Louis Druehl by his seaweed drying shed

BY MARIANNE SCOTT

The "Kelpologist," Louis Druehl

In Barkley Sound, on Vancouver Island's west coast, Dr. Louis Druehl continues his lifelong study of seaweed, a plant family whose well being he considers essential to human health

"**SEAWEED IS THE ENGINE** that runs the shallow waters of the world," said phycologist Louis Druehl. "They capture the sun's energy and pass it on as food into numerous animals. Studies have shown that 40 percent of the carbon inside a cormorant, those diving seabirds, can be traced back to kelp."

Louis explains how that carbon—bonded with hydrogen and oxygen—is part of the food chain that ends up in the fish-gobbling seabird. "In the world's oceans, many animal species, like shrimps, sea urchins, jelly fish and molluscs graze on seaweed, or eat broken-down seaweed bits. In turn, fish eat these animals. Then cormorants ingest the fish and receive seaweed nutrients second- or third-hand as it were."

I visited Dr. Druehl in his home in Bamfield, off Barkley Sound on Vancouver Island's west coast. His ruddy complexion shows the legacy of an outdoor life, and his longish, mane and tidy white beard attest to his professorial background. He and his wife, Rae Hopkins, have spent the past 30 years overlooking Port Desire, a small haven next to Bamfield Inlet. The house is on a steep incline and staircases string together various structures. A walkway leads down to the dock where a yellow dinghy, the *Kelp Express*, serves to harvest seaweed; steps take us to his kelp-drying shed where three types of sea vegetables are packaged and sent off to natural food stores.

THE BACKSTORY Louis, as everyone in this tiny town calls him—Bamfield winter inhabitants number 150—began life in Sausalito 76 years ago. He's proud to tell you that at seven months, his parents carried him across the Golden Gate Bridge on the first day it opened to pedestrians: May 27, 1937.

Louis' early desire was to run a ranch, but, as he wrote in his best-selling book, *Pacific Seaweeds* (Harbour 2000), "I didn't have a ranch so I went to university." He switched his initial major—zoology—to botany because "plants are more intriguing than animals and a lot less messy." As he learned about all plants except seaweeds—his university was located in eastern Washington—he escaped to study a year in Bonn, Germany. On a rowing holiday

on the Adriatic Sea, he discovered a long "gently swaying brown bush," his first seaweed. He was hooked. After a masters degree at Seattle's University of Washington, he studied with seaweed authority Robert Scagel at the University of British Columbia.

Today, Louis is considered the world's expert on kelp and cleverly calls himself a "kelpologist." Recently, other phycologists honoured him by naming a seaweed after him. It's huge: a metre wide, *Druehlia fistulosa* can reach lengths of 25 metres.

His UBC doctorate led immediately to a professorship at Simon Fraser University, which had opened the previous year. He taught botany and phycology for 35 years (he's now professor emeritus) and has tutored thousands of students about oceans and seaweed in their natural habitat.

THE BAMFIELD MARINE SCIENCE CENTRE A great opportunity for Louis and marine biology developed in the late '60s. The Canadian National Research Council wanted to establish a marine science centre led by a consortium of universities (Alberta, Calgary, British Columbia, Simon Fraser and Victoria). Louis headed the committee to find a location.

"Every university had a favourite spot picked out," he said. "We went to visit each one by floatplane. No one seemed interested in us at these locations. When we flew over Bamfield, I decided to take a look. We landed in Port Desire and this old guy came up and cheerfully led us around. The old cable station was adaptive to our needs. It was the perfect place, with a tremendous diversity of marine habitat and a welcoming community. Everyone won. And the price was right."

After 1972, when the cable station had converted into a laboratory, Louis and his students spent every summer at the Bamfield Marine Science Centre as it became known. It now attracts marine scientists from around the world. Eventually, Louis stayed year round.

He has visited most every bay, inlet and waterway up through Alaska, studying the seaweeds that thrive there. Most boaters are familiar with some species—often the *nori* that wraps sushi—but few of us know that about 600 species thrive in the cold-water zone (five to 14°C) between Point Conception, California and Alaska.

Beyond unicellular algae and diatoms, seaweeds are grouped into green, brown and red categories. Louis calls them "plant like" because they photosynthesize. But although they attach to supporting structures, they don't have roots. They lack flowers or cones, and brown seaweeds, called "protists," in fact reproduce like animals: the eggs remain attached to the female seaweed, which emits a pheromone that attracts sperm. "Some say the pheromone smells like gin," said Louis. "Is that true?" I queried. "I don't know but it sure makes for a good story."

Red and brown seaweed species produce industrial gums and stabilizers like algin, carrageenan and agar. One major source of algin is the giant kelp,

Druehl and his assistant pack up kombu for distribution.

Macrocystis pyrifera that grows off southern California and has been harvested for a century. The algin—the part of the kelp's cell wall that makes the plant flexible in moving water—keeps the crystals in our ice cream from separating, binds the ingredients in toothpaste, treats latex in tire manufacturing and helps make paint smooth. Agar's gel-like substance serves as a culture medium in biological and genetic research.

GROWING YOUR OWN In 1982, Louis and Rae began a sea vegetable company called Canadian Kelp Resources. Inspired by their sabbaticals at the Japanese island of Hokkaido where seaweed is a staple food, they now harvest four types of wild seaweed. Three of these, *Laminaria, Macrocystis* and *Nereocystis* are cut by hand, dried, and packaged. Rae's recipes are included in the packaging.

"They're used in soups and stews but can flavour just about anything," said Louis. "*Laminaria*, kombu in Japanese, is a great delicacy in that country and is sold in places so fancy they resemble jewelry stores."

Each month, 100 cases of the company's seaweed arrive at wholesalers who distribute them to natural food stores. Louis is proud that a five-star Vancouver restaurant, Tojo, uses only his kombu. Cooking with kelp is becoming popular and the couple was even invited to Denmark to teach chefs how to incorporate seaweed into their menu.

The fourth species, *fucus* (we call it rockweed), is sold to the cosmetics company, Lush. I asked if some of seaweeds' benefits claimed by various companies are true. Louis remains the careful scientist.

"Seaweeds do contain many minerals that may promote health. That said, I'm sure that claims for 'fucus in a band-aid' that will metabolize fat are BS." Nevertheless, he recommends that all of us should value the beauty of seaweed. "You should recognize their diversity. You should look carefully at what's on the beach. You'll see how different they all are. You'll appreciate the way they live."

Louis offers many other potential uses for seaweed beyond its contribution to the world's ecology, food supply and pharmaceuticals. As one example, he recently consulted with a group of Aleuts on the prospect of turning kelp into methane. "Their fuel is brought great distances by tanker," he explained. "Locally produced methane would really help with electricity generation."

LOUIS IS AN ECLECTIC thinker. Although he continues to consult on all aspects of seaweed, he's taken up writing novels. Like many aspiring novelists, finding a publisher has been tough. "I can publish scientific papers anywhere, *Science, Nature*, and so on," he groused. "With my novel, I've hit a wall." PY