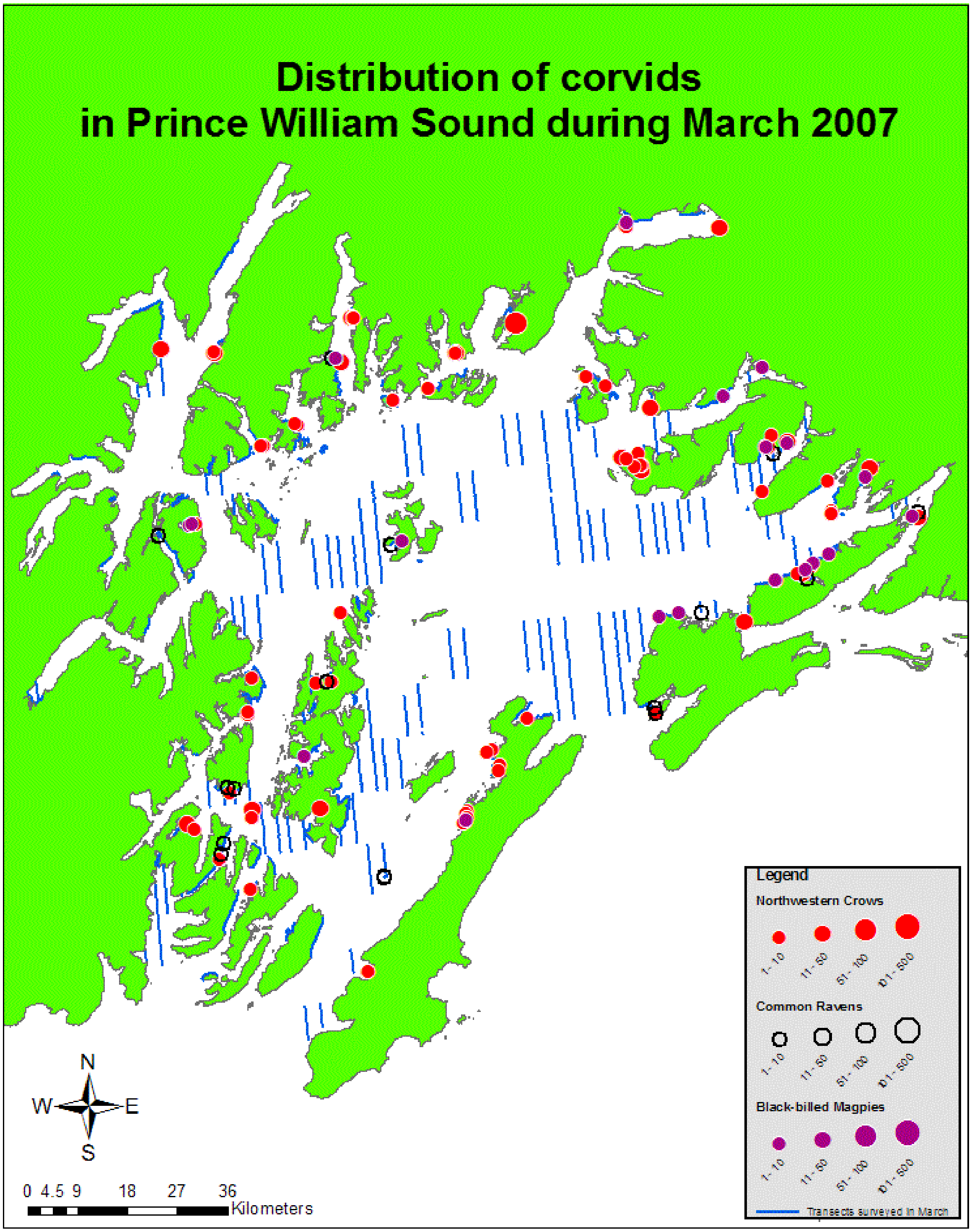
Distribution of murres in Prince William Sound during March 2007

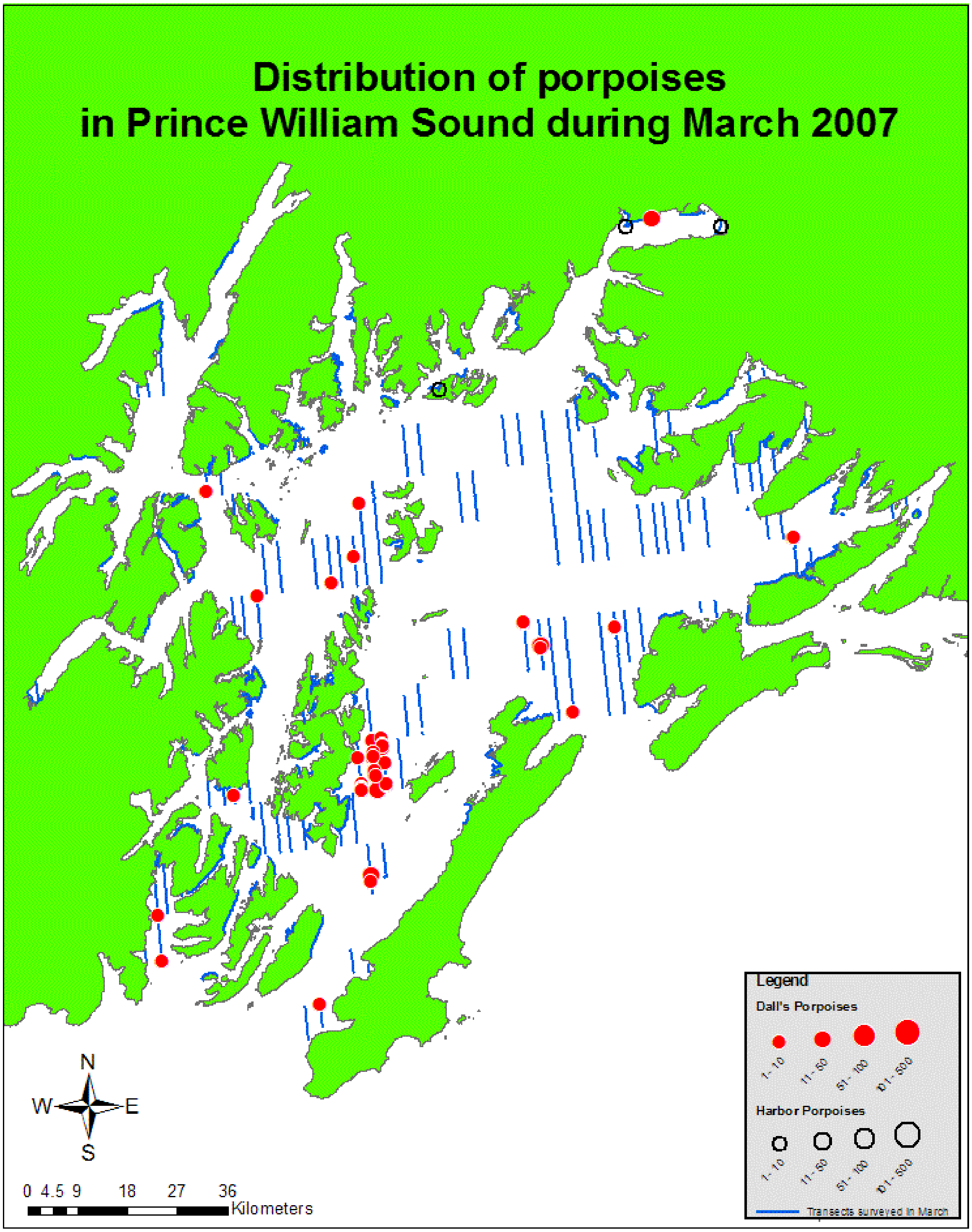


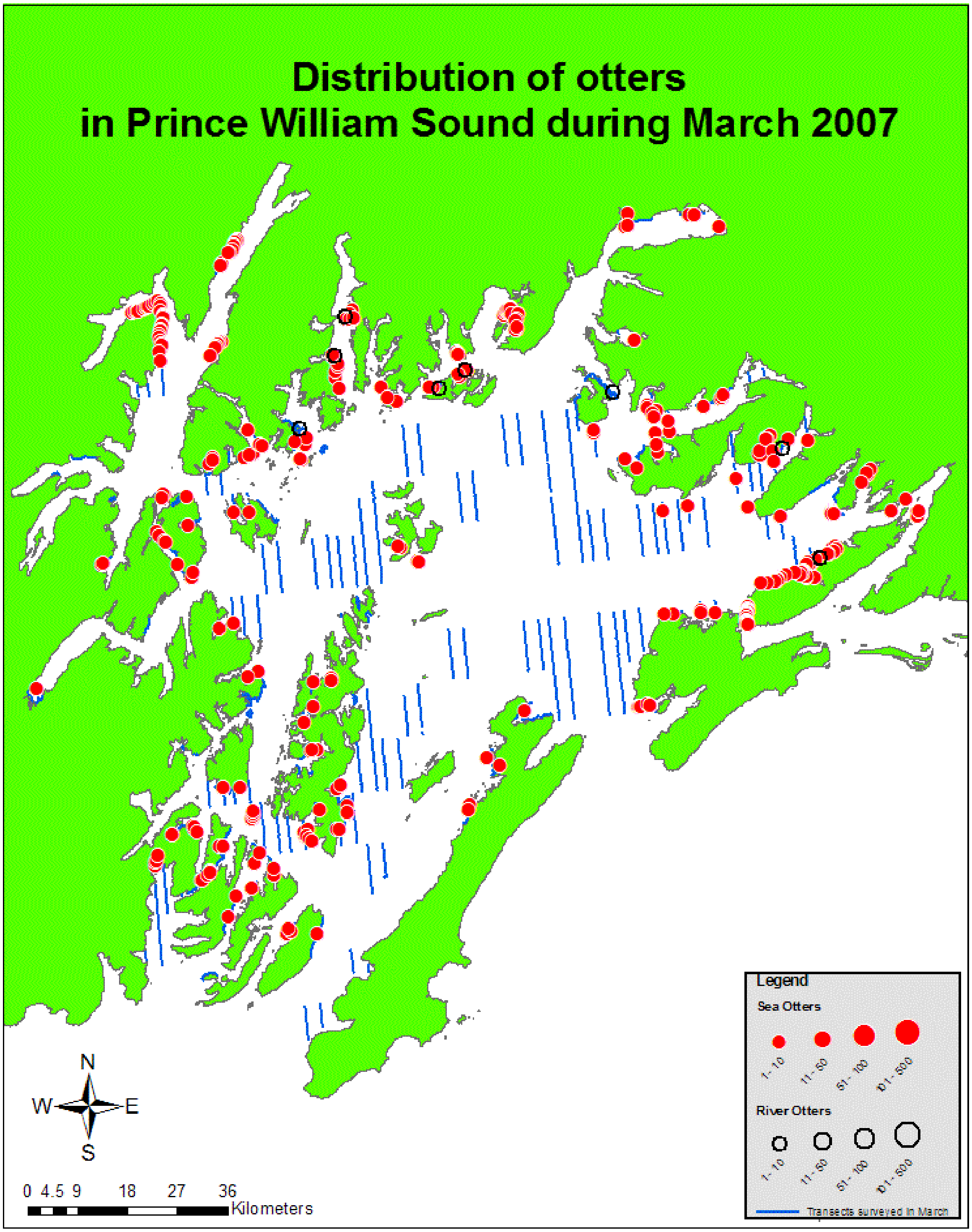

Distribution of pigeon guillemots
and unidentified alcids in Prince William Sound
during March 2007
Legend
Pigeon Guillemots
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Alcids
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

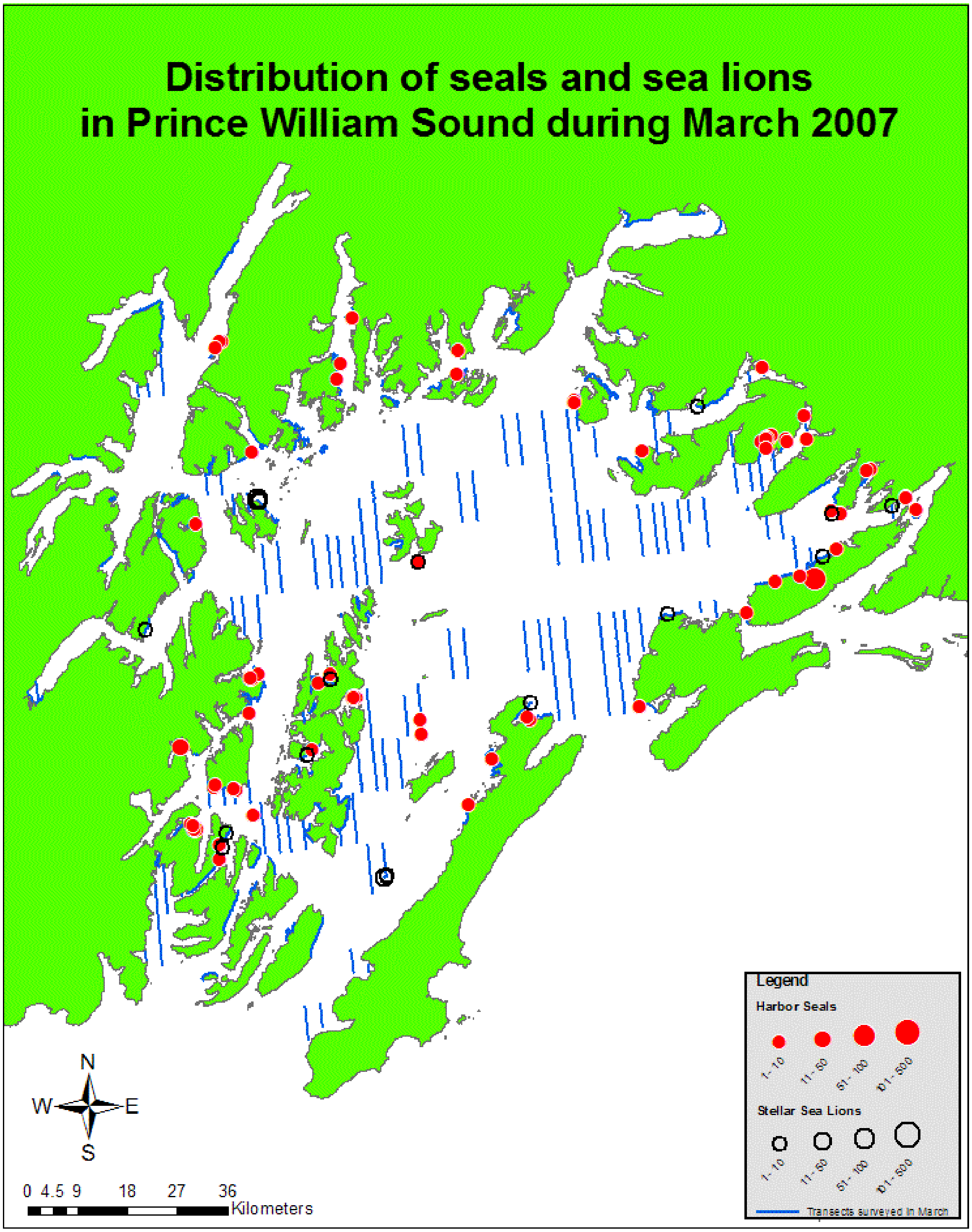


Distribution of murrelets
in Prince William Sound during March 2007
N
W
E
S
0 4.5 9 18 27 36
Kilometers
Legend
Marbled Murrelets
1 - 10
11 - 50
51 - 100
Kittlitz's Murrelets
1 - 10
11 - 50
51 - 100
Ancient Murrelets
1 - 10
11 - 50
51 - 100
Unidentified Brachyramphus Murrelets
1 - 10
11 - 50
51 - 100
Transects surveyed in March


Distribution of corvids
in Prince William Sound during March 2007
Legend
Northwestern Crows
1 - 10
11 - 50
51 - 100
101 - 500
Common Ravens
1 - 10
11 - 50
51 - 100
101 - 500
Black-billed Magpies
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

