

Restoring Lake Tahoe One Dog Treat at a Time



Photo courtesy of Jen Schmidt

Who We Are

We are Shrimply Blue, an environmental nonprofit on a mission to restore Lake Tahoe's clarity one dog treat at a time. Yes, you read that right: DOG TREATS. It turns out that in our decades' long struggle to restore lake clarity, our furry best friends might be the key to saving the lake!

The Challenge

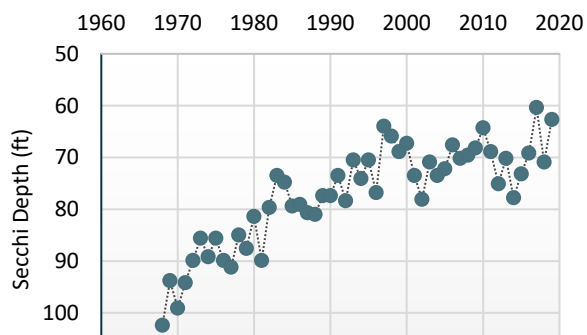


Figure 1 Declining average annual water clarity in Lake Tahoe. Visual depth declined from 102 feet in 1968 to 63 feet in 2019.

Lake Tahoe's clarity has declined by nearly 40% since the late 1960s, and best efforts to date have been unable to reverse this trend. In a breakthrough discovery, scientists at the Tahoe Environmental Research Center (TERC) have demonstrated that it's not just the external sediment, but the internal ecosystem that's critical to restoring lake clarity.

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Their research shows that *Daphnia* were filter-feeders that once swam freely in Tahoe, consuming tiny algal cells and removing fine-sediment in the process. The *Daphnia* were essentially Tahoe's natural water filters. But the introduction of *Mysis* in the 1960s decimated the native *Daphnia* population and significantly contributed to Tahoe's declining clarity. TERC's research on Emerald Bay (Figure 2 at right) demonstrates that when *Mysis* populations are reduced, *Daphnia* quickly return, and water clarity improves.

The Pilot Experiment

For the last several years, TERC has been studying the *Mysis* to find the most efficient means of removal. Their research highlights two key components to managing the *Mysis* population:

- 1) **Efficient targeting:** During the summer and fall months, *Mysis* make their nightly migration from the lake floor towards the surface and congregate in a thin band just below the thermocline. During these seasons, a mid-water trawl can target and remove the *Mysis* with minimal by-catch. TERC scientists have experimentally proven the ability to remove ~3kg/hour with a small 13m² net and dated equipment. A scaled-up, professional grade vessel can remove an estimated 50-60kg/hour. By suppressing the *Mysis* density to below 27 individuals/m², *Daphnia* will return and begin filtering the lake once more.

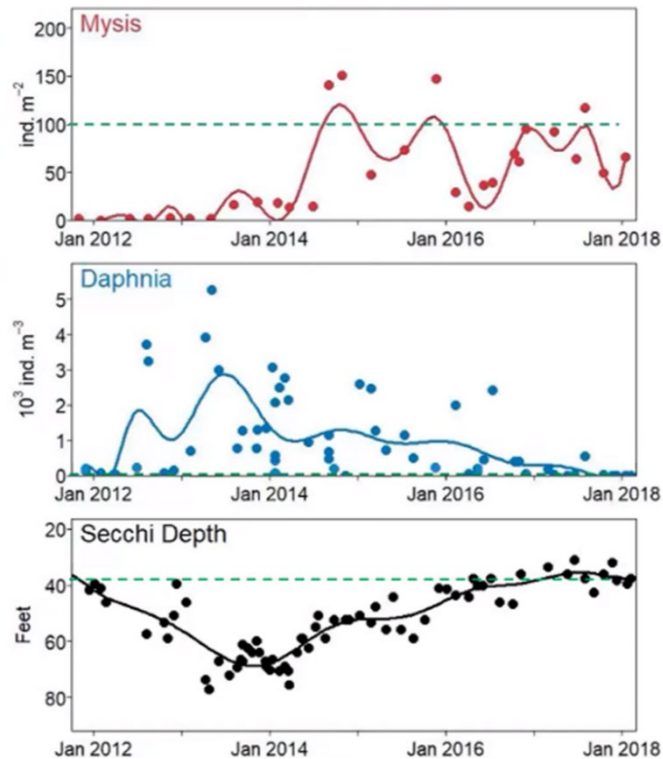


Figure 2 Observed relationship between *Mysis*, *Daphnia*, and water clarity in Emerald Bay (EB). When *Mysis* disappeared from EB in 2012, *Daphnia* returned, and clarity improved by 25 feet in two years. As *Mysis* returned, *Daphnia* and clarity dwindled once more. Data courtesy of TERC.

2) **A nutritious superfood:** The pesky *Mysis* are terrible for the lake, but they've got one redeeming factor: nutrition. Food scientists at UC Davis have analyzed the *Mysis* and were blown away by the results. These *Mysis* live in Tahoe's pristine waters, are high in protein and healthy fats, and as a dry ingredient, are an even better natural source of Omega-3s than salmon!

