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Responsibility

Sea urchins struggle with their grip due to climate change: study

4 August 2023

By Responsible Seafood Advocate

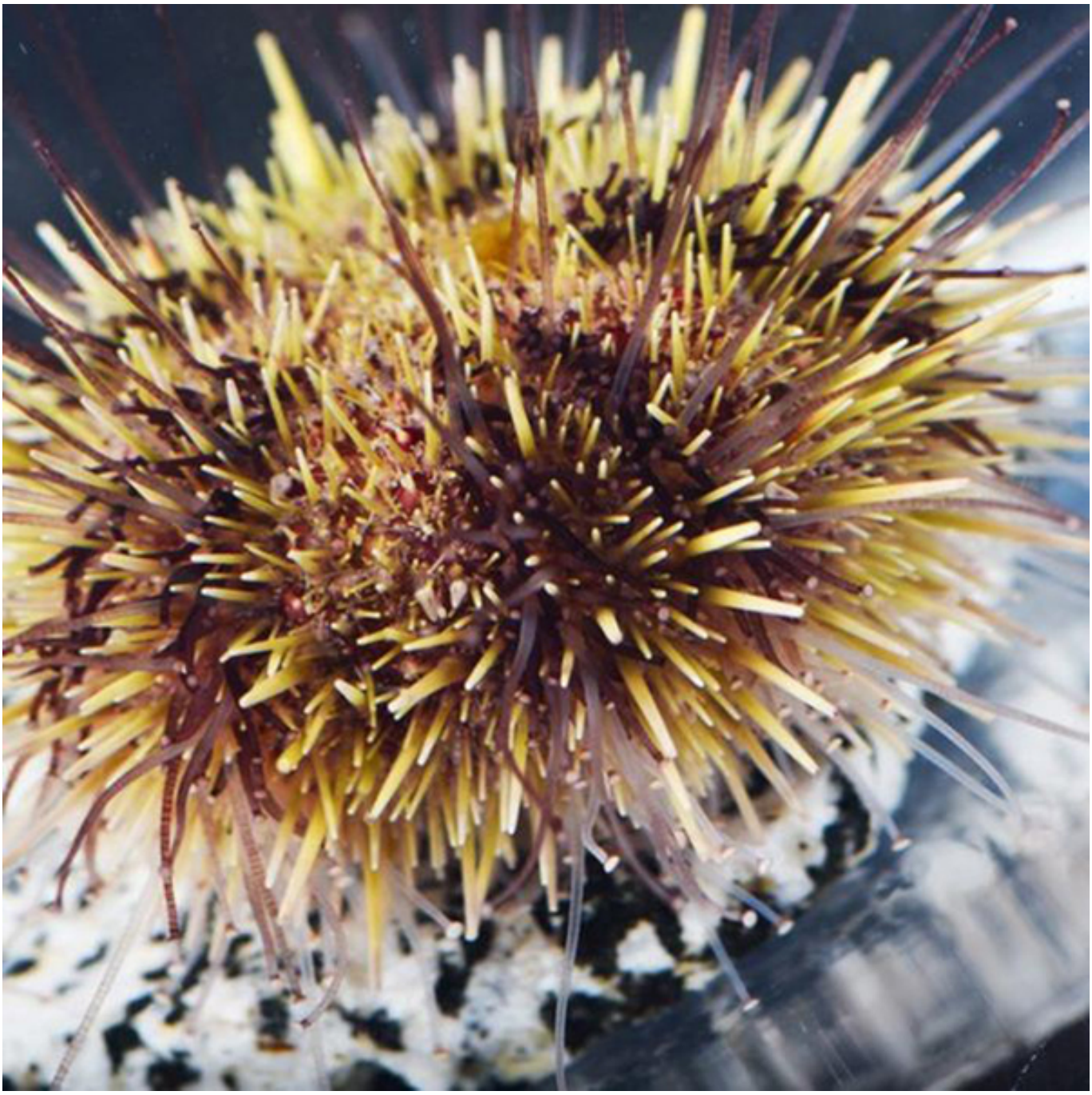
Excess freshwater from climate change-associated events impacts sea urchin survival

Syracuse University biologists say the sea urchin's adhesive abilities are negatively affected by differing levels of water salinity brought on by climate change-associated events.

Their study, published in the ***Journal of Experimental Biology (https://journals.biologists.com/jeb/article/226/13/jeb245750/321194/Hyposalinity-reduces-coordination-and-adhesion-of)***, sought to understand how sea urchin populations will be affected by future extreme climatic events.

"While many marine animals can regulate the amount of water and salts in their bodies, sea urchins are not as effective at this," said Austin Garner, assistant professor at the school's College of Arts and Sciences' Department of Biology.

"As a result, they tend to be restricted to a narrow range of salinity levels. Torrential precipitation can cause massive amounts of freshwater to be dumped into the ocean along the coastline causing rapid reductions in the concentration of salt in seawater."



Biologists say sea urchins' adhesive abilities are hampered by differing levels of water salinity caused by climate change-associated events. Photo courtesy of Syracuse University.

Even a slight change in salinity can affect the ability of sea urchins to securely attach their tube feet to their surroundings. This impacts their survival as they rely on their adhesive structures to move on corals and rocky areas near shore.

While an excessive amount of urchins can destroy important underwater habitats like **kelp forests** (https://www.globalseafood.org/advocate/ranching-enhancing-zombie-urchins-kelp-forests/), the species are vital for maintaining balance within marine ecosystems. Without urchins, coral reefs can become overgrown with microalgae, limiting their growth.

The researchers said that as global climate change causes weather extremes ranging from heat waves and droughts to heavy rains and flooding, the large amounts of freshwater pouring into nearshore ecosystems are altering habitats. The group's research was conducted at the University of Washington's Friday Harbor Laboratories (FHL).

Read the full study. (https://journals.biologists.com/jeb/article/226/13/jeb245750/321194/Hyposalinity-reduces-coordination-and-adhesion-of)

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