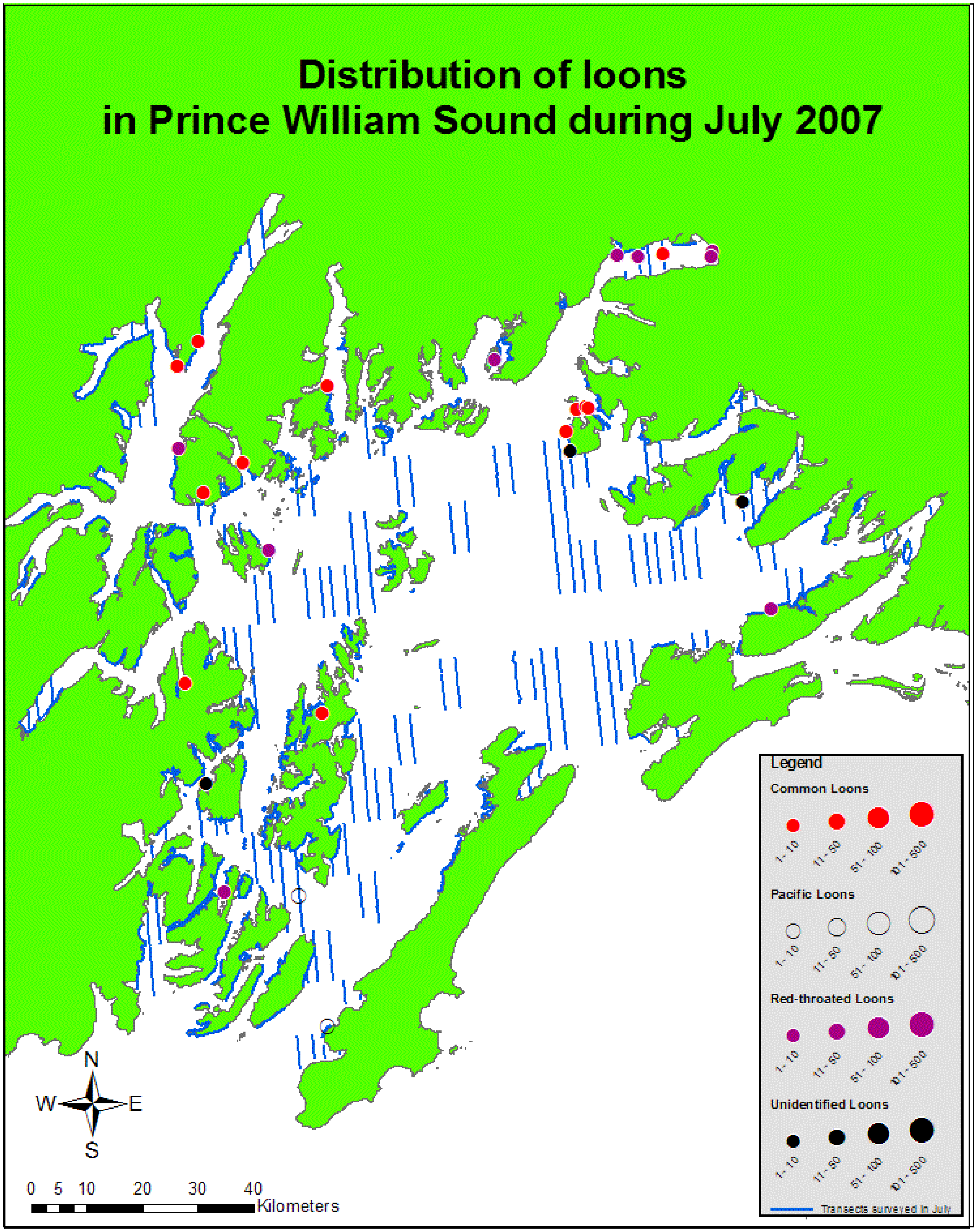

Distribution of porpoises
in Prince William Sound during March 2007
Legend
Dall's Porpoises
1 - 10
11 - 50
51 - 100
101 - 500
Harbor Porpoises
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

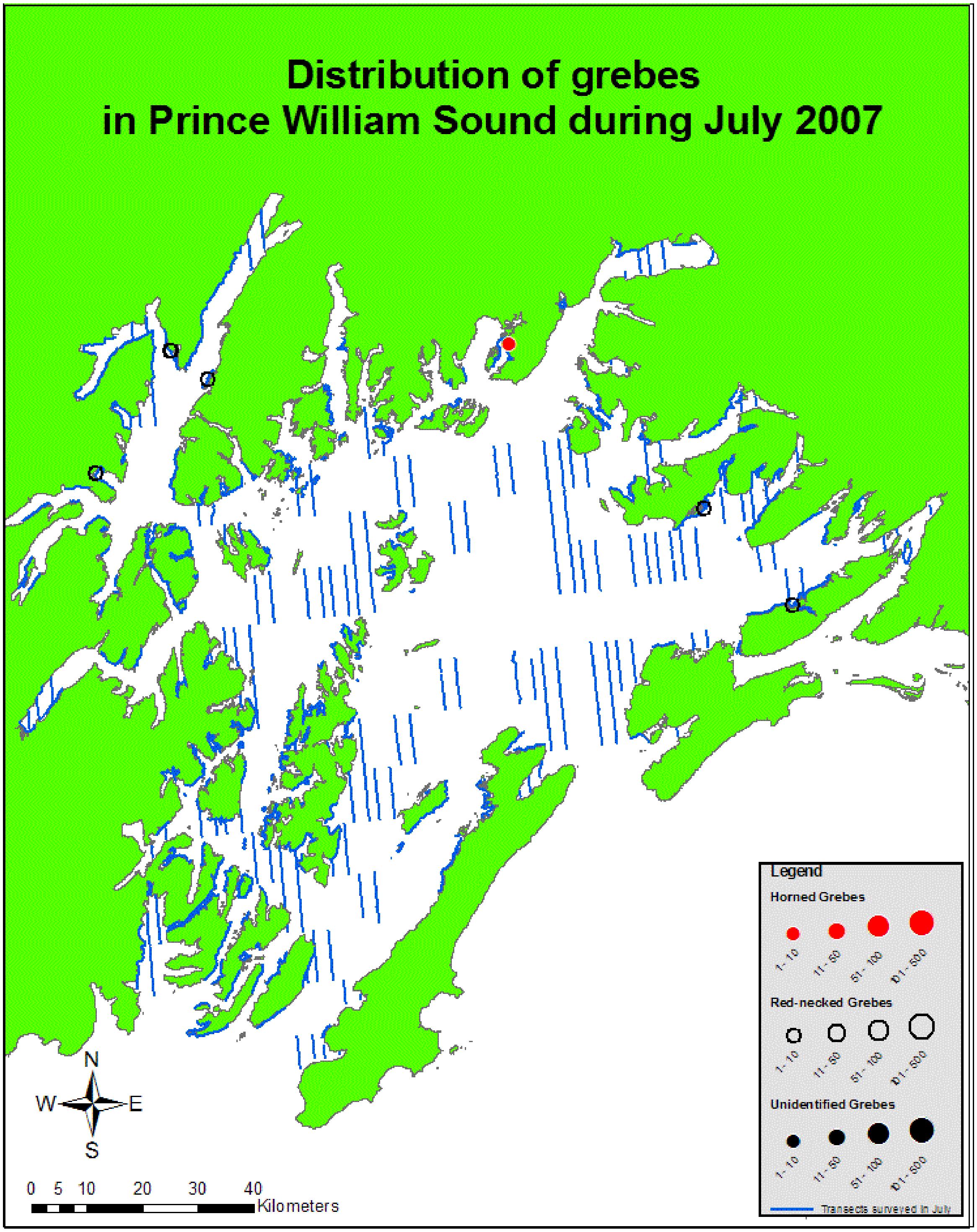

Distribution of otters
in Prince William Sound during March 2007
Legend
Sea Otters
1 - 10
11 - 50
51 - 100
101 - 500
River Otters
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

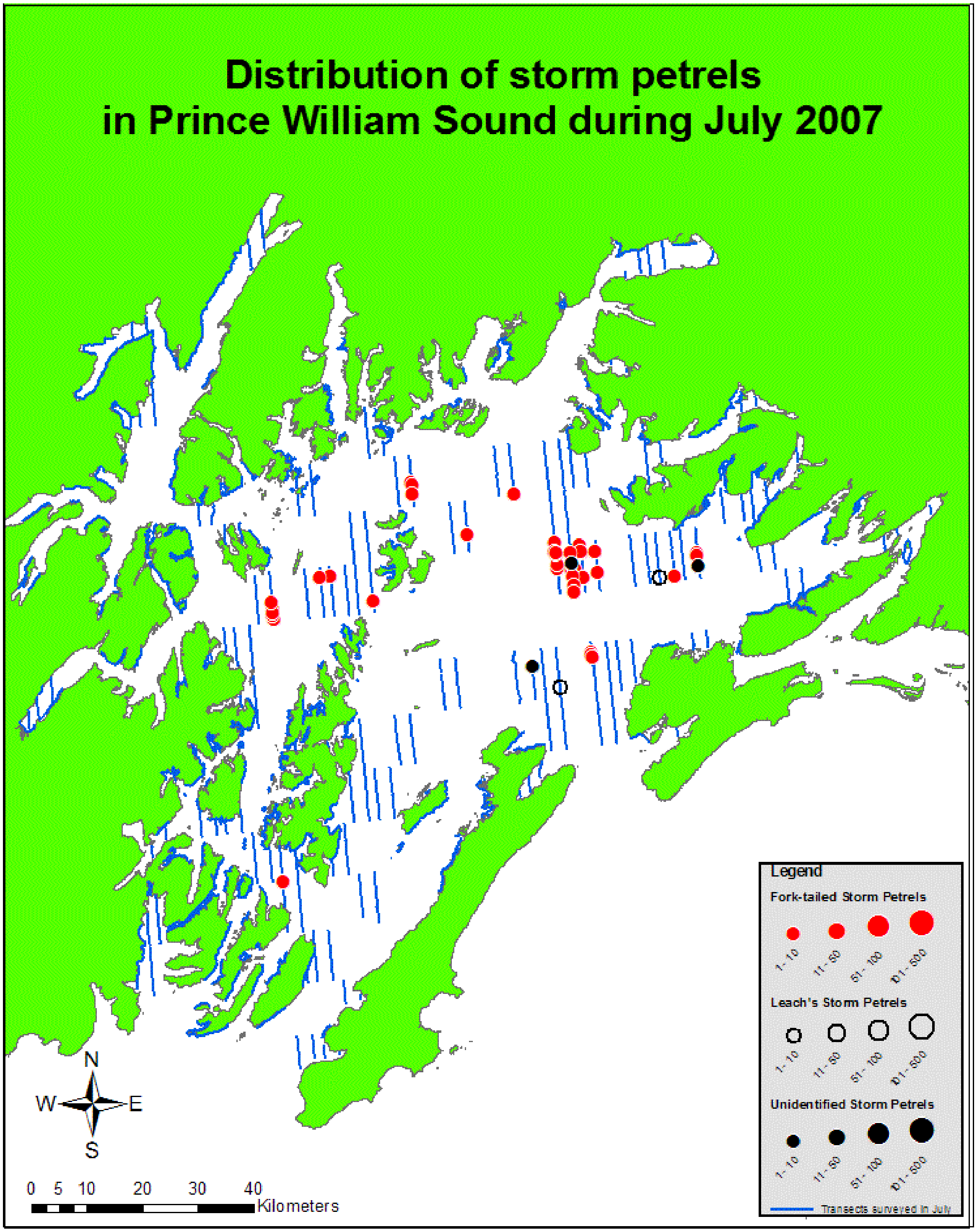


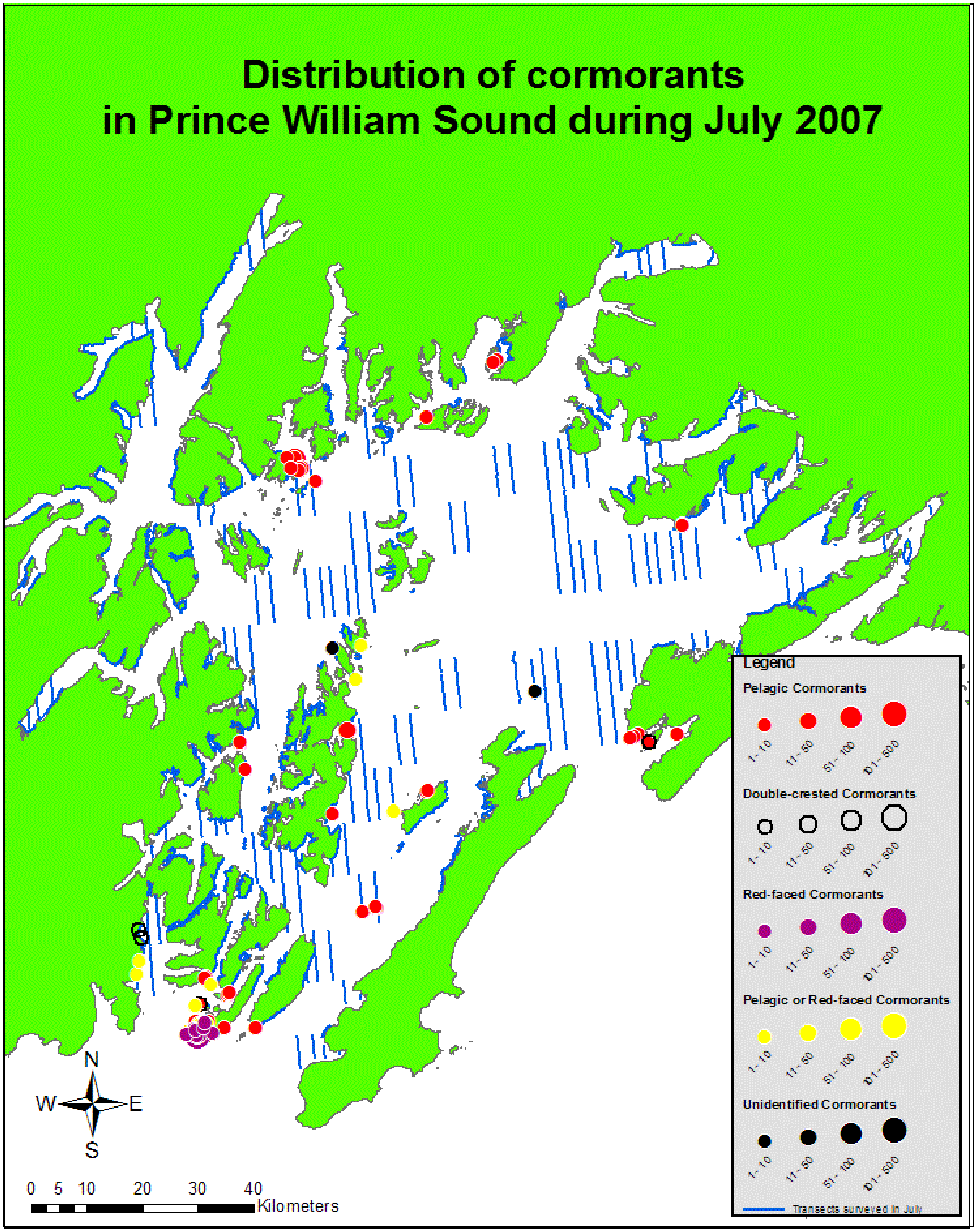
Distribution of seals and sea lions
in Prince William Sound during March 2007
Legend
Harbor Seals
1 - 10
11 - 50
51 - 100
101 - 500
Stellar Sea Lions
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in March
N
W
E
S
0 4.5 9 18 27 36
Kilometers

