and capelin, important prey for murres and puffins. Nearshore waters of Cook Inlet were dominated by sand lance, which were consumed by seabirds (e.g., kittiwakes, guillemots, murres) in proportion to their local abundance. Forage fish densities ranged from 10's fish/m^3 (pollock) to 100's and 1000's of fish/m^3 (sand lance). Acoustically-measured forage fish biomass was lowest around Chisik Island, moderate in Kachemak Bay, and highest around the Barren Islands. Correspondingly, seabird densities at sea and seabird breeding success ranged from relatively low in the Chisik Island area to relatively high in the Barren Islands area. Populations of seabirds at Chisik Island continued a long-term decline, whereas populations at Gull and Barren islands are stable or increasing. Behavioral studies revealed that seabirds worked harder (longer foraging trips, less "free" time) at colonies where nearby fish densities were lower.

GEOGRAPHIC VARIATION AND REASSESSMENT OF SPECIES LIMITS IN THE "MASKED" BOOBIES OF THE EASTERN PACIFIC OCEAN

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Two distinct forms of Masked Booby (*Sula dactylatra*) occur in the eastern Pacific: (1) a yellow-billed form that includes a population on Clipperton Island and islands off western Mexico (*S. d. "californica"*), and another, unnamed, population on Las Islas Desventuradas, Chile, and (2) an orange-billed form (*S. [d.] granti*) that nests almost exclusively on the islands of the Galápagos and on Malpelo Island, Colombia. Quantitative comparisons, including Principal Components Analysis (PCA) of standard morphological characters indicated that yellow-billed populations are only marginally different from one another, and neither is consistently separable from *S. d. personata*, a yellow-billed form which ranges over most of the tropical Pacific. Further, we found no consistent differences in bare-part coloration or plumage among yellow-billed populations. In contrast, PCA clearly separated orange- from yellow-billed birds. The orange-billed bird is smaller with a significantly shorter, shallower bill, shorter tarsus, and longer wings and tail. It is also more sexually dimorphic and has distinct plumage characters. Biological observations also support the distinctness of orange-billed birds. They typically nest on cliffs and steep slopes, whereas yellow-billed forms nest mainly on low, flat areas. A difference in habitat preference at sea resulted in a parapatric distribution: orange-billed birds away from colonies concentrated in nearshore waters off the coast of the Americas, whereas the yellow-billed forms foraged much farther offshore. Most importantly, orange- and yellow-billed birds paired assortatively where they nested sympatrically. Thus, based on morphological and biological differences, including assortative mating, we recommend that *Sula granti* be recognized as a separate species, the Nazca Booby.

DATA ON KNOWN-AGED CASSIN'S AUKLETS AT SOUTHEAST FARALLON ISLAND, CALIFORNIA

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Recruitment, nest relocation patterns, age of first breeding, and the effects of age and experience on reproductive success were examined for 706 breeding attempts by 267 known-age Cassin's Auklets (*Ptychoramphus aleuticus*); 123 females, 137 males, 7 of unknown sex) breeding on Southeast Farallon Island, California. Mean age of first breeding was 3.34 yrs (±1.32 SD; range 2-10 yr, mode 3 yrs, with 95.5% between 2 and 5 yrs). Mean natal dispersal distance was 15.83 m (±23.95; range 0[n=4] to 227.6 m). During 71.8% of nest relocations (X^2=15.02, P = 0.000 compared with 50%), birds moved nearer to their natal site. Adjusting for effects of year, reproductive success showed significant linear increases with both age and previous breeding experience. Effects of age appeared to be stronger than those of experience. An examination of lifetime reproductive success indicated that 4 was the optimal age to initiate breeding, compared with 3 as the most frequently observed age of first breeding. No sex-specific patterns were found relative to any of the above parameters.

METHODS TO ESTIMATE EFFECTS OF AN OIL SPILL ON WATERBIRDS IN NORTHERN CALIFORNIA

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We investigated the effects on the waterbirds of a small spill of about 5,000 gallons on November 5, 1997 within Humboldt Bay and as it moved offshore. With systematic boat surveys, we will be able to estimate the numbers of birds within and in the path of the spill. We documented the daily progress of the spill over 10 days. By 13 November oil had disappeared from most areas, and the number of oiled birds and the percentage of oil on plumages had greatly declined. There were apparentdifferences in the degree and areas of oiling between family groups of waterbirds. We will discuss preliminary examples of methods of determining the total number of birds affected by a spill and examining the extent of oiling on birds from water and shore-based surveys.

CORRELATION OF INLAND RADAR COUNTS AND - MARINE POPULATIONS OF MARBLED MURRELETS IN WASHINGTON AND OREGON: A PILOT STUDY

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Marbled murrelet densities on the inland waters of Hood Canal, Puget Sound, were estimated from line transect surveys conducted once per month during the summer of 1997, concurrent with radar sampling at three adjacent drainages. Marine population estimates within 20 km, 30 km, and 40 km of radar sites were compared with radar counts. Monthly changes in densities were consistent within the 20-, 30-, and 40-km radii, and generally followed the trend of radar counts. Both marine densities and radar counts peaked in July, although the proportional increase in marine densities was much higher than that of radar counts. As expected, population estimates were larger than absolute radar counts, although the degree of difference depended on how the marine population was esti-