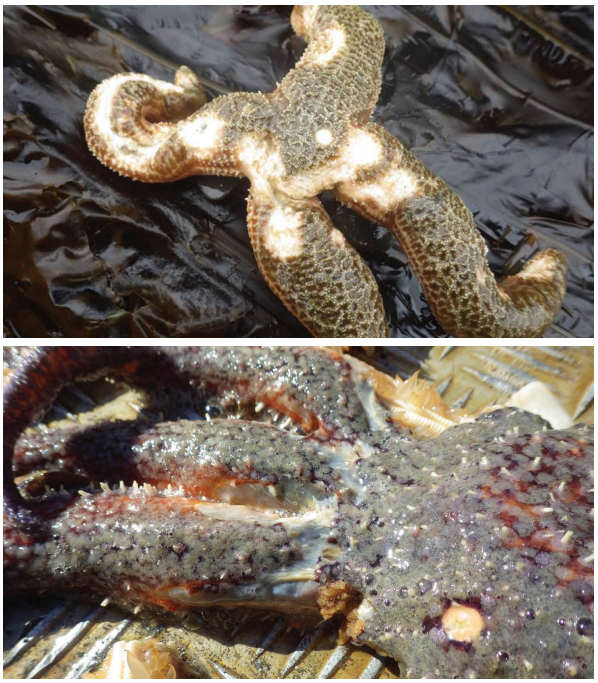
# Sea Star Wasting Disease

## Importance

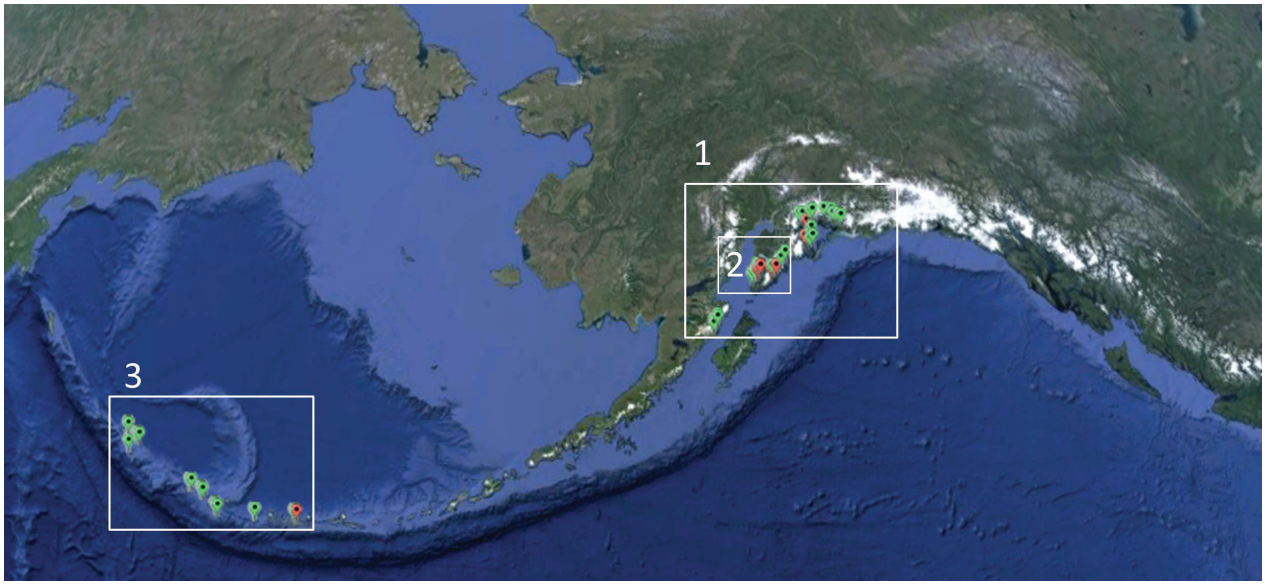
Sea stars play a vital ecological role as top level predators shaping nearshore ecosystems. The absence of sea stars can enable other organisms that sea stars eat, like mussels, to multiply and drive out other nearshore inhabitants. An epidemic wasting disease began in 2013, affecting sea stars from 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 death. 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.