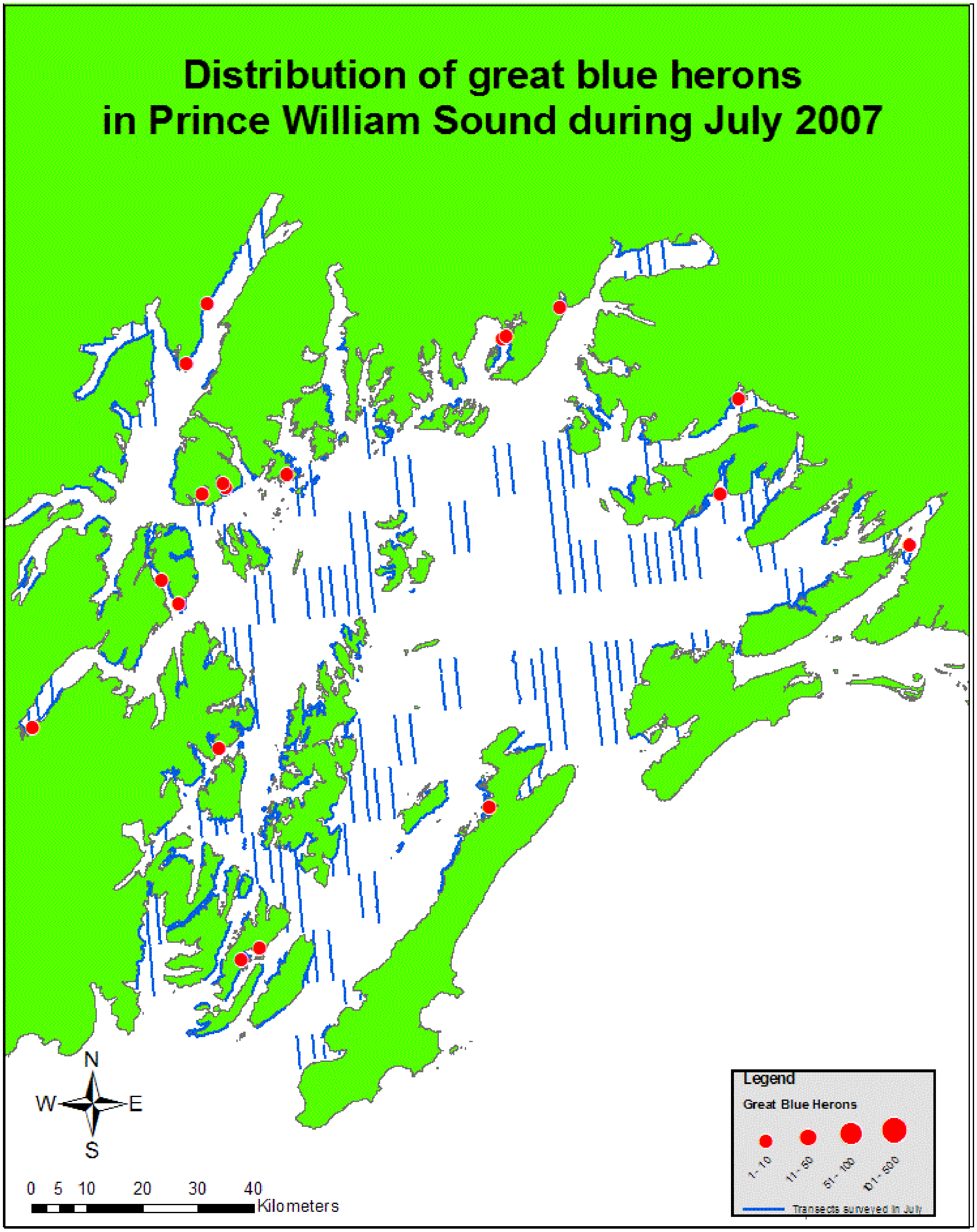
Appendix M: Distribution maps for species recorded during July 2007.



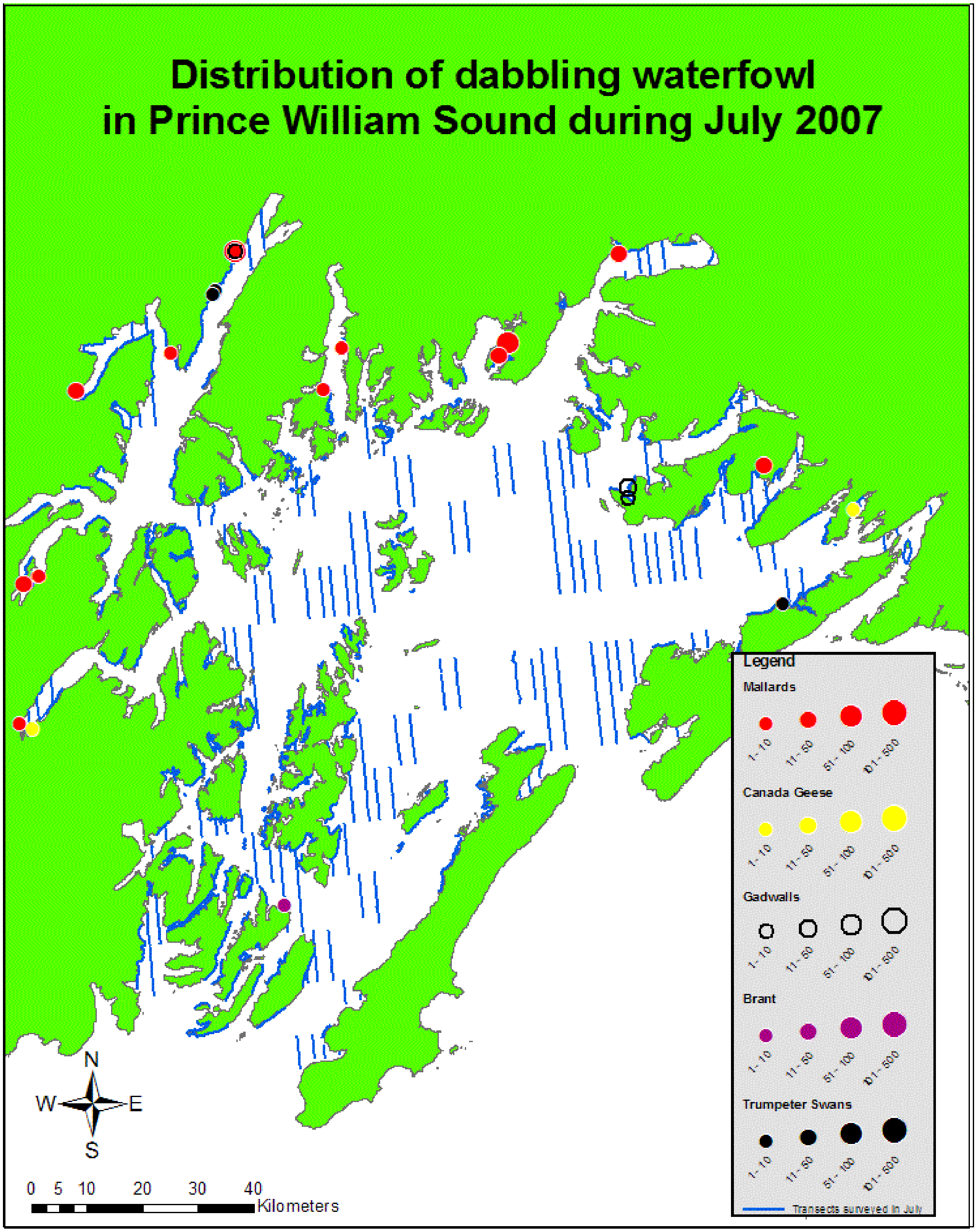

Distribution of grebes
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Horned Grebes
1 - 10
11 - 50
51 - 100
Red-necked Grebes
1 - 10
11 - 50
51 - 100
Unidentified Grebes
1 - 10
11 - 50
51 - 100
Transects surveyed in July

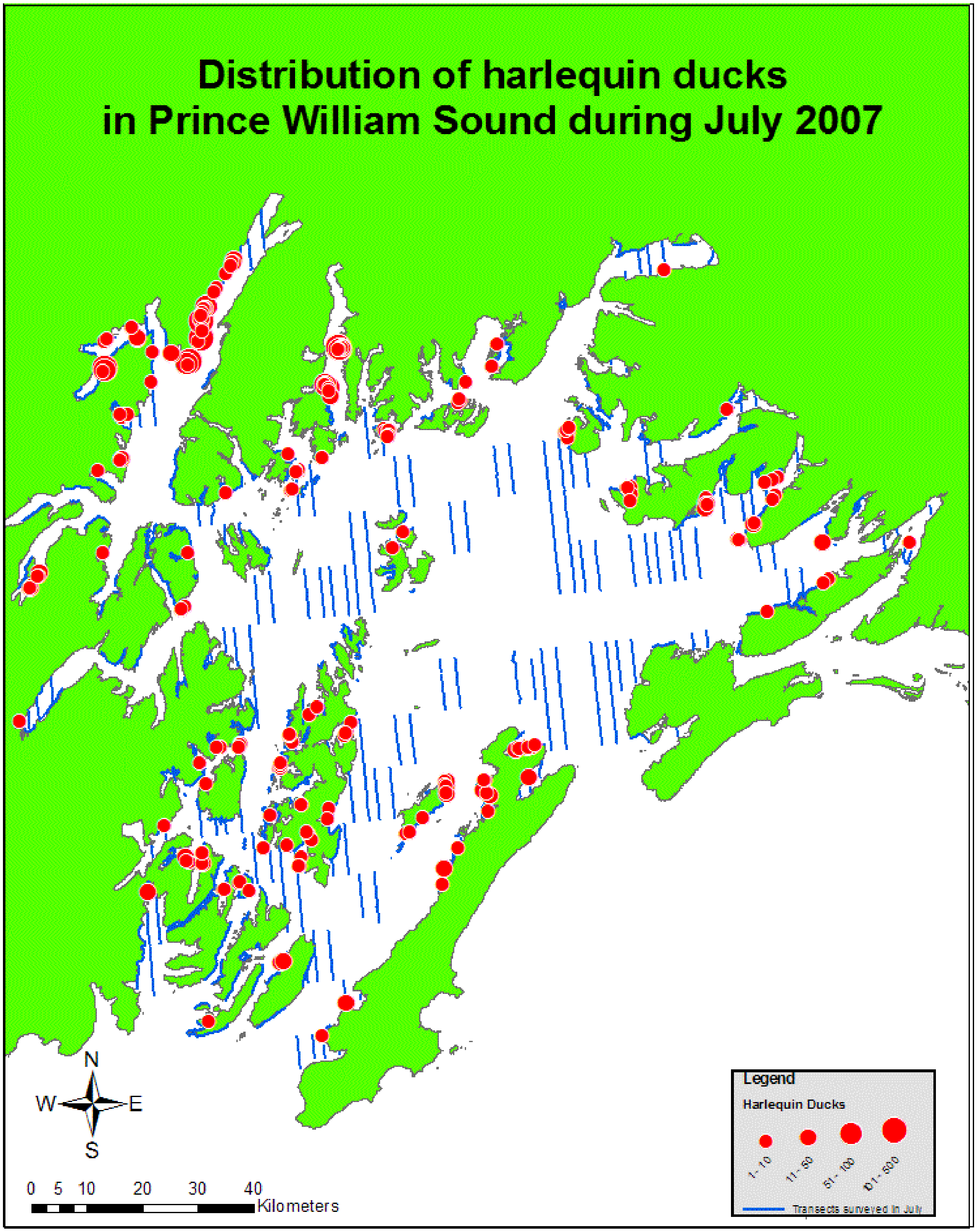

Distribution of storm petrels
in Prince William Sound during July 2007
Legend
Fork-tailed Storm Petrels
1 - 10
11 - 50
51 - 100
101 - 500
Leach's Storm Petrels
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Storm Petrels
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

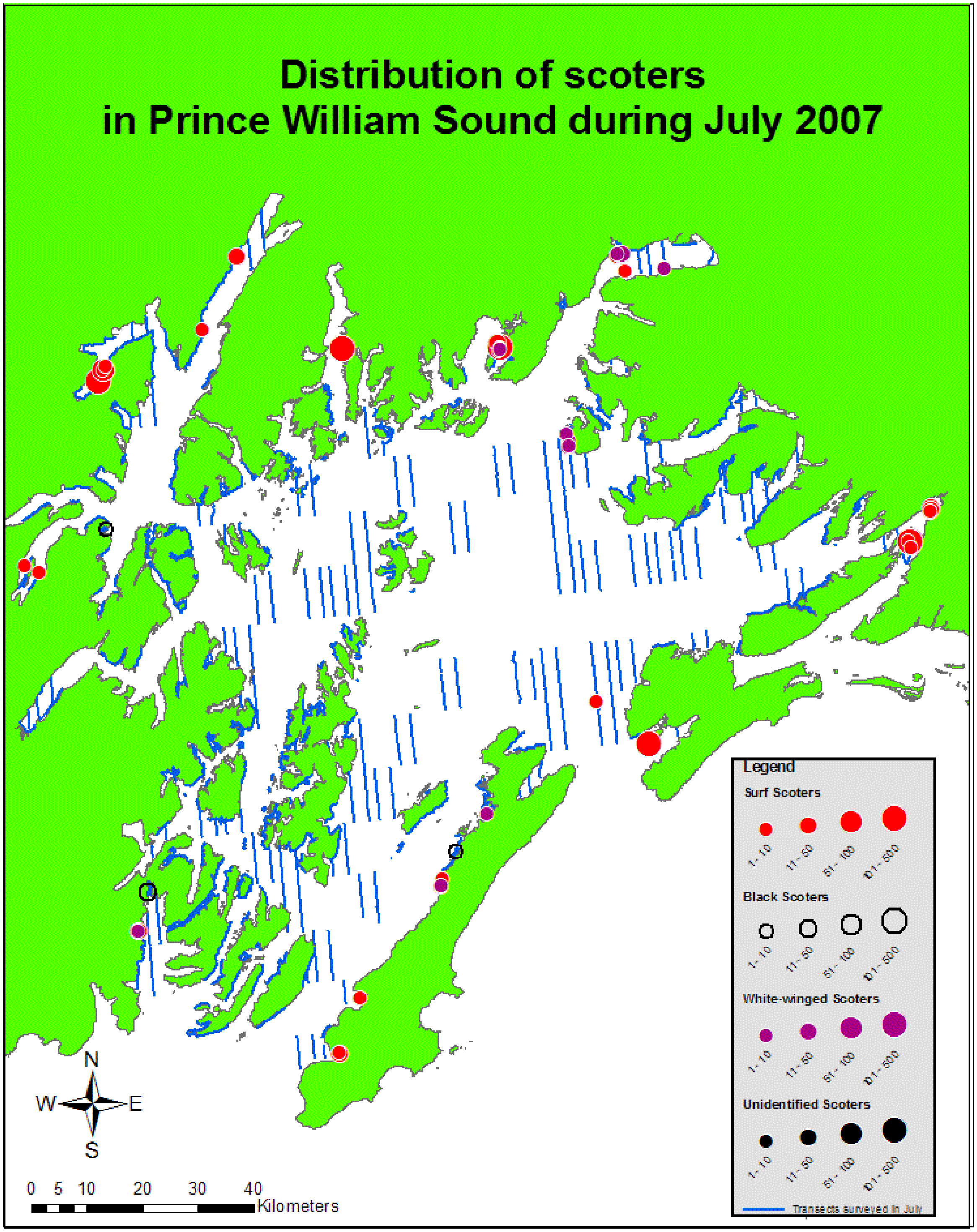

Distribution of cormorants
in Prince William Sound during July 2007
Legend
Pelagic Cormorants
1 - 10
11 - 50
51 - 100
Double-crested Cormorants
1 - 10
11 - 50
51 - 100
Red-faced Cormorants
1 - 10
11 - 50
51 - 100
Pelagic or Red-faced Cormorants
1 - 10
11 - 50
51 - 100
Unidentified Cormorants
1 - 10
11 - 50
51 - 100
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

