

Tasty and pink, sea urchin species may be a climate-tolerant food source

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Researcher Kirk Sato evaluates the color and texture of sea urchin gonads.
Credit: © Jeff Ellen

Sea urchin is a delicacy in Asia, South America, Europe, and increasingly in California, where the uniquely flavored roe, or uni, is

used in sushi, gourmet cuisine, and products such as sauces and flavorings. But the urchin species currently harvested off the California coast are vulnerable to increased water temperatures and ocean acidification.

But another urchin species shows potential to become an alternative fishery in the future, according to a new study published in *ICES Journal of Marine Science*. The fragile pink sea urchin, in contrast to its name, is less vulnerable to the impacts of [climate change](#) than other urchin species currently fished in Southern California. Opening up the pink urchin to fishing could help relieve fishing pressure on other species, the researchers say.

"The current sea urchin fishery is experiencing existential stressors of regional warming, [ocean acidification](#), and hypoxia. The fishery saw unprecedented reductions in marketable wild-caught urchins after the 2014 warm blob and 2015 El Niño, which decimated kelp forests (the primary food source for urchins) throughout California," explains Okinawa Institute of Science and Technology researcher Kirk Sato, lead author of the study. Sato led the study as a doctoral student at the Scripps Institution of Oceanography at the University of California San Diego.

The study found that the pink sea urchin is most abundant at a depth of 250 to 300 meters (820 to 984 feet), similar depths where spot prawn fishers set their traps, and that winter was the primary time when the urchins produced edible roe. The density, timing, and location of the urchins looked promising to support a viable fishery.

The researchers also tested some aspects of the food quality of the pink urchin roe. While some of the qualities, such as color and consistency, were a good match, they found that the pink urchin roe on average weighed 80% less than the red urchin.

The researchers suggest that legalizing the fishing of pink sea urchin as a bycatch to the prawn fishery could allow prawn fishers to sell the urchins they already catch, rather than throwing them back.

While it's not yet clear whether the pink urchin will indeed be opened up to commercial fishing, the research could help commercial fishing operations and state agencies plan for a future where climate change has made its mark on the oceans.

"As ocean oxygen content declines and acidity increases in California waters it will become increasingly important to incorporate these changes into fisheries management practices," says Scripps Institution of Oceanography researcher Lisa Levin, Sato's advisor and a study coauthor.

More information: Sato KN, Powell J, Rudie D, Levin LA (2017). Evaluating the promise and pitfalls of a potential climate change-tolerant sea urchin fishery in southern California, *ICES Journal of Marine Science* (2017). [DOI: 10.1093/icesjms/fsx225](https://doi.org/10.1093/icesjms/fsx225)

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