

The Re-Balancing Potential of Seaweed

by **Simon Ranger**

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Introduction

The nutritional value of food is in steep decline. An annual analysis of 72 foods between 1940 and 2002 shows an average loss of 19% magnesium, 29% calcium, 37% iron, and 62% copper.[1] Over a similar post-War period, saturated fat in beef and chicken has risen more than 400%, whilst essential omega-3 fats critical to nervous, immune, cardiovascular, respiratory, digestive and eliminatory systems, have declined in the same proportion.[2] For years, industry, agriculture and politicians have pursued the most expedient routes to growth, ignoring the whole health of soil, plants, animals and people. Although support for a more holistic approach, particularly in organic agriculture has grown, as a British Nutrition Foundation scientist recently observed: “The healthiness of a food alone seems to be an important determinant of food choice for only a small sector of the population. For this reason, implicit improvements in the nutrient profile of foods by the food industry are essential to have any substantial influence on public health”.[3] Seaweed responds to these concerns in numerous ways. It contains all the minerals and micronutrients missing from our soils in ideal natural proportions; it is eminently suitable for inclusion in soil, plants and animals; and as a human food ingredient, could re-balance the diet of millions of people worldwide. It is an organic, nutrient-rich, low-energy food – exactly what is needed to compensate for declining levels of physical activity among most of the population.



This was the logic I applied to develop a small, remote business harvesting wild seaweed in pristine Arctic waters, a decade ago, and more recently a small manufacturing facility in the Outer Hebrides. Today, Seagreens® is a leading seaweed brand, conducting original research with partners in medical practice, the food industry, academia and government. Together with these partners, I want to see marketplace health concerns including cardiovascular disease, obesity, diabetes, cancer and others, reflected in the new product agenda of mainstream food retailers and manufacturers – and, there is cause for optimism. The head of the newly branded Co-operative Food stores, Cathryn Higgs, told the food industry in March this year: “It’s not about yet another new range of the same kind of foods; (what is needed) is a fundamental change in the way we consider reformulations and new products”.[38]

In Search of Nutritional Balance

Imbalance of one kind or another has always seemed to me to be causative, whether in the aberrant health or behaviour of a person. When I became involved in harvesting wild seaweed just over a decade ago, after many years in the corporate world, my attention was drawn to the remarkable balance and breadth of its nutritional profile.

Remarkable because, whereas land foods typically contain a narrow spectrum of nutrients – hence the need for a varied diet – with a low measure of micronutrients, these wild ‘wrack’ seaweeds provide all the micronutrients including all the minerals and trace elements, in a genuinely complete food, possibly in its most primordial form.

In this and in many other ways, seaweed is the opposite of foods

we obtain from the land. Where the best land foods are produced in the warmest climes, the best seaweed is found in the coldest; where land plants draw their nutrients from the soil; seaweed has no roots, and so on. Many people confuse seaweed with the blue-green fresh water microalgae like spirulina and chlorella, but these too have the more partial nutritional profile of land vegetables.

Practitioner Testimonial

“Different varieties of seaweed have been used as food for thousands of years in different cultures of the world. They provide concentrated amounts of very high quality nutrition. In an English culture we are not used to seaweed; we don’t know how to prepare it and where to get it. Seagreens® have allowed us to overcome this barrier. I am now prescribing Seagreens® to almost all my patients as a natural source of vitamins, minerals, amino acids and other nutrients. I see a lot of health improvements in my patients using Seagreens®: from improved energy and stamina to better memory and skin. It is the only supplement I have found so far that stops children biting their nails. Nail biting is a sign of nutritional deficiencies, until you remove the deficiency no matter what you do, the child will keep re-cycling nutrients by nail biting. Obviously Seagreens® provide the right combination of nutrients to remove that nutritional deficiency”

– Dr Natasha Campbell-McBride MD MmedSci (Neurology), MmedSci (Nutrition), Cambridge, 2006; author Gut & Psychology Syndrome, 2004, and Put Your Heart In Your Mouth, 2007.

From the copious research on our species of European wrack seaweed over many years, it is clear that these remain the most nutritious of all the ocean algae, though many more delectable varieties developed, like the exotic species found at almost every meal in traditional Japanese cuisine.

