

# Maps and Data Tables

## How to Use This Catalog

The following section consists of maps denoting the location of each seabird colony and accompanying tables with recent and historical estimates of the number of breeding birds, for each species, at each colony. Figure 5 presents an example of a data table with an explanation of the columns and the codes.

### **Colony Numbers and Names**

Oregon seabird colonies were assigned unique identifying numbers during the 1988 statewide survey, according to the numbering convention used for the California and Washington seabird colony catalogs (Sowls et al. 1980, Speich and Wahl 1989). The Oregon coast was divided into five areas delineated by degree of latitude and corresponding to USGS 1:250,000 topographic maps (Figure 6). These USGS maps were sequentially numbered for the conterminous United States as the basis for a standardized colony numbering system for waterbirds (Spendelow and Patton 1988). Within each map area, colonies were numbered north to south with the first three digits designating the map, and the next three digits representing the site number, beginning with 001. When new colonies were discovered following the initial number designation in 1988, they were given a decimal extension of the number of the nearest original colony. For example, 219-001.1 was a colony discovered after 1988 adjacent to colony 219-001.

Colony names were derived from maps or charts whenever possible. If a location did not have an official name and a descriptive name was assigned by a surveyor, then this name is reported in quotes to indicate that it cannot be found on maps. All other colonies were labeled “Unnamed Colony” and the colony number is the identifier.

### **Most Recent or Representative Estimate**

The data tables contain all of the recent and historic estimates of colony size. The most recent, accurate or representative (MRA) estimate for each species is presented at the top of the table in a box. MRA data were used to generate total statewide estimates for each species.

For most species and most colonies, MRA data were the most recent estimates. However, if the most recent estimate was poor quality (e.g., non-quantitative estimate such as “present”) and an earlier, quantitative estimate of higher quality was available, then the earlier estimate was presented in the MRA box at the top of the table and the more recent estimates were presented below. If the most recent data were collected during an El Niño year, or were otherwise not representative of the numbers of birds that typically nest at a particular colony, then these data were presented in the table but the most recent “representative data” were presented in the MRA box at the top of the table. (El Niño events affected Oregon in 1993 and 1997 and estimates from these years are not presented in the MRA box.) Another situation where the most recent data were not the most representative data involved Common Murre and Double-crested and Brandt’s cormorant colonies harassed by Bald Eagles (*Haliaeetus leucocephalus*). Bald Eagles have increased along the Oregon coast, and harassment of colonies, especially in the northern section of the state, has resulted in nesting failure and early abandonment of some colonies prior to early June, when aerial surveys normally occur. In a few instances, estimates from a previous year that were more representative of the number of birds at a given colony were presented in the MRA box at the top of the table.

### **Data Codes**

Presented below is an accounting of the codes utilized in the data tables (Figure 5).

*Latitude/Longitude.*—Geographic coordinates for each colony are presented in degrees, minutes, and seconds. Coordinates are for the center point of onshore colonies, and the centroid of individual island colonies or groups of offshore rocks/islands that constitute a single colony.

Area Map Number, Map Name,  
and unique Site Number

**Area Map: 219 (Vancouver)**  
**Site Number: 027**

Colony Number =  
Area Map Number - Site Number

**Colony Number 219-027**  
**Clatsop County**

Colony Name and  
Latitude, Longitude

**Gull Rock**  
**45° 47' 34.96"N, 123° 58' 19.85"W**

Species	Est. # Breeding Birds	# of Nests	Actual Bird			Observers	Date	Surv. Type/Qual.			
			Count	W	Cnv			ST	T	Q	Ref
Brandt's Cormorant	742	371		N	2	Pitkin/Lowe	6/9/2003	AP	W	1	3
Pigeon Guillemot	12		12	B	L	Lowe/Pitkin	7/13/1993	B	W	3	2
Common Murre	4085		2446	B	1.67	Pitkin/Lowe	6/3/2002	AP	W	2	3
Brandt's Cormorant	800	400	536	N	2	Pitman	7/16/1979	AP	W	1	1

**Estimated number of breeding birds**  
X = Breeding confirmed; number unknown  
P = Probable breeder

**Counts/estimates of nests or birds**

**What was counted (W) to generate the estimated # of breeding birds**  
N = Nests or burrows  
B = Birds  
O = No quantitative estimate  
U = Unknown

**Conversion Factor (Cnv)**  
Counts of birds or nests were multiplied by this value to generate the estimated # of breeding birds  
L = No conversion  
A = Midpoint of range  
S = Extrapolation from sample plots

Boxed data at the top of the table indicates the most recent, accurate, or representative data for this colony. Historical data are listed below.

