Table of Contents

Preface	v	<i>Nori</i> —a sought-after <i>Porphyra</i> product <i>Wakame</i> —neither too tough nor too	74
Seaweeds are marine algae		delicate Winged kelp—almost as good as <i>wakame</i>	84 84
What are seaweeds and marine		Bladder wrack—abundant everywhere	85
ALGAE AND WHERE DO WE FIND THEM	? 2	Sea palm—a rare delicacy	88
At the interface between land and sea	2	Arame—totally mild and sweet	88
Seaweeds of all sizes, growing under all conditions	3	<i>Hijiki</i> —a bit special and a little poisonous Dulse—the robust red alga	89 90
Seaweeds come in many colors	4	Edible green algae	92
,	-	Agar—completely without taste	93
Seaweeds throughout the ages	5	Spirulina—edible blue-green microalgae	
Seaweeds and human evolution	5	that pack a punch	93
Seaweeds in a historical perspective	6	* *	
Seaweeds in Europe	10	The taste of seaweeds	95
Seaweeds in the Nordic countriess	12	Taste and texture	95
		Seaweeds and <i>umami</i>	96
THE BIOLOGY OF ALGAE	21	Smoke and sulphur	98
Microalgae and macroalgae	21	-	
The structure of macroalgae	22	Seaweeds as salt	98
The life history and reproductive		If you have no salt, you have nothing	98
patterns of macroalgae	23	Seaweed ash salt and smoked salt	99
Photosynthesis and seaweed growth	25		
Robust marine survivors	34	Seaweeds, wellness, and	
Seaweeds as ecological dynamos	37	NUTRITION	101
-		Folk traditions and the health movement	101
Seaweeds in the wild and in		What have we already learned?	101
AQUACULTURE	38	Seaweeds and calories	104
Edible seaweeds and poisonous algae	38	Iodine and metabolism	105
Marine algae in integrated aquaculture	44	Seaweeds and cancer	108
The domestication of marine species	44	Are there potentially hazardous	
Seaweed cultivation in the Western world	45	compounds in seaweeds?	109
Seaweed cultivation in Asia	50	How much seaweed should one eat?	112
Nori—an aquaculture success story	51		
		Seaweeds in the kitchen	
THE CHEMICAL COMPOSITION OF			0
SEAWEEDS	52	Seaweeds in the home kitchen	118
A symphony of good things	52	Seaweeds are eaten all over the world	118
Carbohydrate extracts—alginate,	50	Seaweed recipes	119
carrageenan, and agar Fat content—less is more	59	Storage of seaweeds	120
	59	SEAWEEDS AS SEASONINGS	100
Iodine—a key element Gases and the smell of seaweeds	60	SEAWEEDS AS SEASONINGS	122
and the sea	6-	Seaweeds in the spice rack	122
and the sea	61	<i>Furikake</i> —a Japanese condiment with	

Seaweeds & human nutrition

Edible marine algae	68
Nearly all seaweeds are edible	68
Kelp and <i>konbu</i> —not at all tough	69
Giant kelp	70
Laver—the delicate red alga	72

seaweeds	122
Seasoning with seaweeds	123
Seaweeds in soups	124
Japanese soups and <i>dashi</i>	124
Clear soups—suimono	126
<i>Miso</i> soup	127
St. Patrick's cabbage soup	127

Nereo soup	128
<i>Dillisk</i> soup—a simple soup with dulse	128
Jerusalem artichoke soup with seaweeds	
and smoked sea salt	129
Green pea soup with scallops and seaweeds	130
Konbu consommé with shiitake	131

Seaweeds in salads and sauces

134
135
136
136
137
138
138
140
140
142
143
143

Seaweeds in omelettes and in fish		
AND VEGETABLE DISHES	144	
Omelette with three types of seaweeds	144	
Oven-baked salmon with dulse	144	
Tuna and seaweed salad	145	
Carpaccio with bladder wrack	146	
Seafood salad—now with seaweeds, too	146	
Cavi-art	147	
Mashed potato with dulse	147	
Laverbread—a traditional Welsh dish	148	
Green beans with kelp	149	
Green asparagus with seaweeds	149	
Steamed zucchini with seaweeds	154	
Green lentils with wakame	156	

Seaweeds and sushi

<i>Onigiri</i> —seaweeds on the go	157
Rolled sushi with nori: maki-zushi	158
Hand-rolled sushi with <i>nori</i> : <i>temaki</i> -zushi	161
Battleship sushi with <i>nori</i> : <i>gunkan</i> -zushi	
Chirashi-zushi with strips of nori	163
Omelette with <i>nori</i>	163