From our own early studies we reckoned that a single gram per person per day (a quarter of a teaspoon) could make all the

Nutritional profile

Table 1: Typical nutritional profile per 1 gram Seagreens® Food Capsules and Seagreens® Food Granules (2 Food Capsules or 1/4 teaspoon Food Granules)

Protein	75mg • Carbohydrate / fibre 700mg (of which the non-starch polysaccharides Algin 230mg, Fucose and Fucoidan 90mg, Mannitol 65mg, Methylpentosans, Laminarin 40mg, Mannuronic acid 270mg) and essential fatty acids EFAs
Vitamins	A (antioxidant carotenoids beta carotene, and fucoxanthin, violaxanthin and chlorophyll) 178µg, B group (including B12 Cyanocobalamin 0.004µg, Bc Folic and Folinic acid 0.6µg, B1 Thiamine 0.3µg, B2 Riboflavin 7.5µg, Niacin (anti-pellagra) 20µg, Pantothenic acid, B6 Pyridoxin, Choline) 8.9µg, C (antioxidant) 1.25mg, D (Cholecalciferol) 0.01µg, E (antioxidant) including the complete set of isomers 0.23mg, H (Biotin) 0.30µg and K (Menadione) 10µg
Minerals	Calcium 20mg, Chlorine 35mg, Magnesium 7mg, Nitrogen 10.5mg, Phosphorus 1.5mg, Potassium 25mg, Sodium 35mg, Sulphur 30mg
Trace elements	include Antimony trace, Boron 0.06mg, Cobalt 5.4µg, Copper trace, Fluorine 0.2mg, Germanium trace, Gold trace, Iodine 390µg, Iridium trace, Iron 575µg, Lithium trace, Manganese 0.03mg, Molybdenum 0.65µg, Platinum trace, Rubidium trace, Selenium 0.15µg, Silicon 1mg, Silver trace, Tellurium trace, Titanium trace, Vanadium 2.3µg and Zinc 0.13mg
Amino acids	Histidine trace, Isoleucine 0.53mg, Leucine 5.3mg, Lysine 2.78mg, Methionine 0.68mg, Phenylalanine 0.83mg, Threonine 2.33mg, Tryptophan trace, Valine 2.63mg, Alanine 4.57mg, Arginine 11.17mg, Aspartic acid 4.88mg, Cysteine 0.90mg, Glutamic acid 5.18mg, Glycine 3.90mg, Proline 3mg, Serine 2.25mg, Tyrosine 1.05mg
Betaines	Glycine Betaine trace, Gamma Amino Butyric Acid Betaine trace, Delta Amino Valeric Acid Betaine trace, TML (Laminine) trace, L-Carnitine trace, Trigonelline trace; enzymes and valuable compounds which cannot be artificially formulated such as the phenolic compounds including free phloroglucinol, fucophorethols, and phlorotannin derivatives. 1g = 1000mg = 1000000µg

Table 1: Typical nutritional values per 100g

Protein	7.5g
Carbohydrate	55g
Sugars	5g
Fat	4g
Saturates	2g
Fibre	5g
Sodium	3.5g
Moisture	12-15%
Energy	309 kcal (1280 kJ)



Seagreens® wild wrack among the remote Arctic Lofoten Islands

difference on a daily basis to the balance of a western diet, but only last year I discovered that the traditional Japanese daily intake in 1964 (the last statistical data) was four and a half times this amount, and they had the lowest incidence of cancers and cardiovascular diseases.[4]

The international research also made it clear that our seaweed might play an important, if not dominant, role in regulating the digestive and eliminative, immune, endocrine, and nutrient distribution systems, as well as providing the comprehensive daily nutritional balance the body needs to heal itself.[5] But our founding business idea was just “to get a gram of the best seaweed into the human diet on a daily basis”.[6]

In pursuit of this alone, Seagreens® has had to pioneer human food quality seaweed in Europe, focussing especially on the harvesting and production quality, using only peak maturity living plants, harvested in rotation so they would replenish, then immediately warm air drying and granulating them to preserve their nutritional value.

When we entered the market in 1998 there was, and still is, only deep water kelp, a product of industrial scale harvesting, not for

the quality of the seaweed, but to extract its alginates (carbohydrate) which are used in numerous industrial processes.

We achieved Organic status in 1998, and later Demeter biodynamic approval. Today, thanks to government funded research, I believe we are the only seaweed Certified free of all the likely ocean-borne contaminants, as well as toxic metals and microbial pathogens.[7]

A Measured Response from Consumers and Practitioners

Imbalance always manifests a reduction in the vitality of a person, and the consistent refrain from our customers was that their energy so improved; they didn't get so tired. Many reported their surprise that such a tiny amount of seaweed could make such a noticeable difference in their health.

