## Supplemental material I: Geographic stratification region boundaries as displayed in Figure 1.

**Feeding (summer) areas:**

Kamchatka Peninsula, Russia (black): Coastal Kamchatka Peninsula, Russia

West Bering Sea (cyan): Russian waters from Commander Islands east of 164.5° E and south of 56° N, across the International Dateline to 172° W, and Alaska, USA waters west of the International Dateline (> 0° E) and west of 164.5° E

North and East Bering Sea (green): Russian waters east of the International Dateline (> 0° W), and east of 172° E and north of 56° N. Alaska, USA waters west of 157° W

Gulf of Alaska (yellow): Alaska, USA waters between 141° and 157° W

Southeast Alaska (blue): Alaska, USA waters east of 141° W and Northern British Columbia, Canada (purple): British Columbia, Canada waters north of 51° N

Southern British Columbia, Canada and Washington, USA (salmon): British Columbia, Canada waters south of 51° N and all Washington state, USA waters.

California and Oregon, United States (orange): All waters of the states of California and Oregon, USA

**Wintering (presumed breeding) areas:**

West Pacific (purple): Pacific Ocean waters west of 160° E and south of 30° N

Hawai‘i (blue): Pacific Ocean waters west of 160° W and south of 30° N

Revillagigedo Islands, Mexico (cyan): Mexican waters west of 110° W and south of 20° N

Baja California, Mexico (black): Mexican waters west of 108.4° W and north of 20° N

Mainland Mexico (green): Mexican waters east of 108.4° W and north of 20° N. Boundary between Mexico Mainland and Southern Mexico/Central America based on [75].

Southern Mexico and Central America (yellow): Mexican waters east of 108.4° W and south of 20° N, all Guatemalan Pacific Ocean waters, El Salvadorian waters, Honduran Pacific Ocean waters, Nicaraguan Pacific Ocean waters, Costa Rican Pacific Ocean waters and Panamanian Pacific Ocean waters. For Nicaragua, Costa Rica and Panama, where Southern Hemisphere migrants occur, all May through October encounters were removed.