



Sea Star Wasting Disease

Sea stars play a vital ecological role as top-level predators shaping nearshore ecosystems. The absence of sea stars can enable other organisms that sea stars eat, like mussels, to multiply and drive out other nearshore inhabitants. An epidemic of wasting disease began in 2013, affecting sea stars from Alaska to Baja California, Mexico. The epidemic affects at least 20 sea star species and sea star populations along the west coast of the U.S. have experienced very high levels of mortality. As the disease progresses, sea stars often lose arms and can have a jelly-like appearance. Death can occur within a few days of the initial signs of infection. This disease has been observed in several locations in southeast Alaska and more recently in Western Prince William Sound and Kachemak Bay.



UAF/Zoe Schneider

A healthy sea star in an intertidal area.

Findings

Sea star data from Kenai Fjords National Park, Katmai National Park and Preserve, Prince William Sound, and Kachemak Bay were examined to determine spatial and temporal trends in sea star abundance and diversity and to determine if effects of sea star wasting could be detected. Our analyses demonstrated high spatial and temporal variability in sea star densities in all surveyed regions. In addition to high temporal variability in abundance, the diversity and dominance of individual species varied greatly among regions (Figure 1). A dramatic decline in sea star numbers, most likely attributable to sea star wasting, has been seen across all regions in recent years (Figure 2). Gulf Watch Alaska will continue monitoring these important species in the future. Continued monitoring will also provide insights into the impacts that sea star wasting is having on intertidal communities over time.



U.S. Geological Survey

A sea star showing signs of wasting disease.



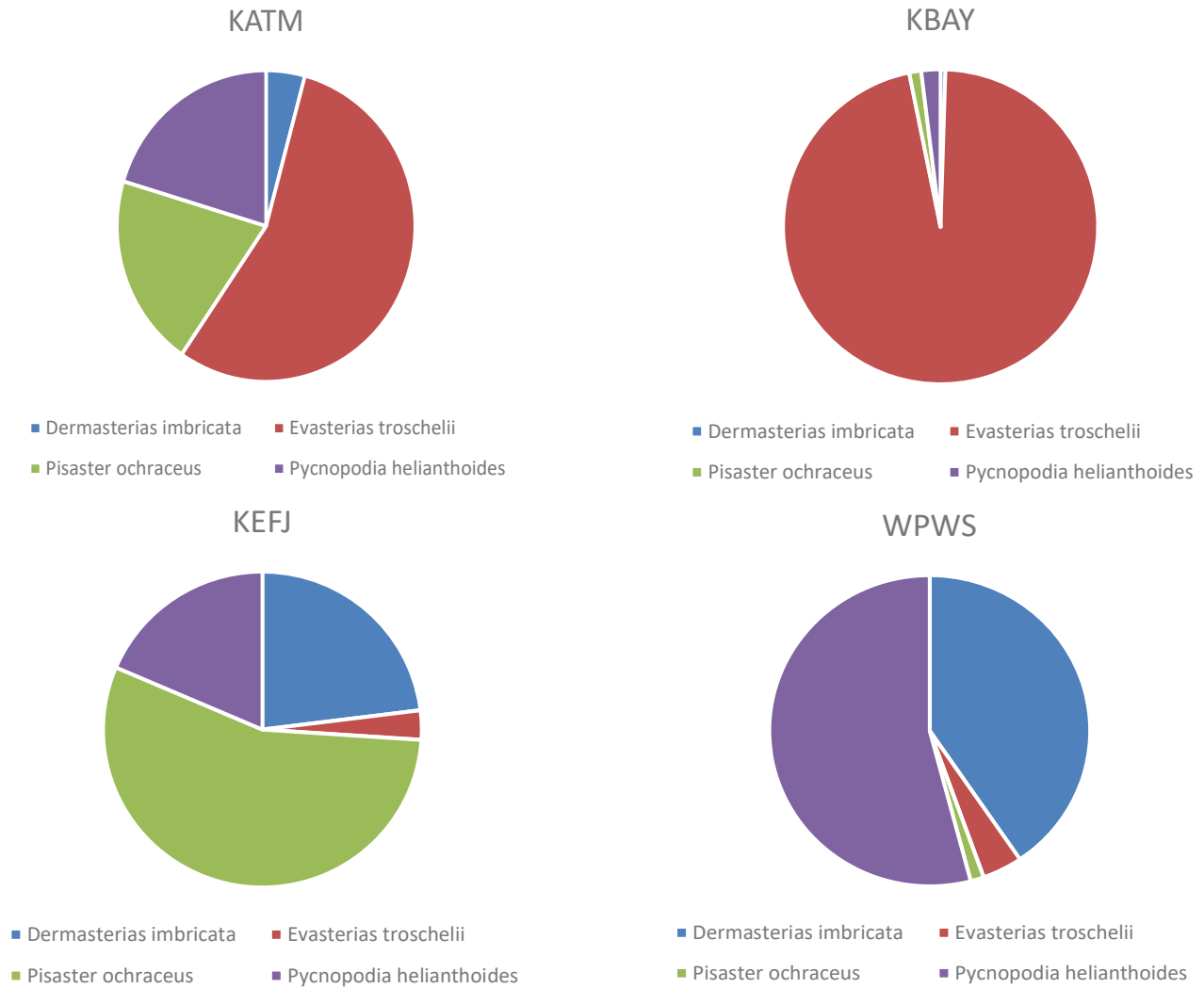


Figure 1. Dominant sea star species by region averaged across years. Regions include: western Prince William Sound (WPWS), Kenai Fjords National Park (KEFJ), Katmai National Park and Preserve (KATM), and in Kachemak Bay (KBAY).

Methods

The National Park Service, in partnership with the U.S. Geological Survey, the University of Alaska, Fairbanks, the National Oceanic Atmospheric Administration, and Gulf Watch Alaska began a concerted effort to look for sea star wasting disease in southcentral Alaska starting in 2014. Researchers from various institutions searched for the disease at long-term Gulf Watch Alaska monitoring sites in Prince William Sound, Kenai Fjords National Park, Katmai National Park and Preserve, and in Kachemak Bay.

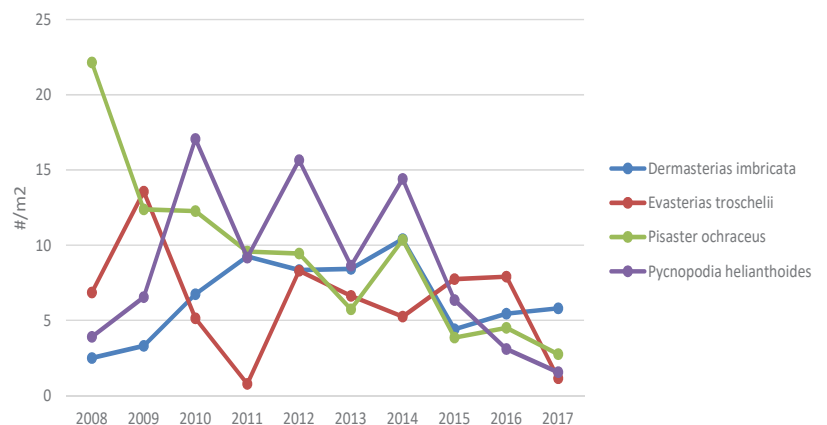


Figure 2. Overall decline in sea star density by species.