MOVEMENTS OF DOUBLE-CRESTED CORMORANTS FLEDGED ON THE COLUMBIA RIVER ESTUARY

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Key words: double-crested cormorant, Phalacrocorax auritus, band, distribution, migration, movements, Columbia River

Double-crested cormorants (Phalacrocorax auritus) have been the subject of increased research throughout North America in recent years, primarily as a result of conflicts with sport and commercial fisheries (Nettleship and Duffy 1995; Hatch and Weseloh 1999; Tobin 1999). In the Pacific Northwest, attention has been focused on the consumption of juvenile salmonids by double-crested cormorants in the Columbia River estuary (Collis and others 2002; Roby and others 2003; Anderson and others 2004). Most cormorant research has addressed food habitats, foraging patterns, and productivity. Little information is available concerning migration patterns and long-term movements of west coast cormorants. Erwin (1995) and Hatch and Weseloh (1999) identified the need for additional banding programs to obtain data on migration and winter movements on a national basis. Carter and others (1995) noted the lack of information on immigration and emigration of cormorants along the Pacific Coast.

Here we report on the migration and movements of double-crested cormorants banded as flightless young on the Columbia River estuary. We banded 3635 cormorants in June and July from 1995 through 2000 (n = 400 in 1995, n = 940 in 1996, n = 1158 in 1997, n = 697 in 1998, n = 0 in 1999, n = 440 in 2000). About 90% were banded at East Sand Island in Baker Bay (Fig. 1), although some were banded approximately 31 km upstream at Rice Island and nearby navigation markers. Nearly all banding was conducted at night to minimize disturbance to nesting colonies on islands and to avoid gull predation on eggs and small young (Bowman and others 1994). The only exceptions to night banding were at navigation markers, where gull predation did not occur, and on 1 occasion at Rice Island near the conclusion of the 1997 nesting season when only nearly fledged young cormorants were present. By 1999, virtually all the estuary’s nesting cormorants were using the East Sand Island colony site. Banding ceased after 2000 because East Sand Island became an important night roost for federally endangered brown pelicans (Pelecanus occidentalis) that would be subjected to considerable disturbance from banding activity.

We received 161 band recovery reports from the US Bird Banding Laboratory. Excluding the recoveries for which no information was provided, about 70% were found dead (including skeletal remains); 15% were collected, captured and released, or sighted during scientific studies; 7% were shot or otherwise taken in control operations; 5% died as a result of entanglement; and 3% died of other causes. First year birds constituted 64% of the recoveries. Of the 161 band-recovery reports, 22 were excluded from the following discussion because there was incomplete data regarding the date or location. Recovery locations primarily were coastal areas of southern British Columbia, Washington, Oregon, and California (Fig. 1 and Table 1).

Recoveries were most concentrated in the Puget Sound–Strait of Georgia area, the Columbia River estuary, and the Washington, Oregon, and California coasts (Fig. 1). Only 5 recoveries were located east of the Cascade–Sierra Nevada Range. The farthest inland recovery was along the Columbia River near Boardman, Oregon, approximately 345 km from the Pacific Coast. These data suggest that the movements of cormorants fledged on the estuary are primarily along the west coast with little intermixing with interior North American nesting populations. Dolbeer (1991) previously noted a lack of interchange between cormorant populations.