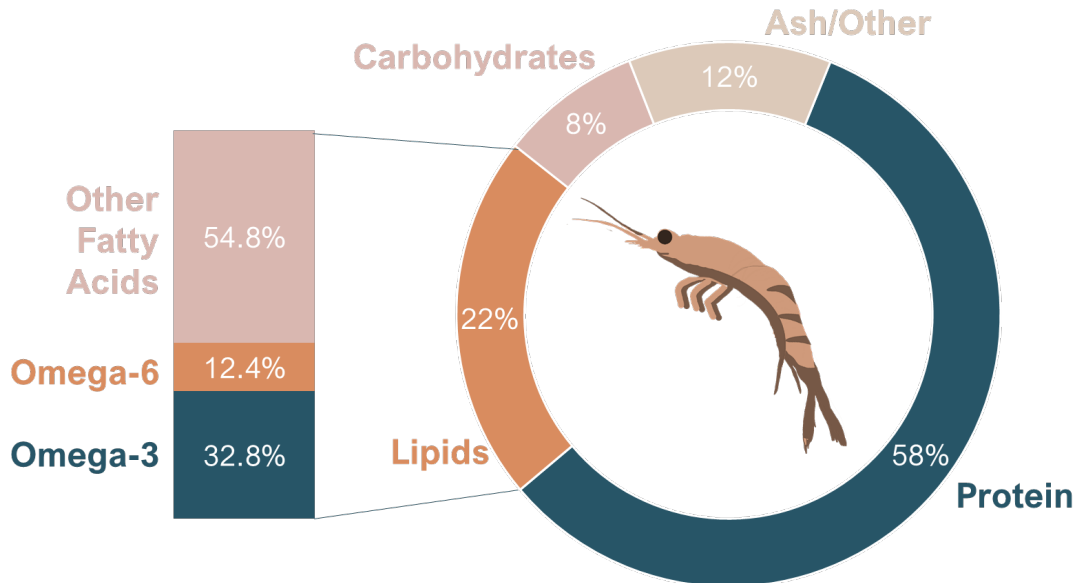


Figure 3 Nutrition analysis and fatty acid composition of Tahoe Mysis (dry). The Mysis are good source of protein, and given their unique diet feeding on Tahoe's zooplankton, have an exceptionally high % of Omega-3 fatty acids. Data courtesy of TERC.

Why Dog Treats?

Simple. Because life's more fun when we share it with our dogs. Whether we're throwing a frisbee, hiking the Sierra's, or just taking a nap, our furry friends have a way of bringing out the best in us, and they deserve the best from us too.

The nutritious *Mysis* are surprisingly tasty when cooked (yes, we've eaten our fair share), and when combined with other natural ingredients, make the perfect dog treat. Full of shrimpy flavor, protein, and Omega-3s to support skin and coat health, this is truly a treat you can feel good giving to your dog. For the first time ever, super dogs and their human sidekicks can work together hand-in-paw to save Lake Tahoe.

*Life's more fun
when we share it
with our dogs.*

Our Vision: A Regenerative Solution

Our goal is to create a regenerative community where everyday treats can be part of the solution. The proceeds from treat sales will cover the cost of *Mysis* removal, and as we scale up, potentially generate positive cashflows to support future research. This is a unique environmental effort with the potential to pay for itself over time. This is a long-term project, and we're targeting a 15-year timeline to dwindle the *Mysis* population. But to kick things off, we're focusing on Emerald Bay in year 1, where we can reduce the *Mysis* to target levels in one season and begin seeing clarity improvement within a couple years.

Total Funding Needs Over 15 Years

Year 0 - 1:	1.5M
Years 2 - 4:	3.5M
Years 5 - 15:	None!

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Our aim is to raise this initial 1.5M from a variety of sources: agencies, grants, local business, Tahoe-loving dog owners, etc., and these funds will allow us to accomplish the following:

- Design and scale a custom net for *Mysis* removal.
- Trawl and reduce the *Mysis* population in Emerald Bay below the 27 ind/m² target density.
- Monitor Emerald Bay ecosystem for expected impact of *Mysis* removal.
- Pilot trawl Lake Tahoe to understand how we further scale.
- Develop, test, and finalize our dog-treat recipe.
- Market, produce, sell, and distribute our *Mysis* dog treats.
- Create an engaged community and raise awareness of Tahoe *Mysis* and lake clarity.

How You Can Help

We've been taking the same approach to environmental protection for the last 20 years, and it's yet to turn things around for the lake. This project is a much-needed fresh approach to clarity restoration that offers so many firsts: a focus on the internal ecosystem, a consumer good to engage a broader community, a self-sustained long-term model, and the opportunity for our dogs to help save the day.

If you're excited about this project and what we're trying to do, there's a few ways you can help:

1. **Join our journey** and help us get started

→ <https://shrimplyblue.org/donate>

2. **Follow Us** on Social Media @shrimplyblue



3. **Got Questions / Want to Collaborate?**
Contact us at info@shrimplyblue.org



Our Team

A project like this requires diverse skillsets, and thanks to our proximity to UC Davis – one of the nation’s top research institutes – we’ve put together a truly interdisciplinary team at both our board and staff levels.

Board of Directors:



Prof. Geoffrey Schladow,
Director of TERC



Veronica Kaufman,
Medical Sociologist



Roger deLusignan
Business Executive / Mentor

Board of Advisors:



Harold Schmitz
Partner, The March Fund



Juliana Bell
PhD Food Science



Neil Willcocks
VP Confectionary and Former
VP R&D Petcare, MARS

Staff Team:



Emily Harris,
Brand Strategist



Lauren Chew,
Co-founder,
Creative Designer



Liz McAllister,
Co-founder,
Creative Strategist



Bisma Parwez,
Co-founder,
Food Scientist



Myhan Nguyen,
Co-founder,
Food Scientist



Vici Thahir,
Intern, Food Science



Yuan Cheng,
Co-founder, Director

Collaborators:

