Effects of a hurricane on fish parasites

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Tropical cyclones, locally referred to as hurricanes, can dramatically affect life along their paths, including a temporary loss or reduction in number of parasites of fishes. Hurricane Katrina in the northern Gulf of Mexico in August 2005 provides many examples involving humans and both terrestrial and aquatic animals and plants. Fishes do not provide an indicator of hurricane activity because most species quickly repopulate the affected area. Parasites from many of those fishes, however, serve as good indicators of the overall biodiversity and environmental health because they involve complicated life cycles, often with intermediate and definitive hosts. The reasons for the noted absence or reduction of parasites in fishes are many, and specific parasites provide indications of different processes. The powerful winds can produce perturbations of the sediments harboring intermediate hosts. The surge of high salinity water can kill or otherwise affect low salinity intermediate hosts or free-living stages. Both can introduce toxicants into the habitat and also interfere with the timing and processes involved with host-parasite interrelationships. All these have had a major influence on fish parasite populations of fishes in coastal Mississippi, especially for those parasites incorporating intermediate hosts. The length of time for a parasite to become re-established after Katrina varied considerably, depending on the corresponding life cycle as well as on the associated biota, habitat, and environmental conditions. After 2.5 years, some parasites have yet to become re-established.