

Bird Behavior When Encountering Airborne Helicopters Along the California Coast

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Observations of the relationship between helicopters and birds have been confined to the impact of the aircraft on birds that are on the ground, either breeding, in the process of migration, or molting (Miller 1994, Grubb and Bowerman 1997, Ward et al. 1999). But no attention has been given to the interaction between helicopters and birds when both are flying. This is important because, while helicopters are typically less prone to bird strikes than fixed-wing aircraft are, likely because the latter are noisier and fly more slowly, accidents occur, and they can be fatal. On February 3, 1981, a Bell 206 helicopter struck a Common Raven (*Corvus corax*) in Vancouver, British Columbia, and all four occupants were killed when the aircraft crashed (Transport Canada 2000). In Israel, a nation on the migratory path of 500 million birds, military helicopters struck birds 696 times in the quarter century following 1972 (Rosenthal 1998). Canadian military helicopters also experience bird hits (Transport Canada 1993). An understanding of how birds react to helicopters is useful because it may assist pilots in making good decisions on how to avoid collisions.

Based on interviews with three helicopter pilots with a combined total of about twenty-five years of flying helicopters along the California coast, we assembled a picture of the reactions of several bird species encountering helicopters in the area. Two of these pilots flew an H-65 Alpha Dolphin search and rescue helicopter for the United States Coast Guard out of Los Angeles International Airport, one flying between Dana Point on the south to Morro Bay on the north as well as to the Channel Islands, the other flying as far south as 100 miles south of the California-Mexico border and as far north as Morro Bay. The third pilot has flown both a Bell 206 and a Bell 412 for the Los Angeles City Fire Department.

Encounters with gulls (*Larus sp.*) are a daily occurrence for all three pilots. They described gull reactions at altitudes of 150-2500 feet. It is typical of gulls to diverge from aircraft early, without close confrontations. Gulls dive away from aircraft, turning 45-90 degrees, always descending and never climbing. In those instances where gulls maintain their flight line and get close to the helicopter, they generally deviate from their line of flight when they get to within 20-30 m of the aircraft. Then they turn belly up and throw themselves into a dive. Consequently, Coast Guard pilots always flew above gulls once they were sighted because of the predictable response of the birds.

Encounters with raptors yielded a different set of responses on the part of the birds. Coauthor JAC encountered three raptor species. The responses of Red-tailed Hawks (*Buteo jamaicensis*) were extremely predictable. In more than 50 encounters up to altitudes of 4000 feet, the bird would either maintain its flight pattern and the helicopter would be forced to move, or a hawk would move laterally or down, but never climb. The responses of Peregrine Falcons (*Falco peregrinus*) and Bald Eagles

(*Haliaeetus leucocephalus*) were considerably more confrontational. In a half dozen confrontations with Peregrines, they would often fly directly at the helicopter, bring their legs forward, and bare their talons in an aggressive posture. The same was true of the lone meeting with an eagle. It flew toward the helicopter and, while holding its flight line, turned upside down while baring its talons aggressively. Again, the helicopter was forced to take evasive measures. A second pilot said that while many soaring Red-tailed Hawks would dive downward, turning 45-90 degrees once they became aware of the aircraft, others would stand their ground, and helicopters would often have to maneuver to avoid the hawks. As a result of the greater likelihood that hawks will come closer to a helicopter, this pilot has hit hawks more frequently than gulls, although they were mostly glancing blows. The third pilot also described hawks as much more likely to remain in the air space that they were occupying when the helicopter approached, making little effort to avert a collision with the aircraft, forcing the pilot to do so.

There were approximately 100 encounters with both White and Brown pelicans (*Pelicanus erythrorhynchos* and *P. occidentalis*). Their behavior depends on whether they are flying in a flock or singly. Pelican flocks hold their flight line, and it is incumbent upon the helicopter to take evasive action. When flying singly, however, a pelican dives straight down to avoid the aircraft in much the same way as it would when it dives into the sea to forage.

The experiences of these pilots suggest that there is no single response by birds. While some species take evasive action to escape from a helicopter, others treat the helicopter as a threat and engage in some form of attack behavior. Birds never seem to climb above a helicopter, so when in doubt, a pilot may be safer if he or she goes above the bird. Pilots may benefit from appreciating the interspecific differences in behavior.



References

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