



# THE ALGAE

Nestled in the Cascade Mountains, fed by a network of pure mountain streams and springs, and anchored in deep volcanic soil and mineral rich sediment, Upper Klamath Lake sits in beautiful southern Oregon. A very productive lake, it is marked by high levels of available nutrients and plant life, making it one of nature's most miraculous nutritional resources. It is this wealth of nutrients that allows *Aphanizomenon flos-aquae* (*Aph. flos-aquae*), the algae species used by SimpleXity Health, to grow in such abundance in the wild.

Upper Klamath Lake is nearly thirty miles long and up to eight miles wide, with an average depth of about eight feet (with isolated posts nearing fifty feet). Covering approximately 125 square miles, the lake is quite elongated and irregular in shape. It is fed by a mix of pure streams and creeks, natural springs, and two major snow-fed rivers, the Wood River and the Williamson River. Upper Klamath Lake is connected by a short channel to the smaller Agency Lake to the north and the Link River and Lake Ewauna to the south. The Upper Klamath National Wildlife Refuge sits along the northern edge of the lake. With mountainous terrain to the west and north and the town of Klamath Falls lying downstream to the south, the lake is naturally isolated and protected. Seventy percent of the total watershed of the area, including Upper Klamath Lake, is under federal ownership.

The surrounding volcanic geology endows the lake with a rich supply of minerals each year. The result? In an age of rapidly acidifying lakes and streams, this protected environment not only shelters the lake but also allows for a consistent richly alkaline pH level.

Where do these minerals come from? For the past 10,000 years, since the last retreat of West Coast glaciers, the lake has served as a "nutrient trap" for a plentiful supply of minerals, volcanic silt, organic matter, and other nutrients washed in from some 3,800 square miles of land surface, much of it mountainous. In this environment of abundant minerals, natural nutrients, fresh water, and sunlight, *Aph. flos-aquae* has had the perfect opportunity to flourish to its full potential for a hundred centuries.

And flourish it does! Each year the lake's 594,000 acre-feet of water (650 billion gallons) produce in excess of 200 million pounds of its unique strain of *Aph. flos-aquae*. Much of the algae produced by Upper Klamath Lake each year remains within the lake system. Over the millennia, this has gradually built up a thick blanket of nutrient-rich sediment on the lake's floor. This annual deposit has resulted in a layer of rich sediment, loaded with nutrients that in some spots reach 35 feet in depth.

The nurturing ecosystem of Upper Klamath Lake provides the ideal home for this algae that provides such marvelous nutritional benefits. Considering the protected environment, the bounty of minerals and other nutrients, and the pure water of Upper Klamath Lake, as well as the 300 days of sunshine that grace the Klamath basin each year, it's no wonder the *Aph. flos-aquae* flourishes here in such abundance.

# THE SCIENCE

Our cutting-edge spray-drying process, Bioactive Dehydration, is a low temperature (below 105°F), organic and kosher certified drying process that preserves natural vitamins, enzymes, and other phytonutrients.

It is a very gentle process, protecting botanical essences, that uses a proprietary system called Oxy-Guard to prevent oxidation during the delicate stages of drying. Our testing indicates that the quality of this drying system is superior to other forms of drying, especially for heat-sensitive components such as chlorophyll and enzymes. Another advantage to this method is that, because the algae is dried at temperatures below 105°F, it is considered a raw food, an important distinction to many consumers.

Independent testing is crucial to SimpleXity Health's impeccable quality control. This service is provided by world-renowned algae scientists Dr. Don Anderson, senior scientist at Wood Hole Oceanographic Institute, and Dr. Wayne Carmichael, professor of aquatic biology and toxicology at Wright State University. Dr. Anderson cites the brilliant engineering of SimpleXity Health's lake harvester as an important reason for the superior chlorophyll content and general high quality of the algae. Dr. Carmichael, who has studied the biology of blue-green microalgae for almost 30 years, finds SimpleXity Health's quality to be unsurpassed.

Both the Oregon Department of Agriculture and the FDA conduct random, unannounced inspections of SimpleXity Health's production and storage facilities three or four times a year. SimpleXity Health has met all of the qualifications with flying colors for over 25 years.

Organic certification is provided by Pro-Cert Organic Systems Ltd., a Canadian organization. This certification is even more remarkable since blue-green microalgae is a wild-harvested product. Pro-Cert must inspect not only the SimpleXity Health facilities but also the Upper Klamath Lake watershed itself. This provides another level of assurance that the product meets the highest standards for safety and quality.

Kosher certification is provided by Star-K, which inspects SimpleXity Health's facilities as well as the facilities of all vendors that produce kosher-certified products for SimpleXity Health.



# THE HARVESTING


No matter how terrific the algae is, it can't provide you with its many benefits while it is still in the lake! This is where SimpleXity Health's commitment to the quality of the algae makes all the difference. Since its beginning in 1982, when we designed and built the first processing equipment for harvesting the algae, SimpleXity Health has consistently chosen methods that are optimal for ensuring that all of the wonderful properties of Super Blue Green Algae are held intact throughout the harvesting, drying, and packaging processes.

The harvesting and processing methods used to make the algae available are among the many critical factors making Super Blue Green Algae so special. Freshwater algae is more sensitive to heat, light, and rapid spoilage than its cousins, the edible seaweeds. In traditional times, some native cultures in Africa and the Americas used simple sun-drying methods to process their freshwater algae, but it is likely that a significant amount of the nutrition was lost in the process. If algae were subjected to extreme heat during harvesting and processing, much of its valuable nutrition could easily be lost. This is not a problem with SBGA because of the unique care SimpleXity Health takes in harvesting and processing.

In 2001, we began harvesting directly on Upper Klamath Lake, and the SimpleXity Health lake harvester quickly performed well beyond expectations.

The Lake Harvester is actually a harvest system composed of a direct harvest vessel (which gathers the algae from the lake), a refrigeration craft (called the "cool boat," which cools the algae to less than 40°F within one minute of its harvesting from the water, thus preserving its essential nutritional properties), and three launches, which transport the algae at high speeds to the shore. From there, it is delivered to our processing facilities a short distance away.

The patent-pending technology that we have invented, protected, and incorporated into our lake harvester is so unique that the quality and condition of the algae that it harvests is absolutely superior to that of any other harvester.





# THE PROCESS

The high integrity of SimpleXity Health products depends on a complex series of integrated processing procedures.

1. **PRE-SCREENING:** Fresh algae is filtered out of the water with fine mesh screens.
2. **PRIMARY SEPARATION:** Primary separators remove everything suspended in the lake water. The algae is further concentrated by removing virtually all of the extracellular water.
3. **CHILLING:** The algae is quickly chilled in the “cool boat” to less than 40°F.
4. **SECONDARY SEPARATION:** Secondary separators remove any remaining extraneous materials.
5. **FREEZING:** The algae is quickly frozen by converting it into slabs at a temperature of -10°F. It is then stored at -10°F in closed containers until drying, which converts the frozen algae into a dry, stable powder.
6. **DRYING:** To ensure the algae retains vital nutrients, all cellular water is gently removed in a low-temperature environment.

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