And some were quite annoyed with us! “There is no food to rival this, not like all those others like xxx and xxx which shout about how good they are. You should say this on your literature because it is true, it is the best food there is”.[8]

Encouraged by our retailers and consumers, we were keen to enlist food manufacturers in adding

Seagreens® to a wide variety of foods as an ingredient, which could rapidly broaden its efficacy in the general population. Given their ubiquity, baked goods like biscuits, bread and cakes were an obvious target – and Seagreens® aids carbohydrate digestion!

In a blind taste test as early as 1998, an oatcake containing Seagreens® was voted “best tasting oatcake”. [9] A year later a Demeter® Certified biodynamic bakery in Kent, Artisan Bread, decided to replace most of the salt in their loaves with Seagreens®, and still do today.

But we had to wait until 2007 before we could do the science that might endear us to the food industry, for whom let's face it, chemical formulations and artificial additives are so much more dependable, factory-friendly and altogether less weird than wild seaweed!

Nevertheless there are good people everywhere, and for the science we have to thank a giant supermarket, Asda and a small organic ready meals producer in Dorset, Pure Organics, for our inclusion in Food Innovation, a government funded project to explore healthier alternatives to salts, fats, sugars and other undesirable food ingredients.

One of the big objections was that removing salt would reduce shelf-life and taste, but the researchers at Sheffield Hallam University showed that Seagreens® not only prolonged shelf life as effectively as salt, but enriched taste, with only 3.5% sodium against the 40% in salt. In a recent study, 50% of a taste panel preferred a Seagreens® mix in wholemeal bread, 83% in plain white bread.

There is a wider body of research on wrack seaweed in cardiovascular disease, cholesterol and circulation which fully supports its use in food

and therapy. It has been shown to have a similar mode of action to the drug heparin, breaking down fats in the blood, lowering cholesterol and in one 1999 trial increasing blood flow to the epidermis by 45%. [10]

The obvious links to diabetes, obesity and other metabolic disorders are equally important aspects of its use we hope to be able to explore further in due course. Ultimately, consumers must decide. Bulk industrial salt costs 14p per kilogram and causes heart disease. Seagreens® can cost more than £8 a kilo and contributes to health.

Although it has taken our first decade for Seagreens® to be taken seriously as a mainstream branded food ingredient, this is of course, just the beginning. Medical practitioners, particularly nutritionists and naturopaths in alternative and complimentary medicine, as well as consumers, have broken the ground, and will continue to sow the seeds of further change.

From Dietary Balance to Therapeutic Use

Soon after Seagreens® began, Dr Jack Levenson LDS RCS(Edin), Dental Adviser to the Environmental Medicine Foundation and founding President of the British Society for Mercury-Free Dentistry, began using Seagreens® Food Capsules within his protocol to bind and remove patients' amalgam mercury. A number of things impressed him. Unlike his familiar chelating agents, Seagreens® eliminated mercury through the bowel instead of urine, avoiding kidney damage; even at high doses there were no side effects. Gradually he removed almost every component in his detox protocol, declaring they were already in our seaweed!

Scientific research had found wrack seaweed effectively dissolves fats in the blood and reduces cholesterol, improves blood flow to the epidermis, is highly alkalizing (75 times more so than apples), and an effective antiviral and anti-bacterial. [11] All of this makes it a permanent daily detoxifier as well as a daily nutritional support – something no drug or nutritional supplement can provide. Many practitioners use it successfully in weight regulation.

"I would like to thank you for the wonderful effects of Seagreens® used in conjunction with a personalised nutrition programme: loss of weight in obstinate non-loss cases, including low thyroid, and fabulous midriff and hip reduction in all. The health benefits are considerable, especially in pre-IVF cases where removal of heavy metals are so essential". [12]

Levenson's work in detoxifying heavy metals was of interest to practitioners in autistic spectrum disorders, where the retention of mercury, among many problems, is typical. We sponsored a small uncontrolled study among 40 families in 2003-4. Some of the autistic children had a calmer temperament and improved communication. In summary, the benefits in ASD are likely to be the binding of heavy metals, lymphatic system support, healing the lungs and gastro-intestinal tract, improving mineral and acid-alkaline imbalance, assisting endocrine and thyroid function and a significant contribution of antioxidants which cleanse free radicals. [13,36]

Practitioner Testimony

"Seagreens® are pure, simple, effective and essential! As a Clinical Nutritionist I see many abnormalities within sufferers of ASD (Autistic Spectrum Disorders): poor metabolism, hypothyroidism, heavy metals

toxicity, elevated acid to alkaline levels, low levels of essential fatty and amino acids, poor electrolyte balance and low essential elements. Research evidence suggests that Seagreens® may prove beneficial to many autistics and may provide a minimal but optimum start for your child as an all rounder supplement. Nutrients that are best absorbed, occur naturally. This is a naturally produced product and taken regularly over time, may help with the many known biochemical, metabolic and detoxifying mechanisms needed to improve your child's health"

– Jonathan Tommey, Clinical Nutritionist, in The Autism File, December 2006.