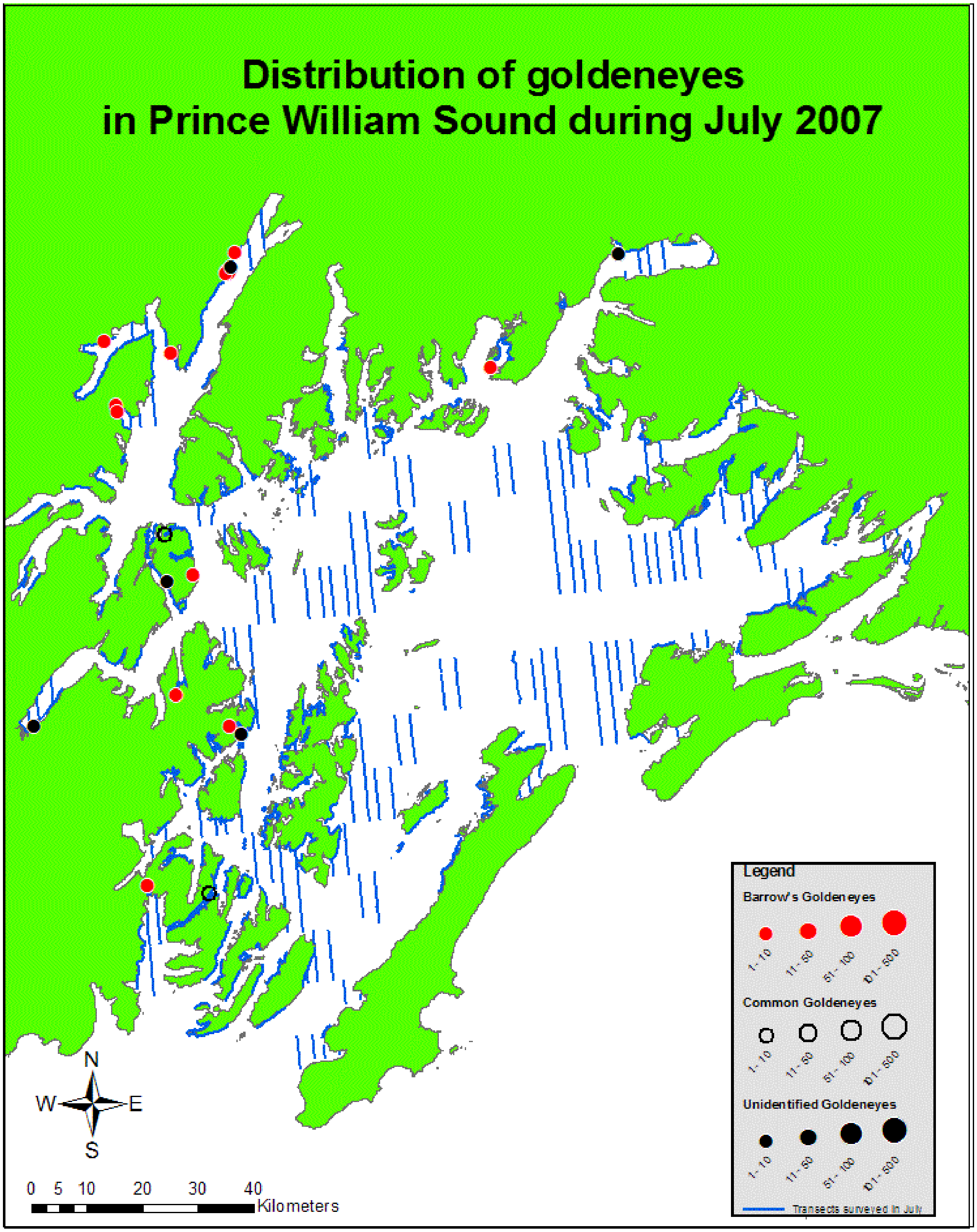


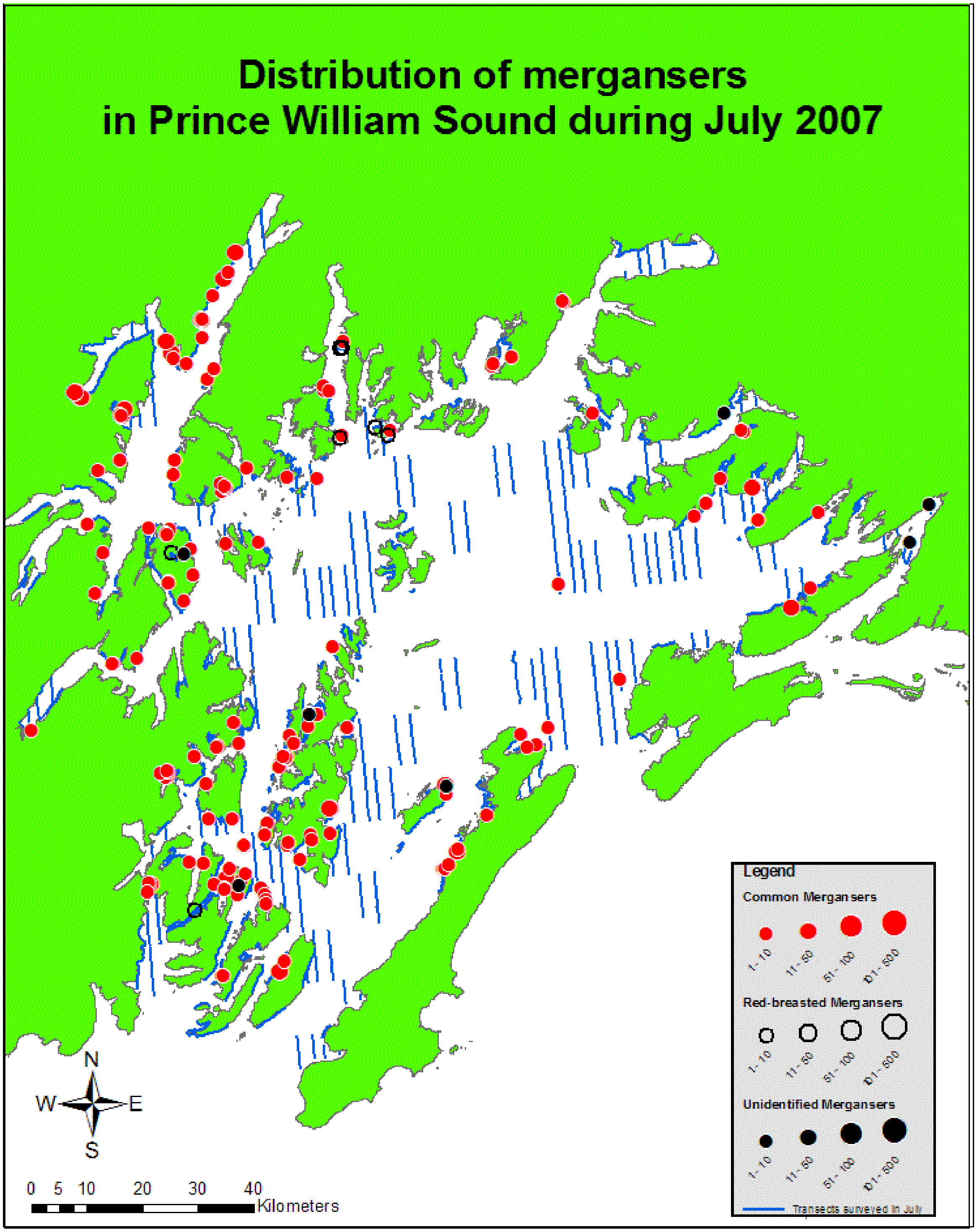
Distribution of great blue herons in Prince William Sound during July 2007


Distribution of dabbling waterfowl
in Prince William Sound during July 2007
Legend
Mallards
1 - 10
11 - 50
51 - 100
101 - 500
Canada Geese
1 - 10
11 - 50
51 - 100
101 - 500
Gadwalls
1 - 10
11 - 50
51 - 100
101 - 500
Brant
1 - 10
11 - 50
51 - 100
101 - 500
Trumpeter Swans
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

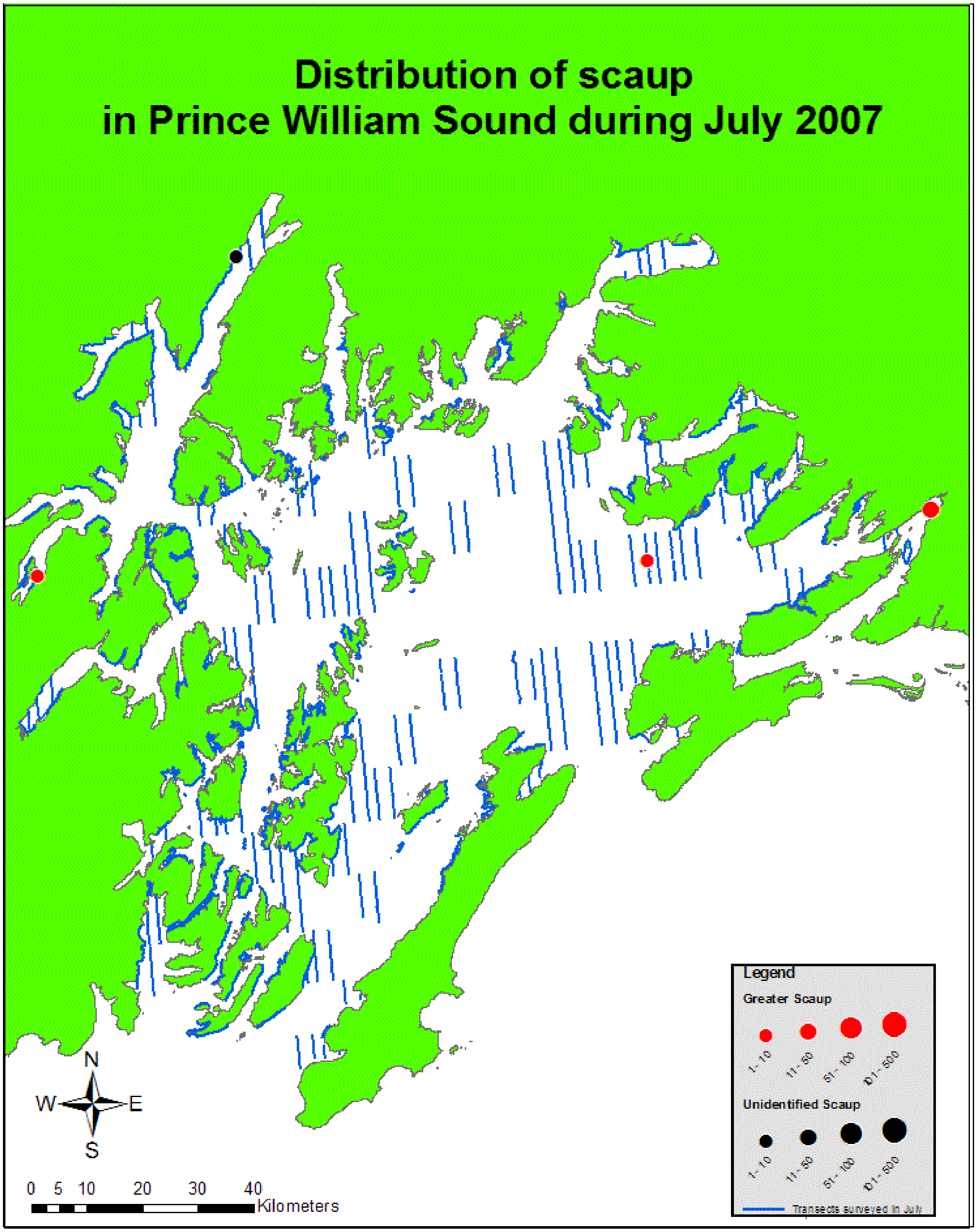

Distribution of harlequin ducks
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Harlequin Ducks
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July

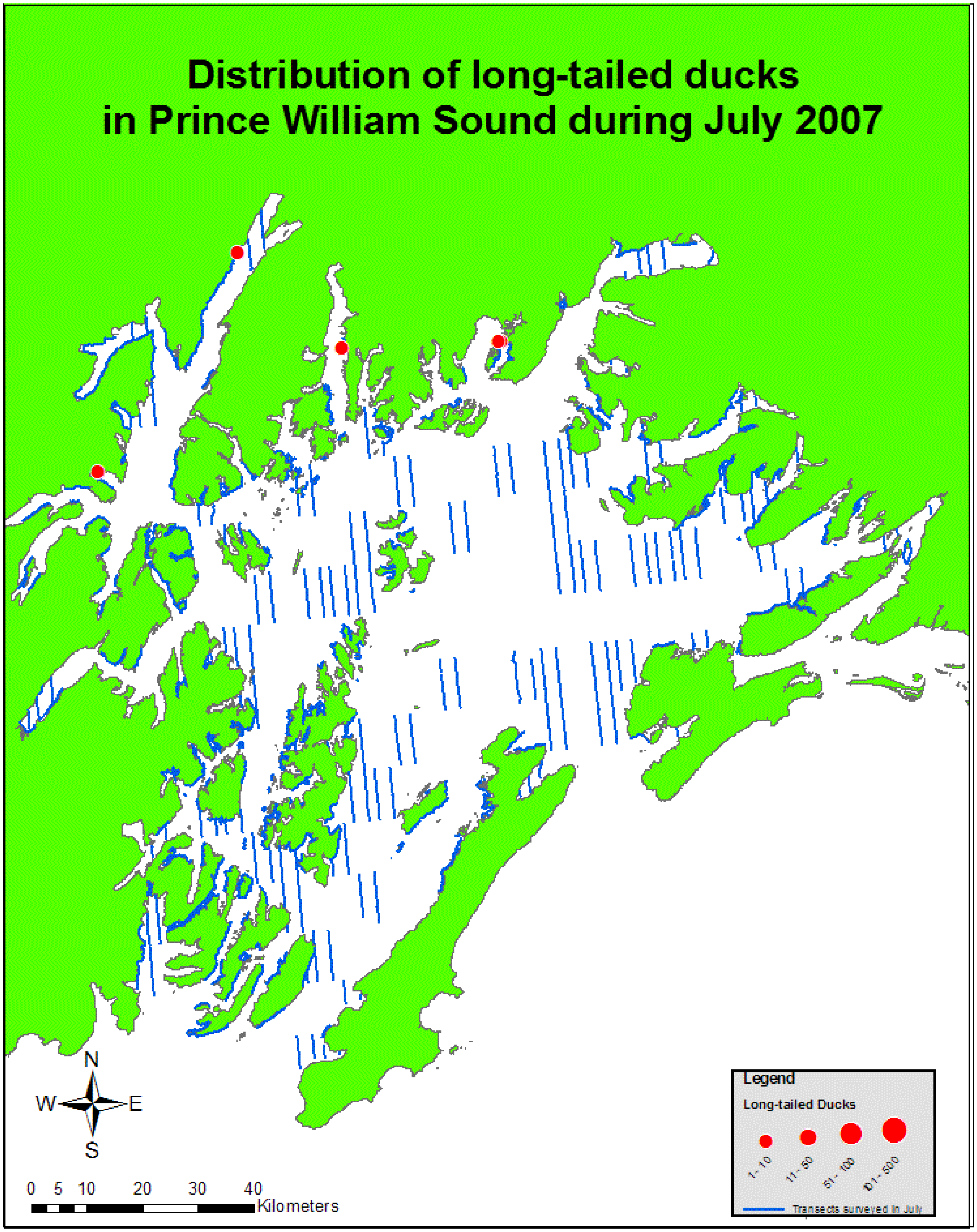

Distribution of scoters
in Prince William Sound during July 2007
Legend
Surf Scoters
1 - 10
11 - 50
51 - 100
101 - 500
Black Scoters
1 - 10
11 - 50
51 - 100
101 - 500
White-winged Scoters
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Scoters
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

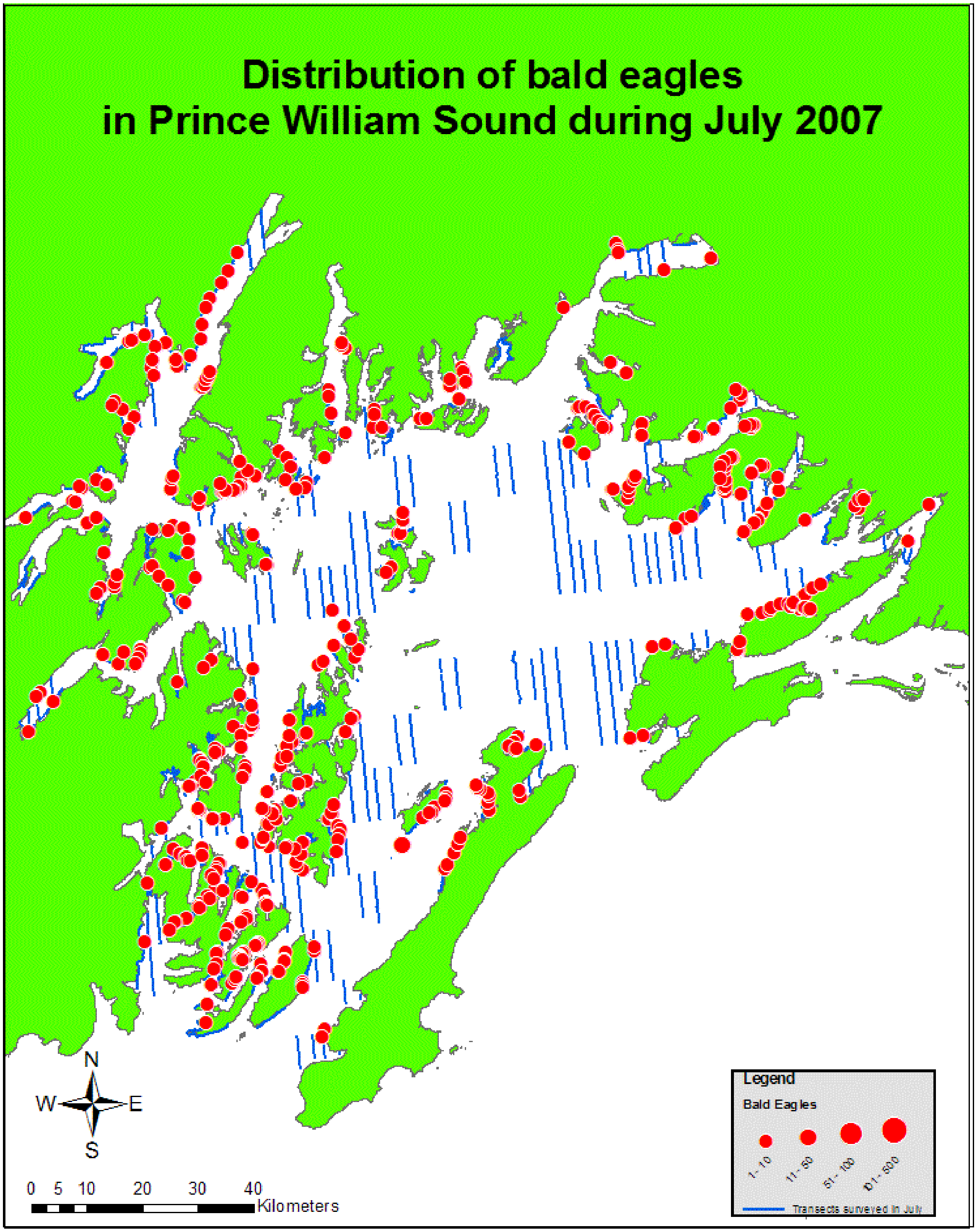

Distribution of goldeneyes
in Prince William Sound during July 2007
Legend
Barrow's Goldeneyes
1 - 10
11 - 50
51 - 100
101 - 500
Common Goldeneyes
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Goldeneyes
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers



