WILDLIFE FUTURES PROGRAM

PARC PARTNERS IN AMPHIBIAN AND REPTILE CONSERVATION

NATIONAL WILDLIFE REFUGE SYSTEM

FACTSHEET

SEA TURTLE MASS MORTALITY

MARCH2022

PATHOGEN OR POISONING?

Harmful algal blooms (HABs) are an emerging concern for mass stranding and mortality of sea turtles.

OVERVIEW OF SAXITOXIN

Saxitoxins are chemicals produced by dinoflagellate species, components of marine plankton communities. Dinoflagellates are central to marine food webs, with their primary consumers including crustaceans, fish, jellyfish, and salps. Secondary consumers that feed on planktivorous species include sea turtles. HABs or red tides are of concern as predators may become poisoned. Paralytic Shellfish Poisoning (PSP) is known from humans and animals including sea turtles that have preyed upon food sources with concentrated chemicals such as saxitoxin. PSP affects sodium ion intake into cells of affected individuals, and can lead to lethargy, disorientation, impaired motor coordination, muscular paralysis, choking, respiratory paralysis, and difficulty with submerging. These clinical signs may be similar to some effects of pathogens such as spirorchiid trematodes. PSP is the most toxic syndrome along the Pacific coast of North America, where additional monitoring is warranted to distinguish it from pathogenic infections.

OVERVIEW OF SPIRORCHIID TREMATODES

Spirorchiid trematodes are blood flukes that have been implicated in worldwide mass stranding and mortality events of sea turtles. The disease caused by this trematode infection, spirorchiidiasis, results in injury and inflammation to larger arteries, the central nervous system, endocrine organs, and the gastrointestinal tract. Incidental infections may be common and may not cause sea turtle strandings or death. Additional research is needed to better understand species-specific and geographic-specific patterns of spirorchiid trematode infection and host-health consequences in sea turtles. Distinguishing sprirorchiidiasis from PSP may be needed in some contexts.

NEXT STEPS

It is important to report apparently sick or dead sea turtles to authorities, and to report suspected algal blooms in the area if mortality is seen. Reports may be made to stranding hotlines: https://www.fisheries.noaa.gov/state-coordinators-sea-turtle-stranding-and-salvage-network

Preliminary observations suggest that recovery trajectories of sea turtles with PSP may be rapid (hours) relative to spirorchiidiasis rehabilitation (weeks). Short periods in captivity in a resting state, with regurgitation of potentially poisonous stomach contents of gelatinous organisms, may aid in PSP rehabilitation. More research is warranted on this topic.

SUGGESTED READING

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