

## Pacific flyway



U.S. Fish and Wildlife Service

## Central flyway



## Mississippi flyway



## Atlantic flyway



For the first six months of 1997, the Navy and Marine Corps reported 18 mishaps involving bird strikes. Here are a few:

A T-45 encountered a flock of sea gulls on the takeoff roll. Feeling several hits, the pilot aborted. A Hornet took a large bird down the port engine just after liftoff, and the pilot made a single-engine arrestment. Flying at 500 feet AGL and 120 KIAS, a Sea Knight pilot tried unsuccessfully to avoid a 7-pound loon.

The bird went through the center windscreen.



# Where the Birds Are

by Charles D. Lovell

Ducks, geese and swans, collectively known as waterfowl, account for only five percent of the bird strikes to USAF aircraft, but these large birds pose a substantial threat to military aircraft during migration periods and daily feeding flights. The USAF lost an E-3 AWACS and 24 crewmen after the aircraft struck Canada geese at Elmendorf AFB in September 1995. If you use information about waterfowl migration, movement and activity patterns to schedule training flights during low-risk periods, you can reduce the risk of waterfowl strikes.

**Migration-** Ninety percent of migratory flights occur below 5,000 feet MSL; however, migratory waterfowl have been reported as high as 20,000 feet MSL. During migration, waterfowl fly at altitudes that depend on terrain and distance (the longer the flight, the higher the altitude).

The fall and spring are the two peak periods during which North American waterfowl migrate. Fall migration is far more noticeable than spring migration. Fall migrations tend to move in large flocks to wintering areas in a short time, whereas spring migrations are slower and more irregular. Depending upon latitude, fall migrations may begin as early as August and run into December; spring migrations may begin as early as February and run through May. Peak months of migration are October-November and March-April.

Many factors influence migration; changes in the amount of daylight probably influence migration the most. If food is plentiful, many species will delay migration until they deplete their food supply. Also, weather conditions influence the onset, delay, and magnitude of migrations. Large-scale migrations, especially in the fall, often coincide with major weather fronts that produce favorable wind patterns.

Waterfowl tend to feed and build up fat reserves for migration during the day and to migrate mainly at night. Many species will fly directly from their breeding grounds to their wintering grounds, while others will periodically stop to feed between their

breeding and wintering grounds. For example, snow geese migrate both non-stop from Hudson Bay to the gulf coast of Texas, and on occasion, stop to replenish fat reserves to continue their flight.

There are four major migratory flyways in North America – Atlantic, Mississippi, Central, and Pacific. Results from the 1996 midwinter waterfowl survey conducted by state wildlife agencies and the U.S. Fish and Wildlife Service tallied more than 27 million waterfowl in the U.S.

The Mississippi flyway contained the largest number of birds (11 million), followed by the Pacific (6.5 million), Central (5 million), and Atlantic (3 million). Most of these migratory waterfowl winter in national and state wildlife refuges in southern and coastal states where water doesn't freeze. In coastal areas, large "rafts" of sea ducks and other waterfowl species will gather in bays, like the Chesapeake Bay, and along the coast.

**Movement and Feeding Flights-** During the winter, waterfowl rest in areas in which they feel safe from danger. They start flying at dawn to search for food. Once the birds find it, they will spend most of the day feeding at that location. As the sun sets, they again take to the sky to return to a safe roosting area. In general, birds fly below 1,000 feet AGL to and from food sources.

**Avoiding Waterfowl Strikes-** Because weather patterns vary, there is no set day when migrations start. It helps to keep in close contact with refuge or state biologists about the status of migratory waterfowl in areas where low-level flights occur. These biologists often provide specific information about daily waterfowl-flight patterns between roosting and feeding areas. This information helps determine the specific start or end of migrations for a particular year, and aids in scheduling flight-training missions and avoiding bird strikes.

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