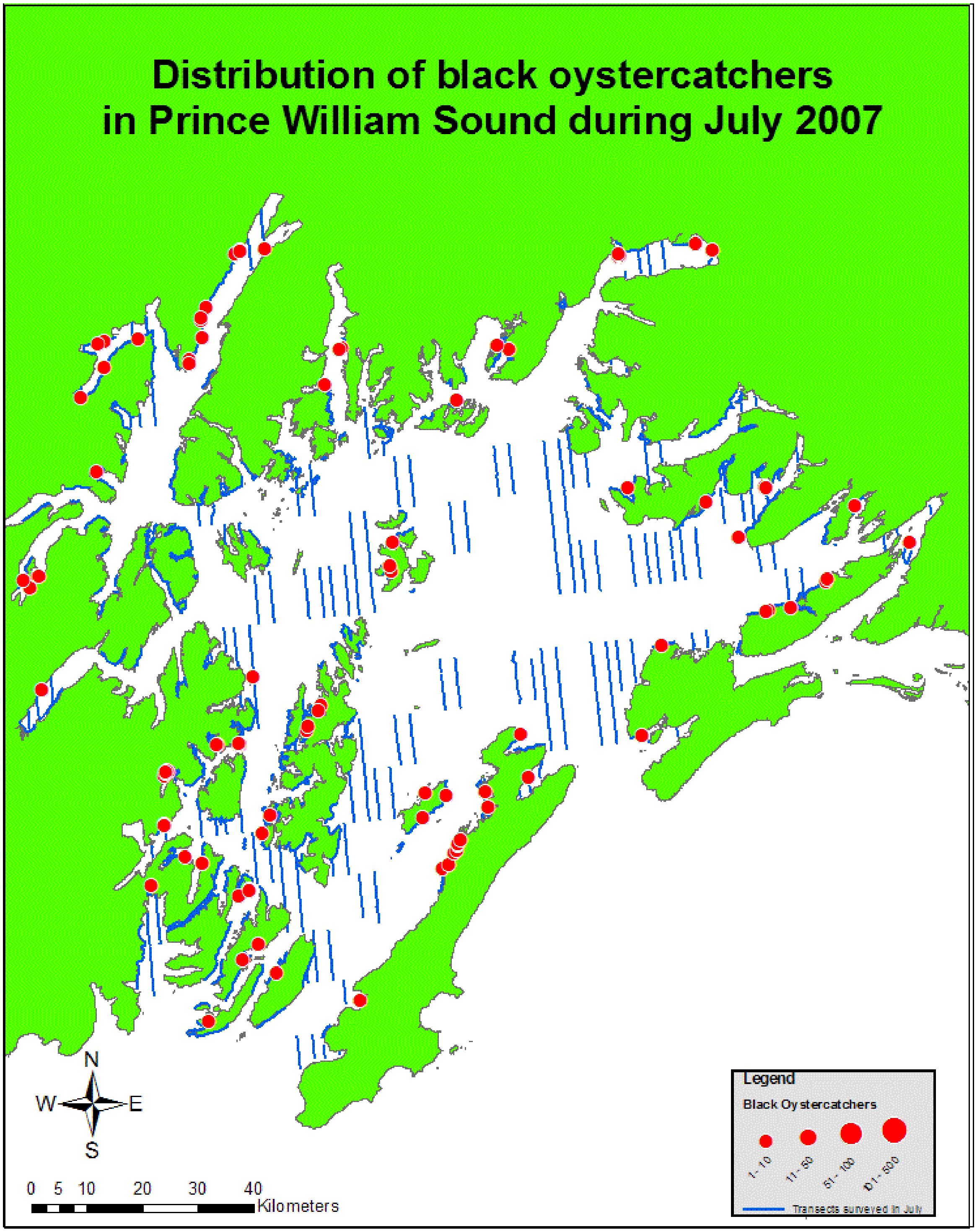
Distribution of mergansers
in Prince William Sound during July 2007
Legend
Common Mergansers
1 - 10
11 - 50
51 - 100
101 - 500
Red-breasted Mergansers
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Mergansers
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

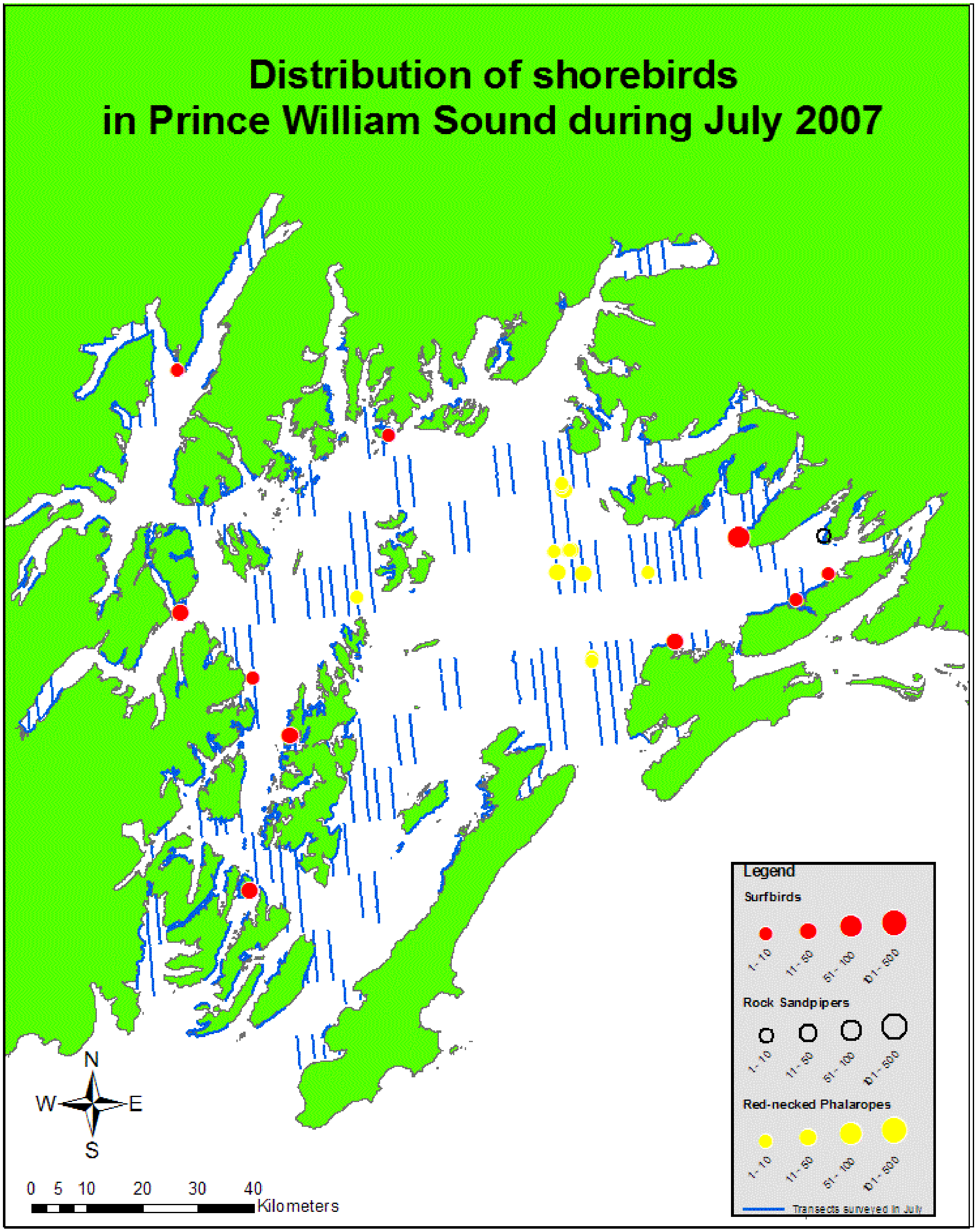

Distribution of scaup
in Prince William Sound during July 2007
Legend
Greater Scaup
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Scaup
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

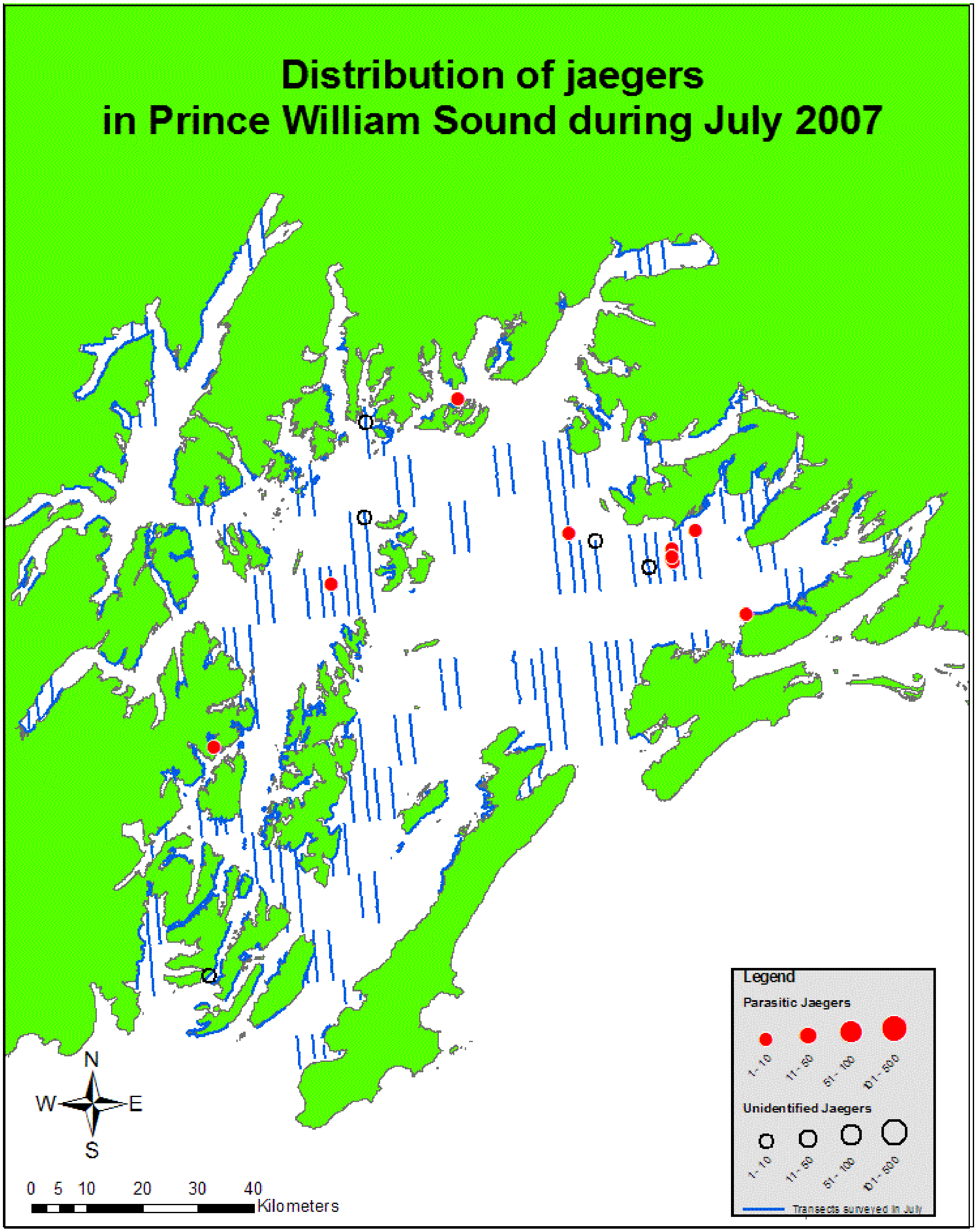

Distribution of long-tailed ducks
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Long-tailed Ducks
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July

