

## HOW TO USE MAPS AND TABLES

The tables in this catalog are all standardized, using the same format and codes throughout. With only a few minor differences they are the same as the tables and codes used in the Catalog of California Seabird Colonies (Sowls et al. 1980). The codes and fields as used in this catalog are explained and terms are defined below.

### Map Area

The Map Areas used in this catalog are based upon the United States Geological Survey (USGS) National Topographic map series, scale 1:250,000. The maps have been numbered by the U.S. Fish and Wildlife Service and cover the United States. Each standard Map Area is normally one degree latitude high and two degrees longitude wide. In Washington there are five such Map Areas that cover all the marine shoreline of the State. The general geographic location of the Map Areas in Washington and Map Area Numbers appear on the Map Index page (below).

### Map Area Numbers

These are the numbers that have been assigned to each Map Area. This number appears at the top of each page in the Maps and Tables section.

### Map Area Names

These are the names that appear on the USGS 1:250,000 topographic maps; they appear on the top of each page in the Maps and Tables

section, immediately after the Map Area Number.

### Colony Numbers

Each site of breeding, potential breeding, or past breeding by marine birds in Washington is given a Colony Number. Many of the Colony Numbers used in this catalog were first assigned by Varoujean (1979). If his numbers are not used, explanation is given. We assigned Colony Numbers in each Map Area to appropriate sites by using numbers coming immediately after those assigned by Varoujean (1979). He did not assign numbers in all Map Areas.

The Colony Number is made up of two parts. The first three digits correspond to the Map Area number of the Map Area in which the colony site is found. The last three digits are numbers assigned in consecutive order by, in some cases, Varoujean (1979) and, in the remainder, by us to each site in the Map Area. In the tables the number in the circle is the Site Number within the Map Area number that appears at the top of each page. The Site Numbers also appear in the circles labeling sites on the maps on the right hand pages of the Maps and Tables section.

### Colony Names

Each site is given a Colony Name. Many site names were assigned by Varoujean (1979), and they are retained. Other site names were assigned by us. The Colony Name immediately follows the Colony Number on the top of the tables. Colony Names that are not in quotation marks are derived

from the names found on standard USGS topographic maps, generally 1:24,000 series maps. Names that appear in quotation marks do not appear on these maps for the referred-to sites and locations. Lower case sites and location name description modifiers also do not appear on these maps. Names in quotation marks are derived from (1) National Oceanic and Atmospheric Administration, National Ocean Survey, Nautical Charts; (2) local use; (3) the literature; (4) previous investigators; or (5) assignment by the authors. Several sites have the same Colony Name, and we have made no attempt to eliminate duplications, as names are generally derived from the USGS topographic maps. An alphabetical listing of sites is contained in Appendix A, Gazetteer of Localities.

#### Latitude-Longitudes

The latitude and longitude were determined for every site in this catalog, and coordinates previously determined by Varoujean (1979) were redone. Since it is difficult to make determinations of latitude and longitude from the USGS topographic maps, all determinations were made from NOAA Nautical Charts using the largest scale chart available for every site. Determinations were made with calipers as best as possible within the limits of the size of the site and the scale of the nautical charts.

#### Species Names

There are 18 species of "marine birds" that are breeding or have bred in marine habitats in Washington, and they are documented by this catalog. Species names follow those found

in the Thirty-fourth Supplement to the American Ornithologists' Union Check-list of North American Birds (1982), with one exception: the American Black Oystercatcher is called Black Oystercatcher here to save space in the tables.

#### Number of Breeding Birds

This field in the tables contains the probable number of breeding individuals of each species at each Colony Site on each survey. (See Data Quality below for comments on the accuracy of these figures.) Other symbols also appear in this field combined with numbers of individuals or alone. The definitions of these symbols as they are used here follow:

X = Definitely present and breeding, but numbers breeding are not available or cannot be determined from the data available.

P = Present and probably nesting, but status cannot be definitely determined, either in the field or from the information in the source document.

B = Indicates that the number of adults present, such as Ring-billed Gulls or Glaucous-winged Gulls, was estimated from the number of young pre-fledgling birds banded at the ratio of 1.5 banded young equal two adult breeding birds.

? = The breeding status of the birds present cannot be determined, either in the field or in source documents.

N = Birds may be present, but in any case the species probably is not breeding at the site. This code is generally not used except in special cases; i.e., where there is particular reason to document the breeding absence of the species at the site. This is generally used for species with small populations in the State to document their absence from previous, suspected, or potential sites of breeding.