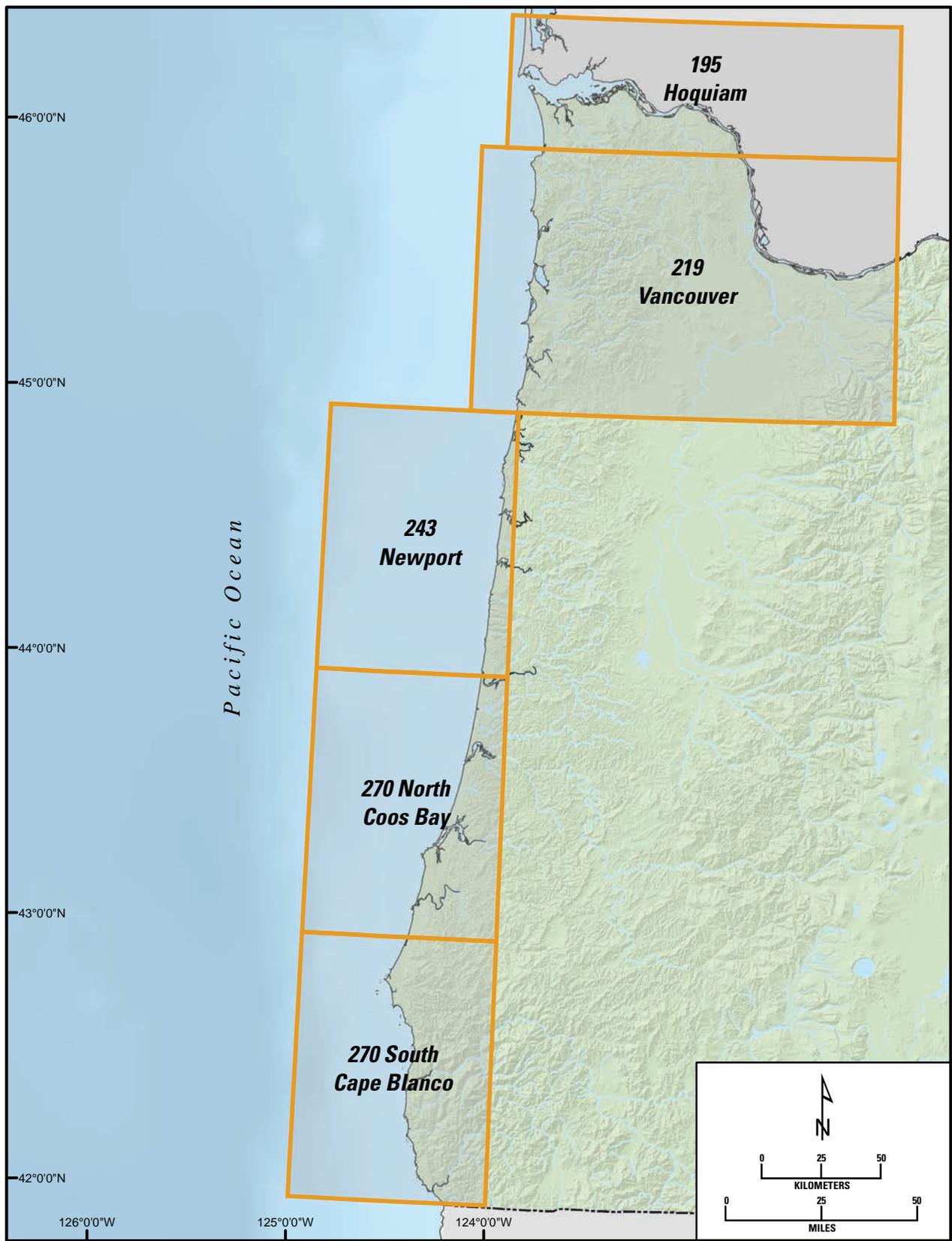
**Survey Type (ST)**  
A = Aerial  
AP = Aerial photography  
B = Boat  
C = Ground survey in colony  
M = Mainland vantage point  
U = Unknown

**Estimate Type (T)**  
W = Direct count  
S = Sample (e.g. density sampled in plots)  
Z = Partial count, rest estimated  
T = Count by groups (e.g. 100s or 1000s)  
Y = Estimate, not a direct count  
P = Probable breeding, no count  
X = Confirmed breeding, no count  
U = Unknown

**Data Quality (Q)**  
1-highest, 4 lowest  
(see page 19)

**Reference (Ref):**  
Source of data  
Appendix E

**Figure 5.** Diagram of the seabird colony data tables in this catalog.



**Figure 6.** Index to the location, name, and number of area maps used in the numbering system for Oregon seabird colonies.