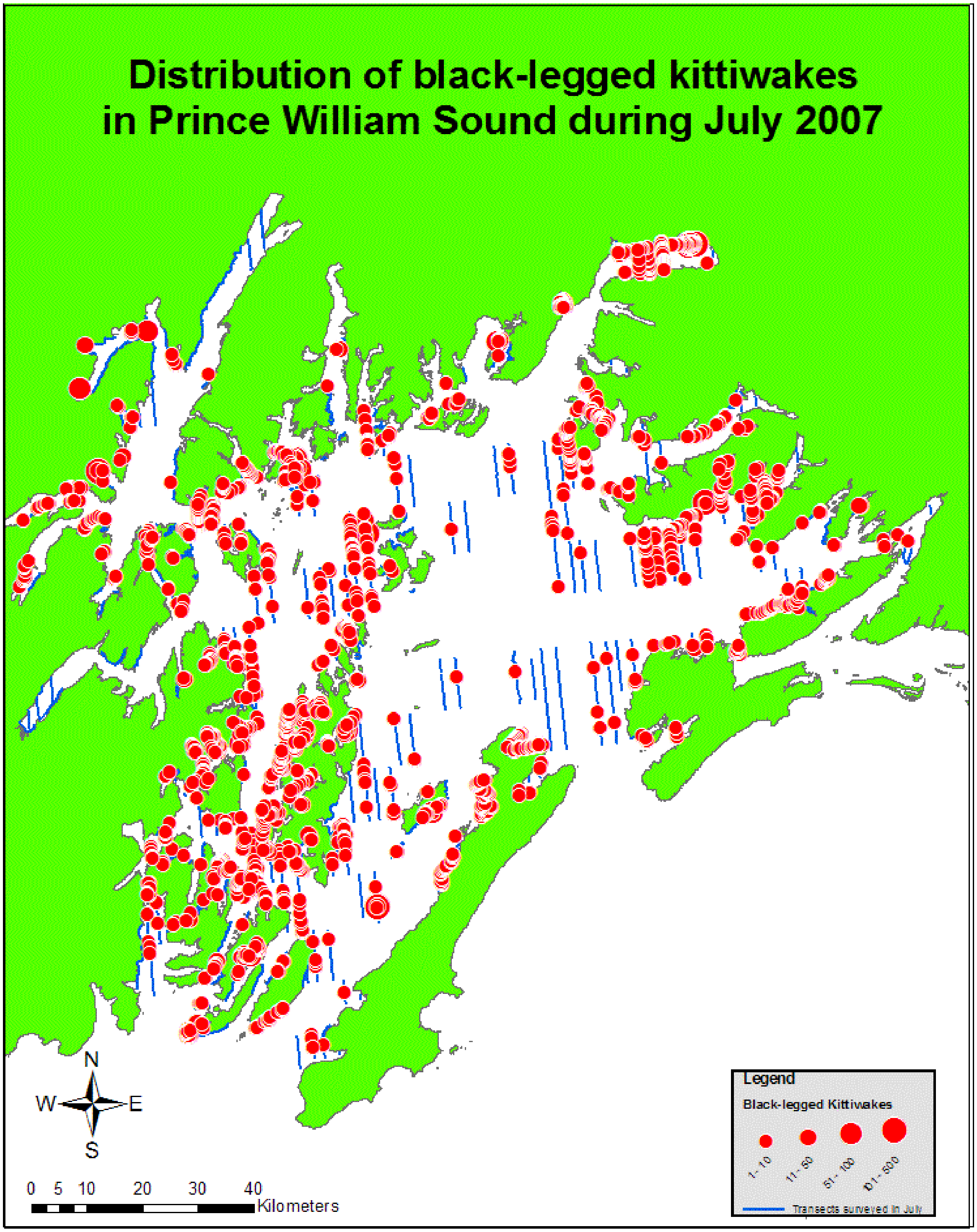


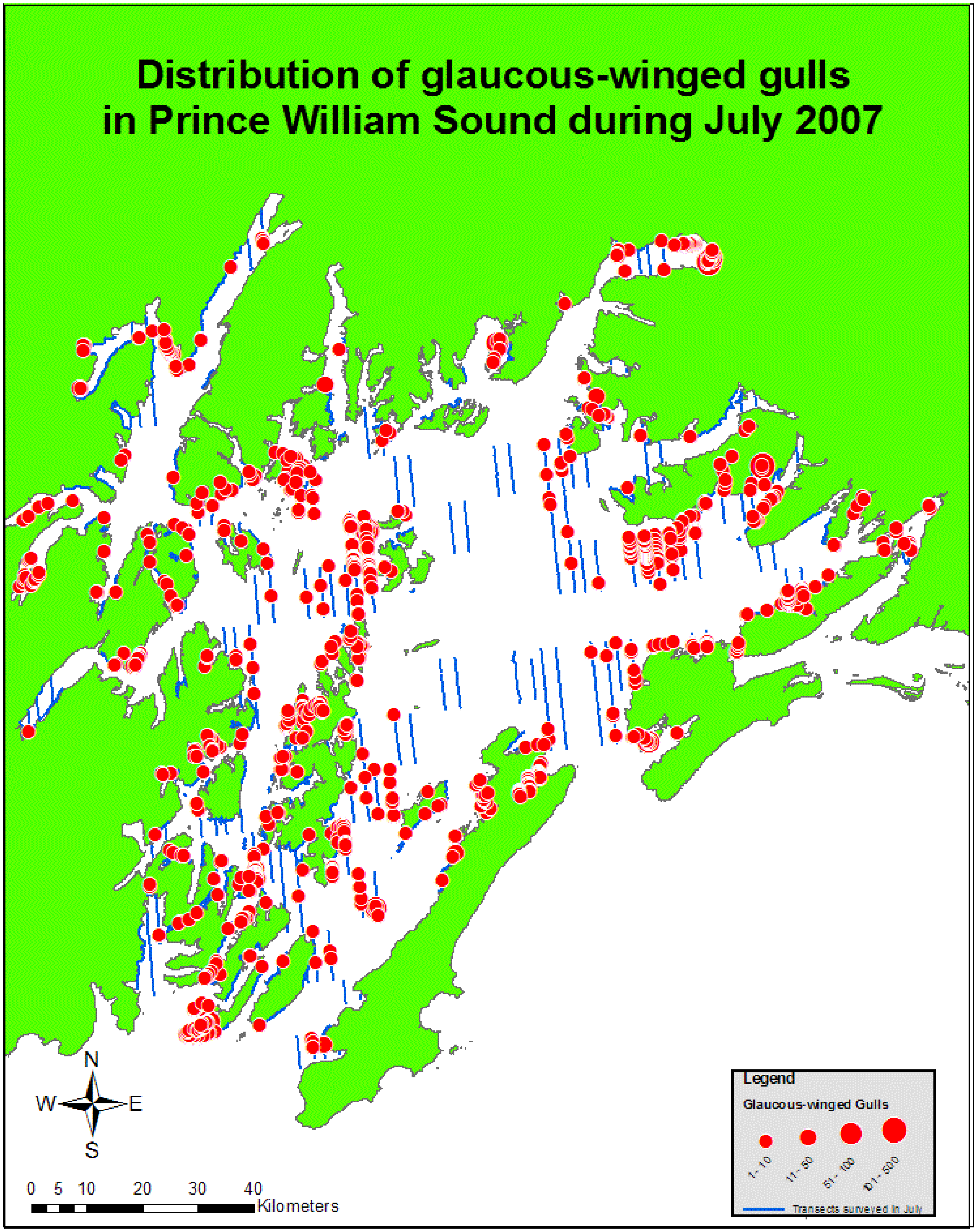
Distribution of bald eagles
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Bald Eagles
1 - 10
11 - 50
51 - 100
Transects surveyed in July

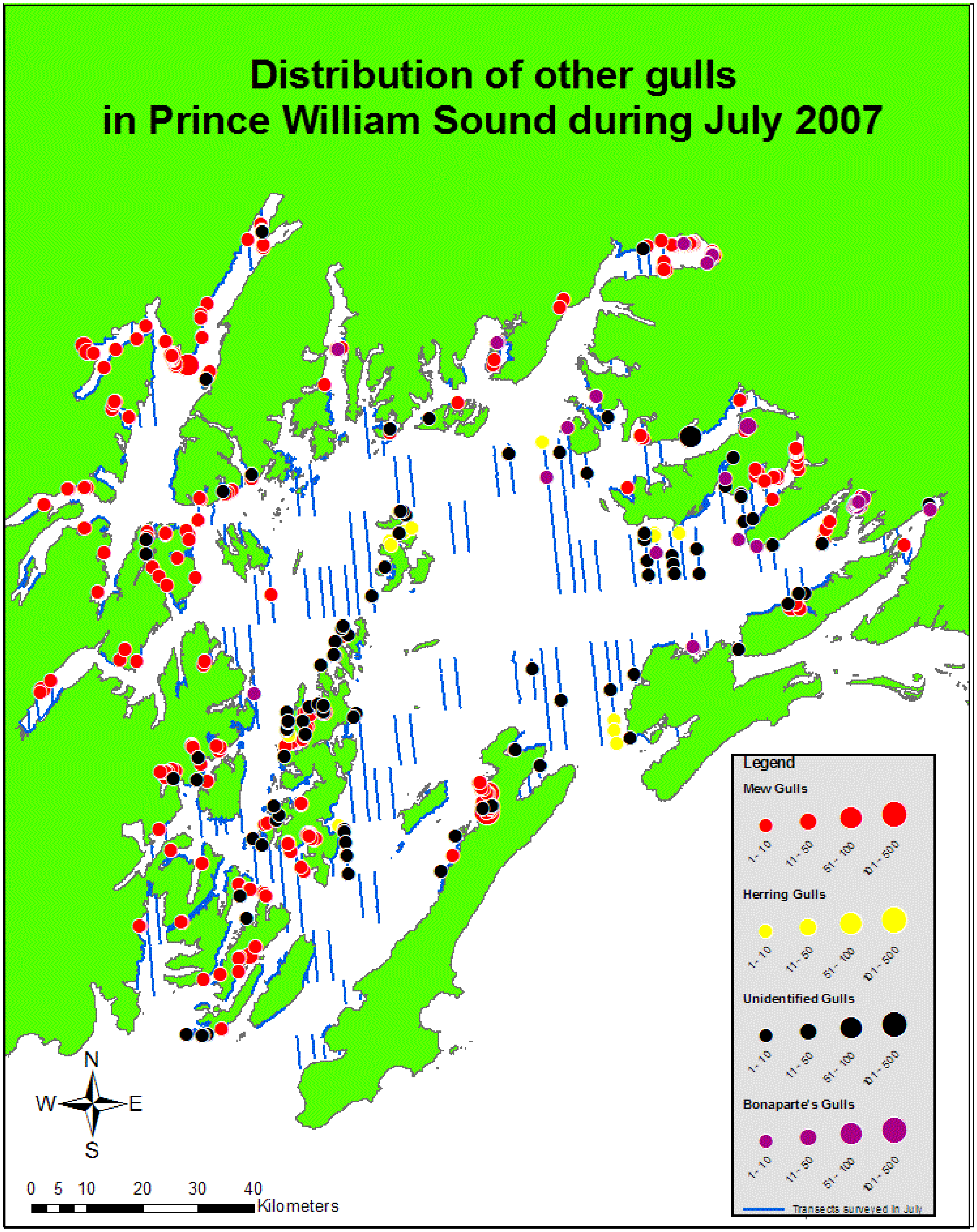

Distribution of black oystercatchers
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Black Oystercatchers
1 - 10
11 - 50
51 - 100
01 - 500
Transects surveyed in July


Distribution of shorebirds
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Surfbirds
1 - 10
11 - 50
51 - 100
101 - 500
Rock Sandpipers
1 - 10
11 - 50
51 - 100
101 - 500
Red-necked Phalaropes
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July

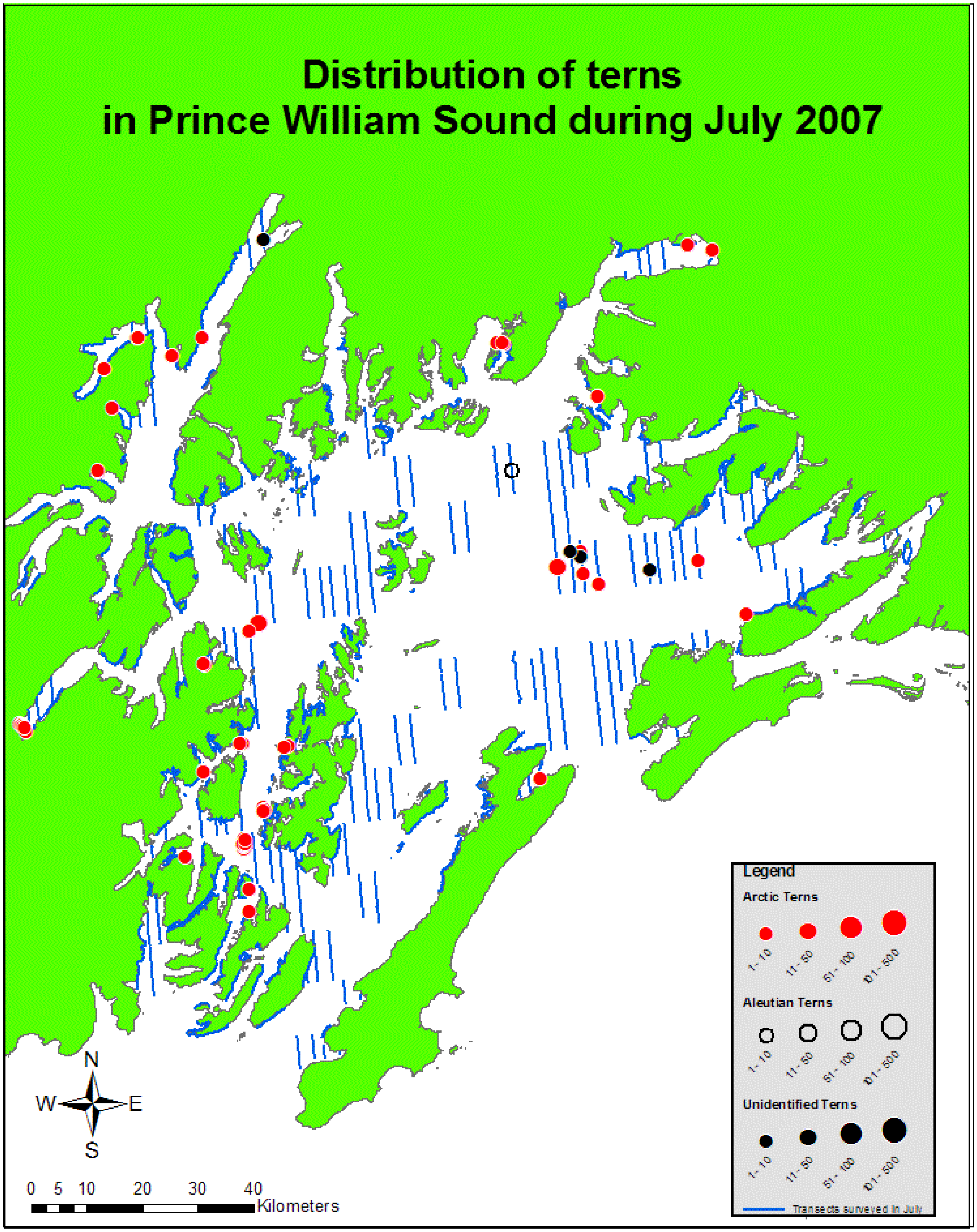

Distribution of jaegers
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Parasitic Jaegers
1 - 10
11 - 50
51 - 100
01 - 500
Unidentified Jaegers
1 - 10
11 - 50
51 - 100
01 - 500
Transects surveyed in July

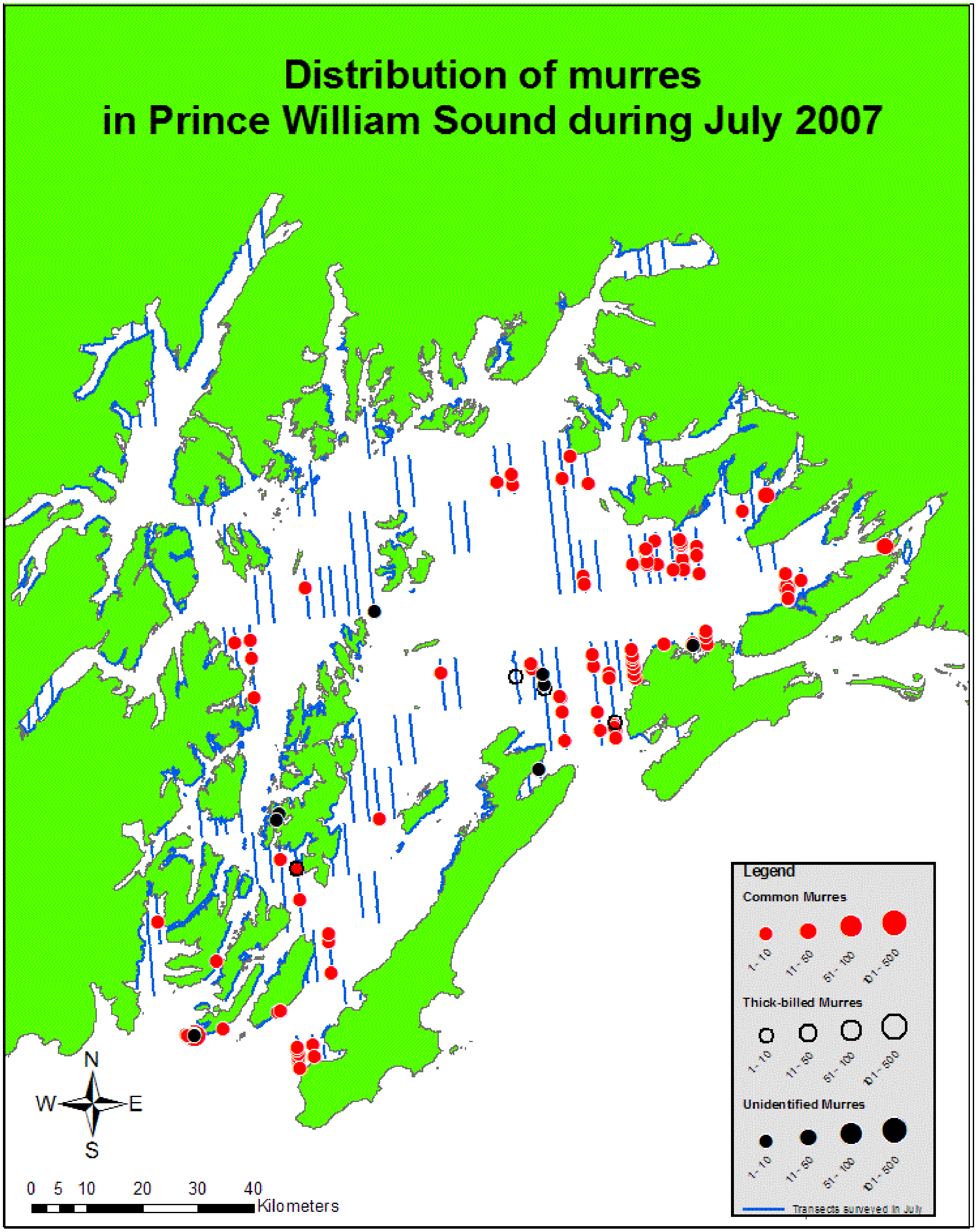

Distribution of black-legged kittiwakes
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Black-legged Kittiwakes
1 - 10
11 - 50
51 - 100
01 - 500
Transects surveyed in July

