

Sea star death triggers ecological domino effect

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A sick sea star that researchers saw during the dive. Credit: Simon Fraser University

A new study by SFU marine ecologists Jessica Schultz, Ryan Cloutier and Isabelle Côté reveals that the mass mortality of sea stars has resulted in a domino effect on Howe Sound marine ecology.

Beginning in summer 2013, millions of sea stars along North America's west coast contracted a wasting disease and died in one of the largest wildlife [mass mortality](#) events ever recorded. In B.C., the sunflower star was among the most affected. At one meter in diameter, this formerly abundant species is one of the largest sea stars in the world and a voracious predator of invertebrates.

"Howe Sound lost nearly 90 per cent of its sunflower stars in a matter of weeks," says Schultz, an SFU master's student and the Vancouver Aquarium's Howe Sound research program manager.

By repeating underwater surveys done before the mass mortality, the researchers were able to measure changes in marine animal and plant communities around the Sound.

They found that green sea urchins, the sunflower stars' favourite prey, have quadrupled since the sea stars disappeared, while kelp, the sea urchins' favourite food, decreased by 80 per cent.

"This is a very clear example of a trophic cascade, which is an ecological [domino effect](#) triggered by changes at the end of a food chain," says Côté.

"It's a stark reminder that everything is connected to everything else. In this case, the knock-on consequences were predictable, but sometimes they are not."

Two summers on, the [sea stars](#) still haven't recovered to their previous abundance. Until they return, it seems that little will keep urchins in

check, and their feast on kelp is likely to continue.

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Isabelle Côté and Jessica Schultz scuba dive at Whytecliff Park. Credit: Simon Fraser University



Green sea urchins quadrupled in number after the sea stars disappeared. Credit: Simon Fraser University

Provided by Simon Fraser University

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