

New sea slug species named after retired biology professor

October 19 2023, by Cassidy Delamarter



Pierce's Cyerce is a transparent sea slug that can be found frequently munching on algae in Tampa Bay waters. Credit: Patrick Joseph Krug

The next time you head to the coast to enjoy the Tampa Bay waters, you may stumble upon a Pierce's Cyerce—a recently-discovered sea slug species that is being named after Sidney "Skip" Pierce, emeritus professor of integrative biology at the University of South Florida.

After a 45-year career dedicated to intricately studying the cells of animals with a focus on sea slugs, Pierce's colleagues found it fitting to honor him with his own species.

"Now my name will go on for a long time after I'm gone," said Pierce, who retired in 2014. "It's an honor."

The transparent sea slug was found by Patrick Joseph Krug, a professor of biological science at California State University in Los Angeles. Pierce and Krug collaborated for two decades—sharing data, sea slug specimens and ideas.

"I have always wanted to name a species to honor Skip's long career studying the sea slugs in the group I also work on, and this seemed like an ideal fit: a species native to the Tampa Bay area where he did so much outstanding work for decades at USF," Krug said.

As published in the [*Zoological Journal*](#) of the Linnean Society, the Pierce's Cyerce lives in the shallow waters of Tampa Bay and offshore reefs near St. Petersburg. Frequently found munching on algae, the slug's grayish-purple head and long, detachable appendages along its back make it a striking animal, according to Krug.

"I was not expecting to find new species in Florida, but in this study, we found two—one in Tampa Bay, and one restricted to the Florida Keys," he said.

Krug discovered the slugs while on a research trip where he went

snorkeling and diving to better understand how the Gulf Stream current limits sea slug migration in and out of Florida from Caribbean populations.

Pierce, too, spent most of his research trips collecting sea slugs from all over the tropical Atlantic and Pacific.

"Some of my favorite memories with Skip are going out into the field to collect sea slugs," said Michael Middlebrooks, co-author of the research and a USF integrative biology alumnus now working as an associate professor of biology at The University of Tampa.

"I am very excited about having a species named after him. Unlike many other biochemists and physiologists, Skip was always hands-on in both the field and lab aspects of the research."



Photosynthesizing emerald sea slug. Credit: Michael Middlebrooks

After earning his [doctoral degree](#) in 1970, Pierce began studying a variety of marine species, but pivoted his focus to sea slugs in the 1980s to investigate their unique ability to capture and successfully use the chloroplasts found in algae. Chloroplasts contain the photosynthetic

pigment chlorophyll which captures sunlight and converts it into useful energy. Plants are the only organisms that can convert chloroplasts into energy.

"There are slugs that you can starve for nine months and as long as you shine a light on them, they would happily stay alive using photosynthesis done by the captured chloroplasts," Pierce said. "Animals do not photosynthesize, they just can't. We do not have the biochemical or molecular equipment to do it."

Pierce is one of just a few researchers in the world who was determined to understand how the slugs were managing to maintain the biochemical function of the chloroplasts—a task that would require the algae's DNA. He believed the answer may reveal more than just the sea slugs' superpower.

"If we can figure out how the slugs manage to do it, we would know how to successfully move genes into a cell nucleus," Pierce said. "We could start curing cancer and many other genetic disorders with this kind of information. The sea slugs have the answer, I am convinced they do."

His research swept the globe, grabbing the attention of international newspapers, magazines, [Tedx Talks](#) and even a French documentary, "The Power of Plants." To recognize Pierce's research and dedication, he was awarded [USF's Outstanding Faculty Research Award](#) in 2012.

"The contributions to science from Skip are incredible," Middlebrooks said. "He's published 100 papers in his scientific career covering the range of the animal kingdom and even some organisms outside of it."

Despite making global headlines, Pierce says the real highlight of his career was working with his graduate students—an impact that will carry his legacy with each scientist he helped along the way.

"I literally would not be where I am today without the support I received from Skip," Middlebrooks said. "It was conversations with him that inspired me to start working with sea slugs."

"Once you're retired, the literature continues to develop and people stop quoting you as much and referencing your work, but I have former students who are now studying sea slugs and I'm confident someone will pick up where I left off eventually," Pierce said. "Right now, I'm just honored that Pat remembered me enough to do this."

More information: Karina Moreno et al, A cryptic radiation of Caribbean sea slugs revealed by integrative analysis: *Cyerce 'antillensis'* (Sacoglossa: Caliphyllidae) is six distinct species, *Zoological Journal of the Linnean Society* (2023). [DOI: 10.1093/zoolinnean/zlad111](https://doi.org/10.1093/zoolinnean/zlad111)

Provided by University of South Florida

Citation: New sea slug species named after retired biology professor (2023, October 19) retrieved 29 April 2024 from <https://phys.org/news/2023-10-sea-slug-species-biology-professor.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.