Cancer seems to be another special area of use. The polysaccharides in wrack seaweed have been shown to cause the destruction of cancer cells by interrupting the progress of their DNA and preventing their adhesion to healthy cells [14-17] – reminiscent of the way they prevent the adhesion to the gut wall of the ulcer-forming bacteria *Helicobacter pylori*. [18] The scientific research covers brain tumour [19], breast cancer [20,21], intestinal cancer [22], leukaemia [23,24] lung cancer [23, 12-16] and throat cancer. [30] Where once soya was thought to account for the low incidence of cancer in Japan, this is now attributed to dietary seaweed which "has shown consistent anti-tumour activity". [31]

In conjunction with other nutrients in the seaweed, the polysaccharides also chelate (bind) and remove radium from the body [32,33,34,35]. Seagreens® are therefore an appropriate nutritional support in cancer management especially before, during and after chemo and radiation therapy, and in breast cancer, according to American research findings; their outstanding iodine content also has a preventative role. [36]

In 2008 Seagreens® sponsored a pilot study in eczema for a London university MSc thesis, to evaluate its effect as an oral nutritional supplement while maintaining current dietary habits. 16 adults with atopic eczema were given 6 Food Capsules per day for 3 months.

In a small-scale study of this nature it was not unusual to see no overall significant impact on symptoms, but in several individual cases the symptomatic improvement was “remarkable” and more than one study participant has continued with the recommended daily intake. It is hoped that a further randomized trial with appropriate controls will now be possible.

Seagreens® – Ideal Nutritional Input for all Ages in all Special Diets

All of the dietary nutrients to be avoided because of allergy, intolerance, health condition or through the rejection of certain types of foods, can be obtained from the seaweed. Seagreens® has shown itself to be non-allergenic, over 10 years with no confirmed reports in the general population.

There are no medical contraindications, it is entirely compatible with drugs and other nutritional supplements, and is approved by many food and health societies including the British Vegan Society, the British Coeliac Society, the Hyperactive Children’s Support Group and The Autism Trust. Seagreens® culinary products are especially designed for easy use in meat and dairy alternatives, containing the entire B group vitamins including absorbable B12 “as the predominant cobalamide and an absorbable source for mammals”, unlike spirulina in which it is an inactive, unavailable corrinoid or pseudovitamin[37].

Balance the Foundation of Daily Life

I have focused on balance in the daily diet because nutrition is our business, but on a more holistic note, I find that balance has its greatest vitality when it becomes the focus of daily life.

Some say balance lies in a happy mixture of opposites, a little of this, a little of that. All things in moderation. Yet in my view, balance is not to eat and fast, work and play, love and hate, for these already lie along the path of Separation.

Once I act in any direction, I venture along the path of Opposites. By choosing one thing, I exclude another. I cannot be here and there, this and that, then and now. This is the very game of opposites, endlessly repeated, which has held us so long in its thrall.

I focus instead on the relationship between the opposites. I find balance not in my work or play, but their relationship. Not in my food or body, but in their relationship. Not in my power or helplessness, but in their relationship. Thus it is said that through humility we can find strength, through longing fulfilment, through loneliness harmony in all things. So, instead of doing this and that, I choose to do and stand back. To do and not do.

My standing back is not the same as withdrawing, for withdrawal is again the opposite of being fully present. Standing back, I enter not into the opposite but into the fullness of my place in this world. I am in balance when I am silent, attentive, fully present; and I can take this same balance into the most intense action.

Seeing that balance exists in no thing but between all things, and seeing that all is in Motion, I am able to contain all that is Other within my self. I perceive within this infinite diversity the Sacred Relationship between all that is. ■



About Simon Ranger

Simon Ranger’s passion for international business and human culture led him to form an award-winning international brand consultancy and advertising agency International Partnership® in 1983 which distinguished itself for Export Achievement. In 1997 he formed an Anglo-Scandinavian joint venture which now has several small businesses harvesting and manufacturing wild seaweed products for nutrition, healthcare and the food industry. Through ‘brand partnerships’, he sells Seagreens® to other organic producers like Artisan Bread, Bart Spices, Pukka Herbs and Waitrose. Alongside these commercial activities, in 1990 he set up Probono, an international not-for-profit organization seeking to balance business and human development in and between corporate cultures. Simon lives in Sussex where he is restoring a Victorian house and woodland and may be contacted via

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