**Images of lesions and unnatural body twisting typical of sea star wasting disease. Top image of a mottled star (*Evasterias troscheli*), and bottom image of a sunflower star (*Pycnopodia helianthoides*). Photos courtesy of K. Iken.**

## Methods

The National Park Service, in partnership with the U.S. Geological Survey, the University of Alaska, Fairbanks (UAF), the National Oceanic Atmospheric Administration (NOAA), and GulfWatch Alaska began a concerted effort to look for the disease in southcentral Alaska starting in 2014. Researchers from various institutions searched for the disease at long-term GulfWatch Alaska monitoring sites in Prince William Sound[1], Kenai Fjords National Park[1], Katmai National Park and Preserve,[1] and in Kachemak Bay[2]. GulfWatch Alaska collaborators from UAF also investigated sites in the Western Aleutian Islands[3], outside the scope of this long-term monitoring program.




**Sites that were surveyed in Prince William Sound[1] and National Parks that border the Northern Gulf of Alaska[1], Kachemak Bay[2], and the Western Aleutian Islands[3].**

## Preliminary Findings

Infected sea stars that were found in survey locations are shown by red pins, and survey locations without infected sea stars are shown by green pins.

In 2014, only nine sea stars out of 1,588 observed across 30 sites were found infected (0.6% prevalence), and these nine sea stars were all found in Kenai Fjords National Park (McCarty Fjord and Nuka Passage).

In 2015, we found 69 infected sea stars out of 2,016 sea stars observed (3.4% prevalence). Almost all of these sea stars (67) were observed in Kachemak Bay, and additional information is needed to determine why this was the case.

Although there was a slight increase in disease prevalence in 2015, the occurrence of diseased stars is still low compared to southeast Alaska and the lower 48. However, occurrences may be underestimated due to the limited area of Alaska's coastline that had been sampled.

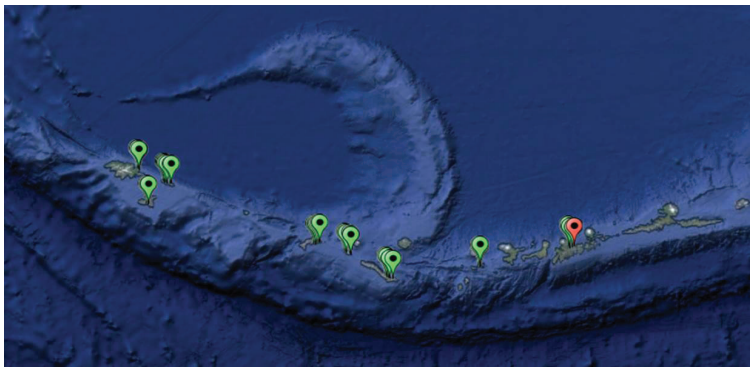
## How you can help

Many sea stars can exhibit bodily damage, due to impact injuries from boulders moved by large waves, exposure to freshwater, and predators. These injuries can be confused with wasting disease, but you can visit **seastarwasting.org** for comprehensive identification guides. We encourage the use of citizen science in collecting data on diseased sea stars. If you observe a sea star that exhibits signs of this disease, please take a photograph, note the location and date, and send to: mandy.lindeberg@noaa.gov, kbiken@alaska.edu, or bhkonar@alaska.edu.

**GulfWatch Alaska long-term monitoring sites[1]. Kenai Fjords National Park surveyed in 2014, Prince William Sound surveyed in 2015**

**Kachemak Bay[2] surveyed in 2015**

**Western Aleutian Islands[3] surveyed in 2015**



**Courtesy K. Iken**

**For more information:**
Contact Heather Coletti, heather_coletti@nps.gov
SWAN web site at http://science.nature.nps.gov/im/units/swan/

Sea star wasting disease at www.seastarwasting.org

**March 2016**

Brief designed by: Erin Kunisch
www.nps.gov/rlc/oceanalaska/index.htm