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BIOLOGICAL REVIEW: Construction of nesting islands and its effects on California gull populations at Bear River Migratory Bird Refuge

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PROBLEM: Though controversial, the effect of California gull depredation on nesting waterfowl, particularly ducklings, may be significant. The extent to which the local California gull population effects waterfowl production at Bear River Migratory Bird Refuge is unknown. Several references to gulls attacking ducklings can be found in old Refuge narratives. Consequently, management practices that may increase California gull populations should be reviewed with caution.

Plans for reconstruction of Bear River Migratory Bird Refuge, following flooding by the Great Salt Lake in 1983, include reconstruction of existing dikes and islands, and construction of new cross dikes and islands. Until vegetation becomes established, any of these newly constructed areas provide potential nesting habitat for California gulls.

The following provides a review of the historic changes in California gull populations on the Refuge and a biological review of proposed construction of islands with respect to California gull nesting colonies.

HISTORY: Prior to the establishment of the Refuge, and during its early years, no California gull nesting occurred. Over the years loss of ancestral nesting areas within the Great Salt Lake and other local areas (primarily State Waterfowl Refuges) made the isolated, protected areas of the Refuge attractive for nesting. Records dating back to 1935 indicate that California gulls began nesting on constructed islands and remained confined to the islands until sometime after 1939. The first documented records of gulls nesting on dikes begin in 1941. Prior to 1941 California gull populations appeared stable on the survey areas. Presumably, once the carrying capacity of the islands was reached the birds dispersed to suitable nesting areas along dikes. Once colonization of the dikes began, California gull numbers skyrocketed, doubling at 10 year intervals. The number of California gull nests peaked at 9573 in 1965. In 1967 the Refuge began spraying eggs with diesel oil to reduce numbers to a target of 1000 pairs. Control efforts were successful, reaching the target level in 5 years. From 1973 until 1983 populations were held between 1000 and 2000 breeding pairs.

Flooding of the Refuge in 1983 destroyed all nesting areas for gulls and waterfowl. Waterfowl production has been minimal since the flood, but is expected to increase as suitable vegetation becomes established. California gull nesting is currently confined to a single 0.25 mile stretch of dike and no gulls have colonized existing islands.

Nesting islands in units IV and V supported cormorant colonies and were used as roosting sites for white pelicans in 1991. American avocets used islands in unit III even though there was no water in the unit. Past reports indicate that one island in unit III

supported the only nesting colony of Caspian terns on the Refuge. No gulls have been observed using these islands since the flood.

BIOLOGICAL REVIEW: California gulls require nesting areas that are relatively barren or sparsely vegetated, close to water, isolated, and free from human or mammalian disturbance. Bear River Migratory Bird Refuge and surrounding areas of the Greater Salt Lake ecosystem provide abundant habitat for nesting California gulls. Nesting habitat is by no means limiting and California gull colonies will continue to expand along Refuge dikes. The addition of small nesting islands will add only slightly to the available nesting space and are not expected to cause increases in gull populations that would not otherwise occur.

On the other hand, upland nesting habitat for ground nesting waterfowl is limiting. The positive aspects of creating essential breeding grounds for upland nesting birds outweighs the possible detrimental aspects of providing nesting space for less desirable species. Historic and present use of islands by double-crested cormorants, Caspian terns, American avocets, white pelicans, and other species provides convincing evidence of the importance of islands for roosting and nesting to a variety of species. In addition, changes in predator species distribution and abundance at the Refuge makes the need for "predator free" islands particularly critical.

Consideration should be given to management practices that ensure the islands will be available to nesting waterfowl. The size of the islands should be kept small to discourage large gull nesting colonies. Many small islands surrounded by emergent vegetation also will create good brood habitat, an essential element to duckling survival. Vegetation should be established on newly constructed areas as quickly as possible. Sweet clover is a quick growing, hardy species that readily became established on dikes after the flood. Dredged soils may require time for salt to leach out. Nesting gulls may need to be hazed from newly constructed areas until vegetation becomes established.

In conclusion, California gulls can be expected to increase at Bear River Migratory Bird Refuge regardless of the addition of nesting islands. Unlimited nesting habitat and abundant food sources favor large populations. Management programs should be designed and implemented to maintain California gulls at an acceptable target level while allowing for the expansion of waterfowl populations.