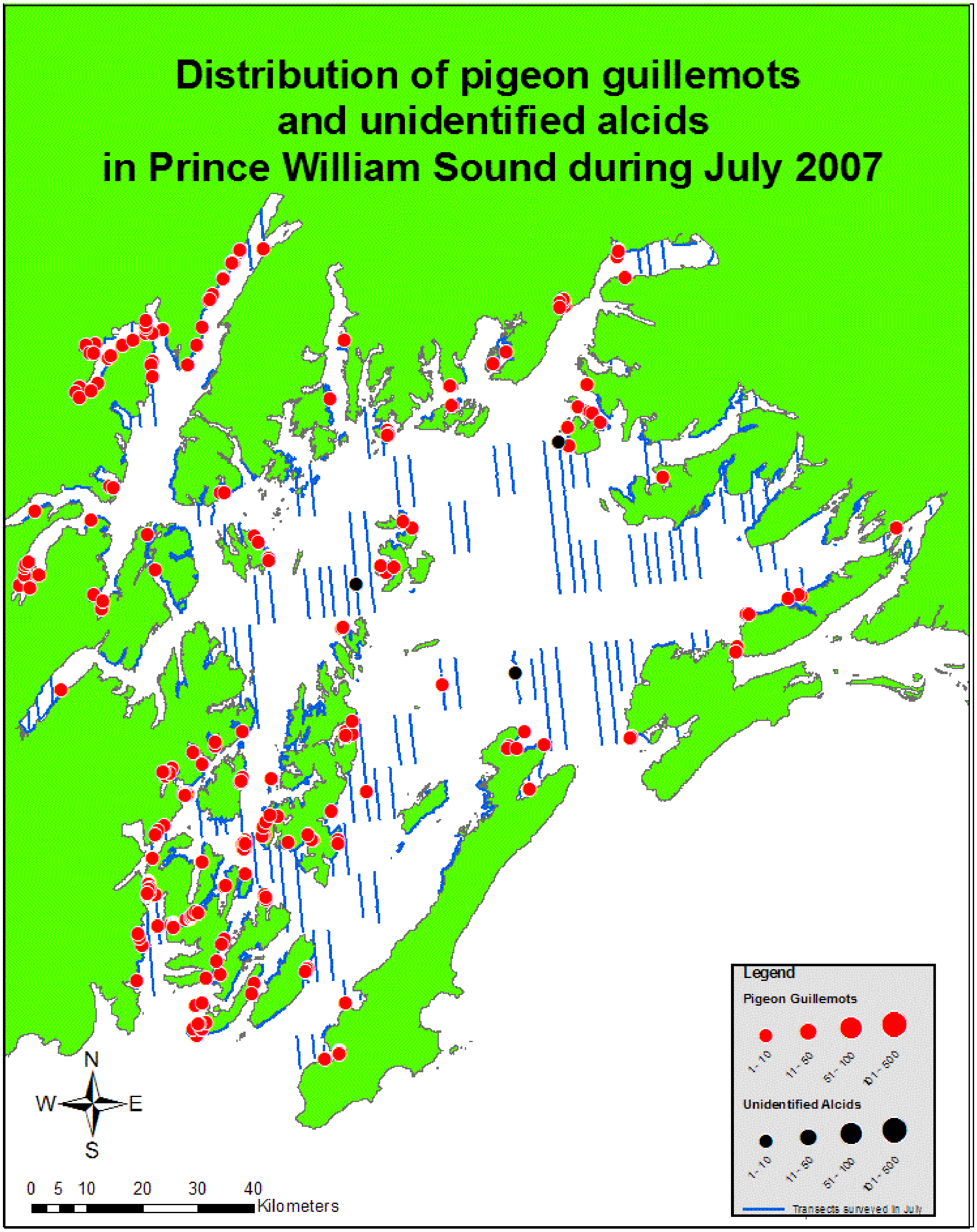

Distribution of glaucous-winged gulls
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Glaucous-winged Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July

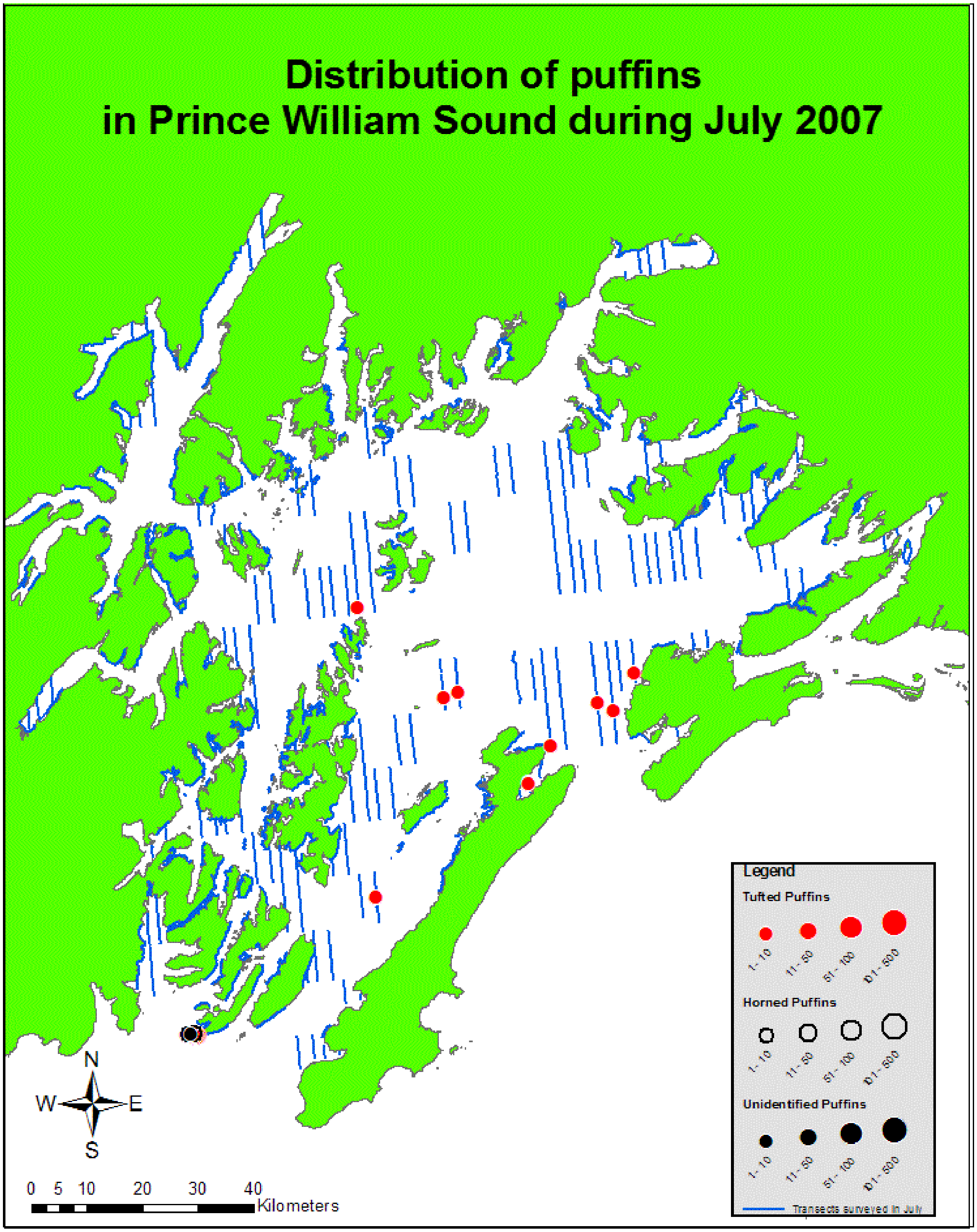


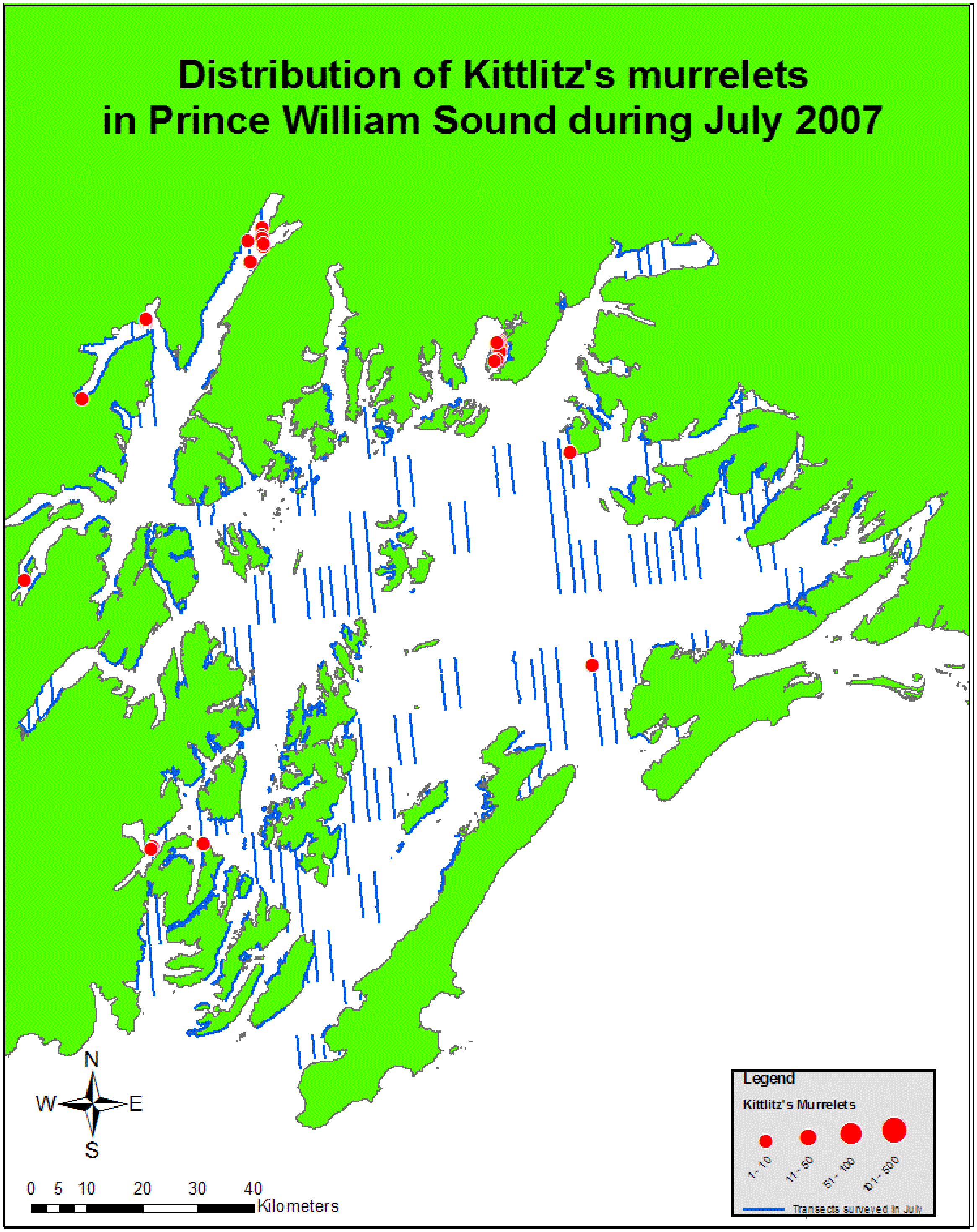
Distribution of other gulls
in Prince William Sound during July 2007
Legend
Mew Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Herring Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Bonaparte's Gulls
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

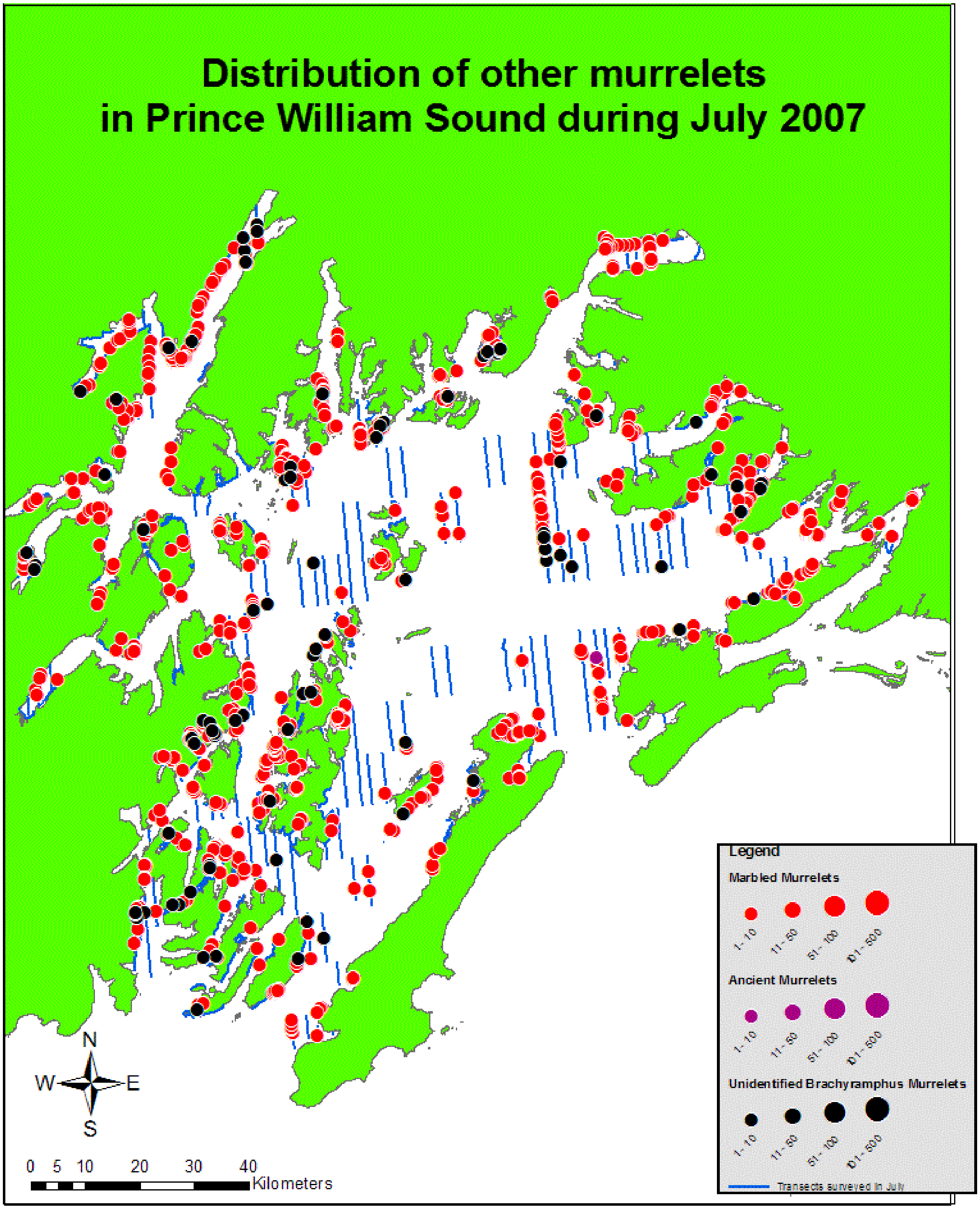

Distribution of terns
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Arctic Terns
Aleutian Terns
Unidentified Terns
Transects surveyed in July