When a species' data line in a colony table is in reference to specimens or eggs (see Survey Type field), the numbers in this field refer, in the case of eggs, to the number of sets collected with two adults being recorded for each egg set. For specimens, the number refers to the actual number of specimens collected.

#### Sources

This field identifies the sources from which the data of breeding birds for the sites were obtained. There is a large range of data sources used in this catalog. Sources that include a date in the field refer to publications of various types. Names without dates refer to a variety of sources that include collectors, agencies, field notes of investigators, and personal communications. Full details of each source are found in the Reference section of the catalog. The Reference Numbers at the far right of the tables correspond to the sources that appear in the Source field and help to specifically identify each source in the Reference section.

Where possible, we have identified where reference material can be found when not in standard journals or government documents. Thus reference to collectors of eggs and specimens are identified the museum holding the referred-to specimens at the time of our survey. Other sources are identified as the library or museum holding material such as field notes and correspondence.

#### Survey Date

The survey date is when observations of the referred-to species were made. For specimens this is the date of collection, and for banding, the date the banding took place. In many cases, it is not possible to determine the exact date of observations, collecting, banding, etc., and we have then made the best determination possible. Thus, many dates include a date range: several days, the month or months, the time of year, the year alone, or a range of years. Our accuracy for determining dates is limited by the accuracy of the observers in the recording of their data in their notes, on specimen labels, or in published articles.

#### Survey Type

The code in this column describes the platform of observation and method employed in acquiring the data given in estimates of numbers of birds present. This designation reflects the Data Quality below.

A = Aerial. Survey conducted from an airplane or helicopter.

B = Boat. Survey conducted from a boat, ranging in

size from Washington State Ferries to a small Zodiac.

M = Mainland. Survey made of the site from the mainland or another nearby island.

L = Land. Survey made of the site on foot.

S = Specimen. This code indicates that one or more specimens were collected. See the number of Breeding Birds field for the number of specimens collected.

E = Egg. This code indicates that a one or more egg sets were collected. See Number of Breeding Birds field for the number of sets collected; two adult birds were recorded for each egg set taken.

#### Data Quality

This field's codes quality the data collected, specifically the number of each species determined to be nesting at the site. The codes all relate to the observing of nests and the proportion of the actual total number of nests that were observed. The code definitions are as follows:

I = The numbers represent a total count of all nests of the subject species; no nests were omitted from the survey.

II = Some nests were missed in the survey or misidentified; the error in numbers is small.

III = Only a small sample of nests was obtained, and

the nesting individuals were extrapolated from the sample over the area of appropriate habitat at the site. Most estimates of the number of burrowing birds were obtained in this manner, usually through a small number of grid samples in the colony. Nocturnal burrowing species were estimated in this manner at several sites. For diurnal burrowing species, such as the Tufted Puffin, birds were sometimes counted in front of their burrows on the colony slopes.

For species such as the Glaucous-winged Gull, many entries of breeding numbers are coded "III" even though all birds on the site were counted. The Data Quality codes refer to nests only and are used here to allow conformity with the seabird catalogs for California and Oregon.

- = There were no data available.

? = The accuracy of the observations could not be determined.

#### Reference Number

This number is assigned to the source of data used to obtain the species status on the respective lines of the table. Use of these numbers allows for more precise determination of the reference source (investigator) in the Reference section of the catalog.

THE CATALOG MAPS

Area Maps

At the front of every Map Area section, an index map of the Map Area appears. All active sites, those with nesting birds reported from the period 1978 through 1982, are located on this map. The Site Numbers of each of the respective colonies appear in a circle, the circle size reflecting the total number of birds nesting at the site indicated.

Site Maps

Within the Maps and Tables section of the catalog, the tables

and corresponding Site Maps appear. All tables start on the left-hand-facing page, and the corresponding Site Maps appear on the right-hand-facing page. These maps are cut from the USGS topographic maps, generally 1:24,000 scale series. The Site Numbers appear in circles, and the actual size is indicated by a pointer, bracket, or boundary drawn on the map pieces. The Map Name the map cut-out was taken from appears in the box within the map cut-out.

SITE NUMBER	COLONY NAME	LAT.-LONG.				
(191)	PORT WILLIAMS	48° 07' 00", 123° 03' 00" W				
PIGEON GUILLEMOT	34	SPEICH	05/23/79	B III	255	
PIGEON GUILLEMOT	33	SPEICH	05/26/78	B III	255	
SPECIES NAME	NUMBER BREEDING BIRDS	SOURCE	SURVEY DATE	SURVEY TYPE	REFERENCE DATA QUALITY	

Box gives the most recent or the best estimates available.