



Hurricanes 101

Hurricanes are a natural phenomenon that occur around the world including in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico. In this region, on average, six major hurricanes develop between June to November every year. The strong winds, excessive rainfall, surging tides, and flooding make hurricanes one of the deadliest natural disasters, costing human lives and billions of dollars in infrastructure damage annually. Yet, have you ever wondered what impacts hurricanes have on the natural world, particularly when talking about birds? In this blog, we will explore the impacts of hurricanes on the avian world, and the role of climate change in this process.

Birds and Hurricanes

Birds use environmental cues to predict weather patterns. They can detect changes in air pressure caused by a brewing storm and, in response, alter their behavior to brace for the upcoming weather events. Resident species often seek shelter in shrubs and trees during a hurricane. Many migratory species prefer to migrate ahead of a hurricane. However, it is difficult to be 100% safe from hurricanes. Birds often get sucked into hurricanes as they try to fly away from the oncoming weather. Once sucked in, it is extremely hard for them to break out of the eye of the storm. The few brave birds (tagged with GPS monitors) that do break away, often continue their journey successfully, but most birds are not so lucky. Many birds end up traveling inland with the storm, which wastes their time and energy, not to mention the extra distance that they have to travel to get to their wintering grounds. Hundreds of birds die as a direct impact of each hurricane. Let us examine a few real-life stories to fully understand the impacts of hurricanes on birds.



===== **Peregrine Falcon #5735** =====

Peregrine Falcon #5735 was banded with a satellite transmitter in 1997 near Fort Chippewan, Alberta, by two Canadian Wildlife Service biologists, Geoff Holroyd (chair of BBO) and Jason Duxbury. After leaving her nest in late September, the falcon traveled a whooping 3,900 kilometers in 12 days to the coast of Apalachee Bay, Florida in the Gulf of Mexico. She continued her journey making her way to Cuba, and then Haiti, and scientists thought that she was likely travelling to South America for winter. Alas, things turned sideways for her at this point. As the falcon was crossing the Caribbean Sea, hurricane Mitch (category 5) developed to the west of her. She failed to cross the Caribbean due to strong hurricane headwinds and turned back north making her way to Haiti. After spending a few days in Haiti, the falcon made another attempt to cross the Caribbean Sea yet failed again due to continuing hurricane activity. She returned north to the island of Navassa where she spent a few days before making another attempt to cross the Caribbean Sea. During her last attempt, the falcon encountered headwinds from the hurricane again except this time she could not break away from the hurricane and died as a result. The last signal received from the falcon located her 640 km south-west of Navassa in middle of the sea. The signal was lost at this point, leading scientists to conclude that our falcon died likely from sheer exhaustion.

===== **Sharks, Terrestrial Birds, and Hurricanes** =====

Scientists have also found other examples of how hurricanes impact birds. While studying the diet of Tiger Sharks, scientists found that part of their diet actually consisted of birds. 105 Tiger Sharks were captured to examine their stomach content, and 41 of these sharks had bird remains in their stomachs. Not just any birds either, but terrestrial bird such as: Eastern Kingbird, Marsh Wren, Eastern Meadowlark, and Yellow-bellied Sapsucker. Looking for an explanation, the scientists determined that these birds must have fallen from the sky. During migration, when birds are exerting energy in order to travel great distances, a single bad weather event like a hurricane, can exhaust them to the point where they cannot fly anymore and fall into the oceans, becoming shark food. These events occur frequently enough that female Tiger Sharks travel to the Caribbean Sea to have their young during the autumn when birds are migrating to South America.

===== **Climate Change, Hurricanes, and Future of Bird Conservation** =====

Over the next few decades, the intensity of extreme weather events is expected to increase due to climate change and hurricanes are no exception. We are already seeing more category 4 and 5 hurricanes than before, i.e., lower category hurricanes are transforming into higher category. These intensifying hurricanes have a negative impact on the birds. Black-capped Petrels, for example, are an endangered species of seabird that lives near the south-eastern coast of the United States. The Black-capped Petrel population is small with only ~ 2,000 individuals and the region that they live in is prone to hurricanes. Over the last few decades, 100s of petrels have been killed by hurricanes pushing and displacing them. This number, despite being small, is a matter of serious concern. As climate change worsens hurricanes, the intensifying weather will also have a negative impact on terrestrial-migratory birds, not to mention us humans. You can read about how climate change impact bird migration [here](#) in one of our previous blogs.



===== **What can we do?** =====

Unplug our electronics when not in use! Electronic appliances ranging from a phone charger to coffee maker draw a small amount of energy even when they are not in use. This phenomenon is called energy vampires. According to some estimates, these appliances can cost an average household up to \$200 a year in energy costs. Furthermore, the cost of this wasted energy produces a lot of greenhouse gases which is contributing to climate change. Therefore, you can save the environment and some money by unplugging your electrical devices!

Other helpful tips on how to reduce your carbon footprint to reduce climate change can be found on our website [here](#).



Additional Readings

<http://www.ussartf.org/hurricanes.htm>

<https://www.forbes.com/sites/grrlscientist/2017/09/08/where-do-birds-go-in-a-hurricane/#73665fb4254a>

<https://www.audubon.org/news/how-do-hurricanes-affect-birds>

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<https://www.audubon.org/field-guide/bird/black-capped-petrel>

<https://www.scientificamerican.com/article/silent-skies-billions-of-north-american-birds-have-vanished/>

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<https://www.directenergy.com/blog/should-you-unplug-appliances-when-not-in-use/>

Picture

Mike Trenchard, Earth and Sciences & Image Analysis Laboratory, NASA Johnson Space Centre, retrieved on March 16, 2020, from

https://commons.wikimedia.org/wiki/File:Hurricane_Isabel_from_ISS.jpg