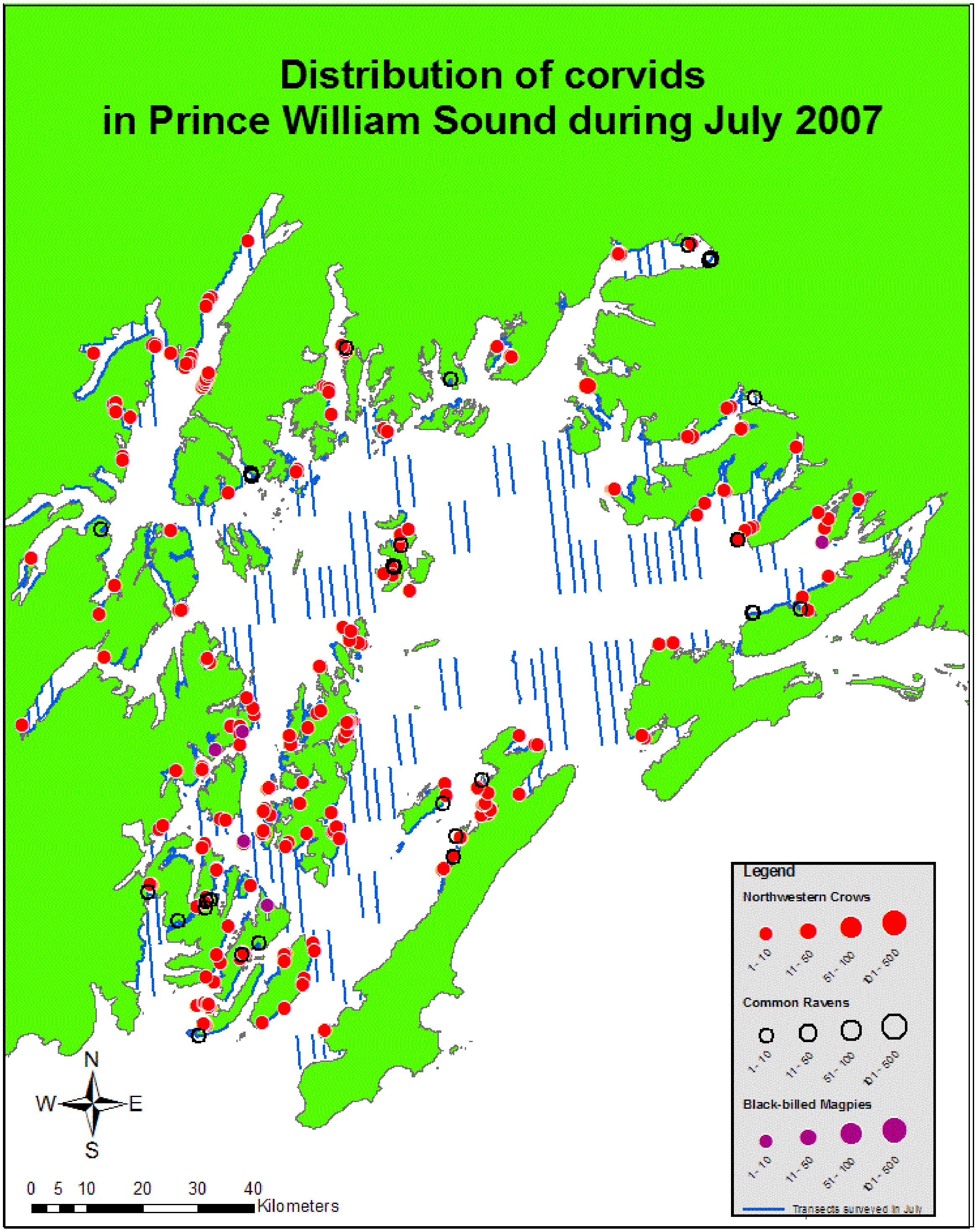

Distribution of murres
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Common Murres
1 - 10
11 - 50
51 - 100
101 - 500
Thick-billed Murres
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Murres
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July


Distribution of pigeon guillemots
and unidentified alcids
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Pigeon Guillemots
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Alcids
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July

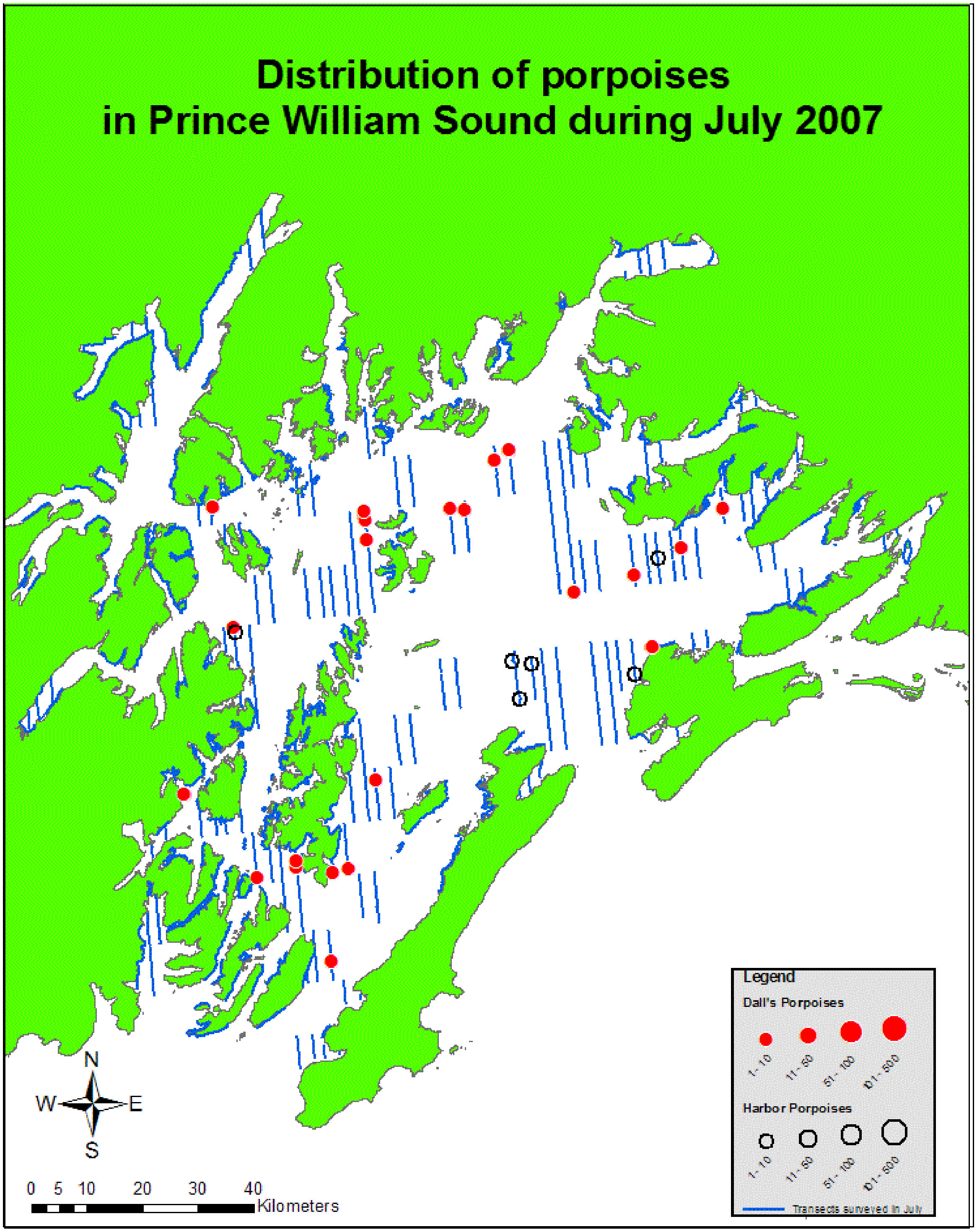

Distribution of puffins
in Prince William Sound during July 2007
Legend
Tufted Puffins
1 - 10
11 - 50
51 - 100
101 - 500
Horned Puffins
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Puffins
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers

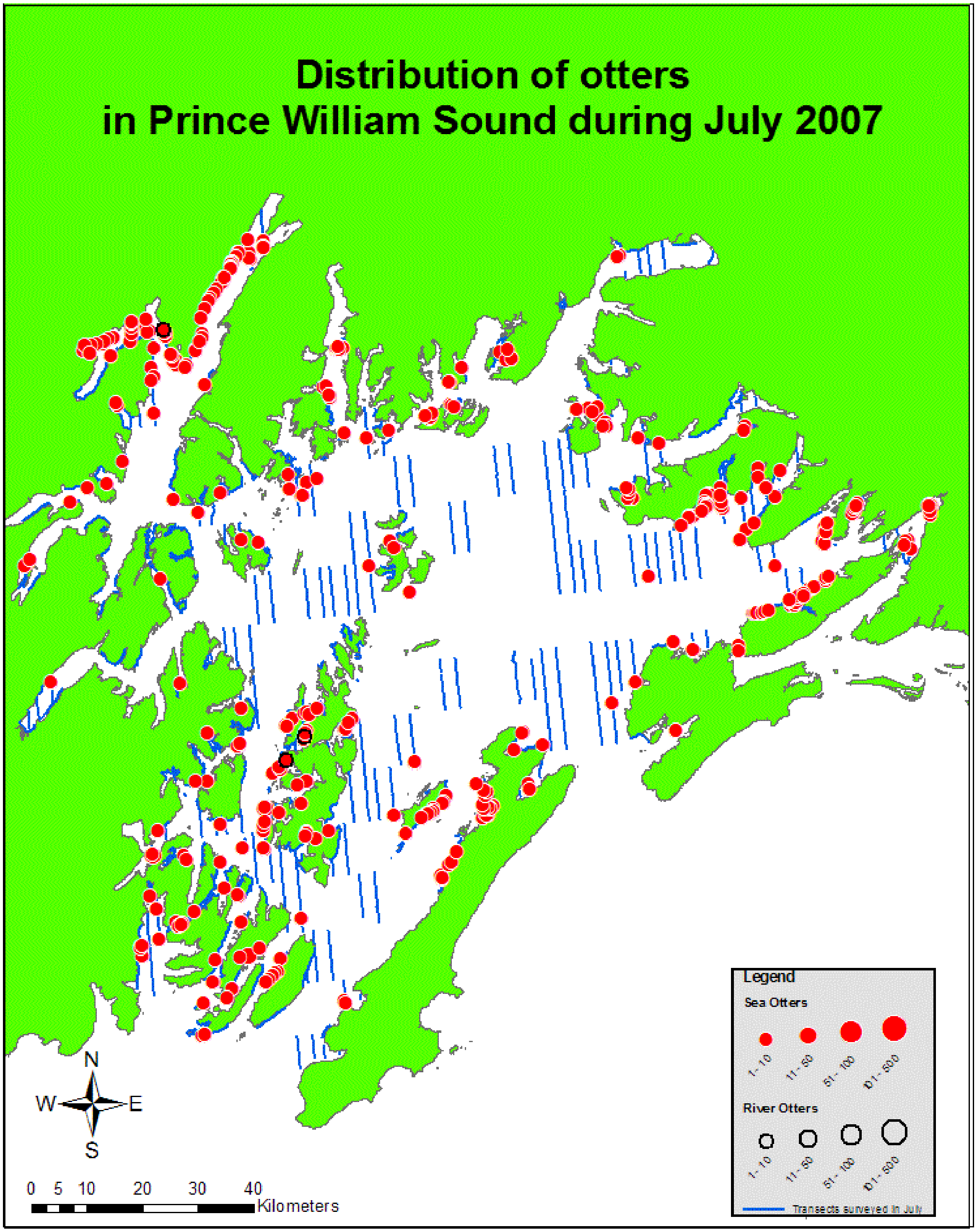

Distribution of Kittlitz's murrelets
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Kittlitz's Murrelets
1 - 10
11 - 50
51 - 100
01 - 500
Transects surveyed in July

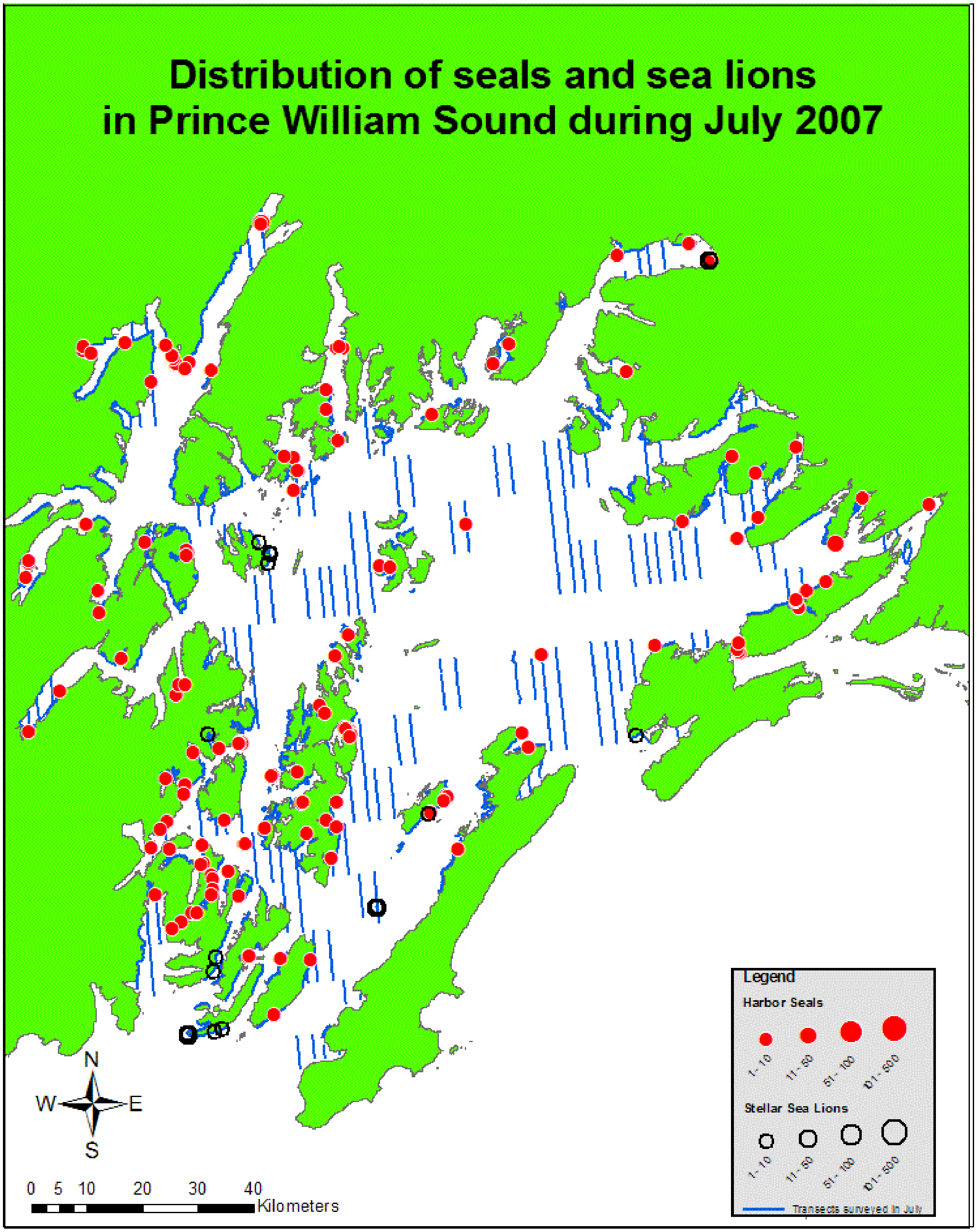

Distribution of other murrelets
in Prince William Sound during July 2007
Legend
Marbled Murrelets
1 - 10
11 - 50
51 - 100
101 - 500
Ancient Murrelets
1 - 10
11 - 50
51 - 100
101 - 500
Unidentified Brachyramphus Murrelets
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers



Distribution of corvids
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Northwestern Crows
1 - 10
11 - 50
51 - 100
101 - 500
Common Ravens
1 - 10
11 - 50
51 - 100
101 - 500
Black-billed Magpies
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July


Distribution of porpoises
in Prince William Sound during July 2007
Legend
Dall's Porpoises
1 - 10
11 - 50
51 - 100
101 - 500
Harbor Porpoises
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July
N
W
E
S
0 5 10 20 30 40
Kilometers


Distribution of otters
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Sea Otters
1 - 10
11 - 50
51 - 100
101 - 500
River Otters
1 - 10
11 - 50
51 - 100
101 - 500
Transects surveyed in July


Distribution of seals and sea lions
in Prince William Sound during July 2007
N
W
E
S
0 5 10 20 30 40
Kilometers
Legend
Harbor Seals
1 - 10
11 - 50
51 - 100
01 - 500
Stellar Sea Lions
1 - 10
11 - 50
51 - 100
01 - 500
Transects surveyed in July