SEAWEEDS IN BREAD, PASTA, AND SAVORY TARTS Rye bread with seaweeds Buns and crispbread with seaweeds Quiche with seaweeds Seaweed pesto on bread and crackers

Seaweeds and cheese

Pizza with seaweeds

128	Seaweeds in desserts and cakes	171
128	Seaweeds with fresh fruit	171
	Seaweeds as gelling agents in desserts	171
129	Blancmange—a very basic pudding	172
130	Pudding with carrageen	173
131	Yōkan—Japanese dessert jelly	173
	Lemon cake with sea lettuce	174
134	Ice cream with simmered kelp	175
134		
135	Seaweeds in drinks	176
136	Seaweed tea	176
136	Seaweeds in wine, beer, and spirits	177
137	Spirulina smoothie	178
138	Seaweed wellness drinks	178
138		
140	Seaweeds in snacks	180
140	Snacks	180
142	Chips	180
143	Rice cakes with nori	182
143	Seaweeds and chocolate	183
	Herring roe on kelp	184
ſ		
144	Seaweeds in gastronomy	185
144	Seaweed innovations and haute cuisine	185
144	New raw materials open new	
145	gastronomic pathways	185
146	Fun and games in the kitchen —	
146	when 'play' becomes more serious	186
147	Taking home cooking to new levels	186
147	Veal tartare with Harry's crème and dulse	188
148	Fresh shrimp with pickled sea lettuce	
149	and beach herbs	190
149	Ice cream with dulse	192
154	White onion and cod in green pepper	
156	and kelp broth	194
	Vegetable 'avocado foie' with dulse and	
157	coriander juice	196

Seaweeds for industrial uses

62 Seaweeds as additives and 163 STABILIZERS 204 Seaweeds turned into additives 163 204 Gelling and hydrogels 204 Alginates 204 164 Carrageenans 208 165 Agar 212 166 168 Seaweeds for technical uses 212 Gunpowder, soda, and early glass making 212 169 Seaweeds for tools and textiles 169 213 Algae for the production of energy 213 Food or fuel? 169 216

Seaweeds in medicine,		Vitamins	244
HEALTH CARE, AND COSMETICS	216	Brown algae: Fatty-acid composition	245
Seaweeds in medicine	216	Red algae, green algae, and Spirulina:	
Biologically active ingredients	218	Fatty-acid composition	246
Seaweeds in health care and cosmetics	220	Polysaccharides in seaweeds—alginates,	
		carrageenans, and agars	247
Seaweeds as animal fodder and		0	
FERTILIZER	221	NAMES OF THE ALGAE, SEAWEEDS,	
Seaweeds for domestic animals	221	AND MARINE PLANTS IN THE BOOK	250
Seaweeds as fertilizer	222	Common English names	250
		Brown macroalgae (Phaeophyceae)	251
Epilogue: Seaweeds—edible,		Red macroalgae (Rhodophyta)	251
AVAILABLE, AND SUSTAINABLE		Green macroalgae (Chlorophyta)	251
FOR THE FUTURE	230	Blue-green microalgae (cyanobacteria)	251
		Eukaryotic microalgae	251
Technical and scientific det	ails	Marine plants	251
Evolutionary history and the		Bibliography	252
LIFE CYCLE OF SEAWEEDS	234	Seaweeds in cooking	252
Evolution	234	Seaweeds and algae	252
The life cycle of seaweeds	236	Scientific literature	253
The life cycle of Porphyra	237		
, , ,		Seaweeds on the web	256
THE NUTRITIONAL CONTENT OF			
SEAWEEDS	240	FIGURE CREDITS	256
Iodine and minerals	241		
Trace elements	242	Glossary	258
Energy content, fats, proteins,			
carbohydrates, and fiber	243	Index	272

Ψ

Essays on seaweeds

Was there a seaweed route to South America?	9
Collecting seaweeds in Victorian England	13
Seaweeds in an Icelandic saga	18
Living seaweeds in a Japanese museum	28
Dancing algae—the story of Hana-Tsunomata	40
Harvesting seaweeds on the edge of the Pacific	46
Proteins from the ocean	56
Revival of a proud tradition	64
At sea and in the pub with Japanese <i>nori</i> fishers	76
Seaweeds—the hidden treasures in the Natural History Museum in London	113
Seaweeds—a gift from the sea to the first inhabitants of the Pacific Northwest	132
Welsh caviar—laverbread	150
Sea vegetables from Maine	198
The alginate industry—a Norwegian success story	206
The production of carrageenans—another seaweed success story	210
"The seaweeds have to be there, if the children return home"	225