A Rapid Assessment of Sea Star Populations after the Onset of Wasting Syndrome in California
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PURPOSE
Goal: to survey sea star populations after the onset of wasting syndrome on the Pacific Coast of the United States
Study Systems: rocky intertidal and subtidal reef throughout California
Objectives:
1. Determine if wasting is present
2. Determine intensity of wasting
3. Compare current sea star densities to previous densities from PISCO/MARINe intertidal and subtidal datasets
4. Map the outbreak of wasting both spatially and temporally to provide insight into the spread of wasting syndrome

SURVEY SITES
To compare to long term data sets, sites were chosen based on previous densities of sea stars.
For over a decade, long term monitoring has been conducted by:
Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) and Multi-Agency Rocky Intertidal Network (MARINe)

STUDY SPECIES

INTERTIDAL SURVEYS
Sampling Method: record species count, size, and wasting category for each sea star
Survey Area:
- a) Within permanent plots established for long term monitoring
- b) Along swaths established for biodiversity surveys

Wasting Categories:
- 0 Healthy
- 1 Lesions on one arm or body
- 2 Deteriorating arm(s) or lesions on 2 arms or 1 arm/body
- 3 Lesions on most of body, missing 1-2 arms
- 4 Severe tissue degeneration, death, or missing 3 or more arms

SUBTIDAL SURVEYS
Sampling Method: record species count, size class, and wasting category for each sea star
Survey Area: four 30m x 2m swath transects at each depth zone:
- SHALLOW (5m)
- MID (12.5m)
- DEEP (20m)

Wasting Categories:
- Healthy no abnormalities
- Mild lesions or slight degeneration
- Severe tissue degenerations, loss of arms, or death

RESULTS
Sea Star Wasting Observations in CA
Legend
- Wasting absent at intertidal sites
- Decreased abundance at subtidal sites*
- Wasting present at intertidal sites
- Wasting present at subtidal sites

After the onset of wasting syndrome, 34 intertidal and subtidal sites in California were sampled:
- 25 sites displayed wasting during surveys
- 7 sites displayed a severe decrease in sea star density
- 2 sites did not show signs of wasting syndrome

Pycnopodia helianthoides experienced the most severe decrease in density during this study.

FURTHER RESEARCH
Continue surveys on sea star densities and the degree of wasting syndrome to understand:
- the recovery of sea star populations
- the impacts on community structure in intertidal and subtidal ecosystems

ACKNOWLEDGEMENTS
PISCO/MARINe, NOAA/MBNMS, the Packard Foundation and Ocean Science Trust, and Western Washington University

Emily Saarman, Dan Malone, Melissa Miner, Ben Miner, Rani Gaddam, Steve Clabuesch, Dave Minard