*What Counted (W).*—What was counted, birds or nests.

<i>Code</i>	<i>Description</i>
B	Birds: Count or estimate of individual birds in colony.
N	Nests or burrows: Count or estimate of nests or burrows in colony.
O	No count or estimate: Observer provided no quantitative estimate of colony size, only non-numeric data like 'Present' or 'Rare'.
U	Unknown: Unexplained how the number was generated

*Conversion (Cnv).*—This code describes how the count or survey data were adjusted to generate estimates of breeding birds. Counts of nests were multiplied by 2 and counts of birds were often adjusted by a *k*-conversion factor to account for non-breeding birds at the colony and breeding birds away from the colony. These codes are the same as those used for the North Pacific Seabird Colony Database (USFWS 2004).

<i>Code</i>	<i>Description</i>
L	Literal count or estimate reported by observers; no adjustment
2	Counts of nests were multiplied by 2 to estimate the number of breeding birds
1.67	Counts of Common Murre adults were multiplied by 1.67 to estimate breeding birds.
##.##	Conversion factors for some species were calculated at the time of the surveys and therefore vary by year (e.g., Caspian Terns at East Sand Island). The numeric value is the <i>k</i> -factor used to adjust the count data.
A	Midpoint of range (e.g., 500-1000 entered as 750)
S	Extrapolation of data from sampling (e.g., burrow densities in sample quadrats)

*Survey Type (ST).*—Survey method used to census or survey the colony. Codes were sometimes combined to indicate that more than one method was used (e.g., B,M for boat and mainland coverage of Yaquina Head).

<i>Code</i>	<i>Description</i>
A	Aerial survey from fixed-wing airplane or helicopter
AP	Aerial photography
B	Boat
M	Mainland—Ground survey from a remote mainland vantage point
C	Colony—Ground survey in the colony or on the island
U	Unknown

*Estimate Type (T).*—Type of estimate or count made by the observer. Codes may be qualitative or quantitative. These codes are the same as those used for the North Pacific Seabird Colony Database (USFWS 2004).

<i>Code</i>	<i>Description</i>
W	Actual count of each bird, pair, or nest in colony
S	Sampled; count of birds or nests in a known area extrapolated to entire colony area
Z	Part estimated, part counted: exact count of a portion of the colony; remainder of the colony estimated
T	Count by groups: count of birds, pairs, or nests by groups (e.g., 10s or 1000s)
Y	Estimate, not an actual count: observer estimated birds, nests, or pairs by some method. Observer did not make an exact count of individuals or groups, but numbers were provided (e.g., "500 to 1000" or "thousands")
X	Present: observer reported breeding birds of this species at the colony, but no estimate of numbers
P	Probable: observer reported breeding birds probably present at colony, but no estimate of numbers
U	Type of estimate unknown: census method or accuracy of method unknown (observer did not describe method well)

*Data Quality (Q).*—This code describes how accurately the data reflects the actual number of breeding birds of each species in the colony. Data quality can be affected by many factors such as survey conditions, biology of the species, and methods employed.

*Code    Description*

- 1      A direct count of all nests in a colony (onsite or aerial photograph) or a precise estimate of the number of breeding birds. Examples of data of this quality include aerial photo surveys of cormorant nests or counts of gull nests from boat or shore. These data can be used to detect annual change in colony size.
  
- 2      A direct count of adult birds at a colony with quantification of the number of nests (or breeding pairs) represented by adults at the colony (a *k*-correction factor), or repeated counts of birds using standardized techniques. Examples of quality data 2 include aerial photo surveys of Caspian Terns and Double-crested Cormorants at the Columbia River colonies; aerial photo surveys of Common Murre colonies; and, repeated, standardized surveys of Pigeon Guillemots. Changes in number of birds and long-term trends can be detected using data of this quality.

3      A count or estimate of adults birds at or near a colony, where *k*-correction factors are not available. Examples of data quality 3 include single surveys of Pigeon Guillemots or Tufted Puffins, or nest counts where only a portion of the nests are visible.

4      A rough estimate of colony size that is only reliable within an order of magnitude, at best. Examples of data quality 4 include presence/absence observations, or rough visual estimates of colony size (e.g., ‘hundreds’, or ‘several thousand’), or most estimates of nocturnal burrow-nesting species. These data are of limited value and should only be used to document extremely large changes in colony size.