

# THE WARBLER

AN EDUCATIONAL WEEKLY

ISSUE

22

SEPT 8, 2020

## Dear Student, Artist, Thinker,

Take a deep breath. Some of that air swirling around the inside of your lungs comes from the trees and other plants outside, which use their leaves to absorb sunlight and create oxygen through a process called *photosynthesis*, a Greek word that means “making things from light.” However, a much greater amount (around 70-80%) of the oxygen on Earth comes from under the sea (cue humming songs from *The Little Mermaid*)! This issue of *The Warbler* is dedicated to those forms of underwater plant life that allow all us land-dwellers to breathe a little more easily.

I am not thinking about plants when I first consider the ocean — more like sharks, and then I move on to whales, octopi, sea turtles and clownfish. They all depend on a healthy ecosystem of kelp, seaweed, and lots of other sea plants to survive. In addition to providing oxygen (which even underwater critters need) these plants are both food and shelter to different species of fish. Many of these species live in an area called “the photic zone”, where visible light can reach (ending at around 656 feet below the surface). The deeper you go, the darker it gets, and the less oxygen there is.

And as scientists keep learning and exploring the sea, they discover something new. Over 200 feet beneath the bottom of the photic zone (so that is 856 feet down), they have discovered a kind of red algae (which isn’t really an animal OR a plant, but something in between) that can absorb the tiniest remaining specks of blue and green light. Human eyes can’t even see a faint glow at that depth, but light is still present inside.

We all learned so much putting this edition of the newsletter together. It makes me think about how restrictive first reactions and associations can be, how it limits me, how it limits us in what we see in the world.

The whole APAEP team continues to think of you and hope you are continuing to stand as strongly as you can in these tough times.

*Kyes Stevens and the APAEP Team*

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“With every drop of water you drink, every breath you take, you’re connected to the sea. No matter where on Earth you live. Most of the oxygen in the atmosphere is generated by the sea.”

SYLVIA EARLE // American marine biologist, author, and oceanographer



### WORDS INSIDE

FROM “SCOTLAND’S LOVE AFFAIR”...

**vindicated** | clear (some-one) of blame or suspicion; show or prove to be right, reasonable, or justified:

**pristine** | in its original condition; unspoiled; clean and fresh as if new; spotless

**interlopers** | a person who becomes involved in a place or situation where they are not wanted or are considered not to belong

**taxonomy** | the branch of science concerned with classification, especially of organisms; systematics

**didactic** | intended to teach, particularly in having moral instruction as an ulterior motive; in the manner of a teacher, particularly so as to treat someone in a patronizing way

**beatifically** | blissfully happy; imparting holy bliss.



## SCIENCE

# What are Algae Blooms and Why are They Bad?

BY MARION RENAULT | *Popular Science* | July 26, 2019

Innumerable microscopic algae help anchor aquatic ecosystems; they turn sunlight into food, and themselves serve as food for water-dwelling frogs, fish, snails, and insects.

But under the wrong conditions — warm water, too much sunlight, and excess nutrients from agricultural or sewage runoff — some species of algae can multiply uncontrollably, forming green, red, blue-green, or brown masses that smother the surface of waters and can produce potentially dangerous toxins.

Not all algal blooms are created equal. Some just stink up lakes and ponds, but others pose a health risk or have cost coastal economies millions of dollars.

Tens of thousands of algal species float across the planet's waters. Of those, several hundred species are reported to form large blooms — and nearly one-fourth of those are known to produce harmful toxins.

“There are many that cause harm — but it's a small fraction of what's out there. They're not the only algae in the water,” says Don Anderson, director of the U.S. National Office for Harmful Algal Blooms. “It would be like looking at a big city and saying you want to study the health of people who are Swedish.”

**BLUE-GREEN ALGAE** | In freshwater lakes and rivers across all 50 states, harmful algal blooms often consist of cyanobacteria, which can produce toxins that pose a health risk to humans and wildlife.

They are primarily a public health concern, as they can produce hazardous toxins that destroy mammalian nerve tissue.

Cyanobacteria blooms — which form thick, green mats — can also wage ecological harm by making it difficult for aquatic life to thrive because they can block sunlight for creatures below the water's surface and use up the oxygen needed by other life forms.

And its economic costs are well-documented: Local governments need to treat cyanobacteria-contaminated drinking water, and regional tourism often takes a hit when people are kept from fishing, swimming, boating, and beaching.

**RED TIDE** | There are several species of microscopic algae that fall under the umbrella term of “red tide” found in the Gulf of Mexico, along the U.S.'s Atlantic and Pacific coasts.

Red tides also pose a danger to humans and marine life. In people, red tide can cause respiratory illness and irritate the eyes. It can be lethal for marine life.

Red tides can produce a neurotoxin which can cause seizures in birds and some other vertebrates, as well as

accumulate in shellfish, sardines, and anchovies, causing serious injury or death in the sea lions, otters, birds, and humans that eat them.

**GOLDEN ALGAE** | Golden alga is a single-celled organism that primarily occurs in coastal waters worldwide, but is also found in rivers and lakes from Washington state down to the Gulf Coast and along the Eastern Seaboard up to Maine.

The toxins produced by blooms of golden algae affect organisms with gills: fish, mussels, clams, and some juvenile amphibians. Cattle, predators, scavengers, and birds have been observed drinking water during a bloom — and some people have eaten dead fish from associated fish kills — with no apparent effects.

Still, it can take years for a water body to recover from a major fish kill caused by a toxic golden alga bloom.

**BROWN TIDES** | Brown tides are caused by one of two algae species. Each species, when they accumulate in high enough densities, turn water dark brown, usually in the Gulf of Mexico around Cuba, Florida, and Texas.

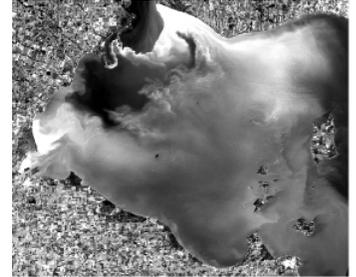
While brown tides don't produce harmful toxins, they do cause ecological harm by blocking sunlight and killing seagrass (along with the juvenile shellfish that live there).

**MACROALGAE BLOOMS** | Unlike microscopic algae that only become visible when amassed like a giant carpet, macroalgae are much larger and more like seaweed. They're a natural feature of freshwater and marine coastlines.

They are not chemically dangerous; their impact is mostly ecological. Blooms of red, brown, and green macroalgae outcompete seagrasses and coral reef habitats and reduce the amount of light available to the bottom of bodies of water, killing off wildlife and their food sources.

**THE FUTURE OF ALGAL BLOOMS** | Human-caused climate change will shape harmful algal blooms of the future — possibly by increasing their prevalence and expanding their spread. But scientists can't say for sure exactly how extreme weather events, warming waters, ocean acidification, and eutrophication will change the phytoplankton communities of our marine and fresh waters.

So while it's too soon to predict their future, Anderson says, “we can start to expect much, much better monitoring and detection.” ●



In July, the National Oceanic and Atmospheric Administration predicted a large bloom of harmful algae would coat western Lake Erie this year.



LIGHTER THAN  
WHAT I AM  
MADE OF,  
MORE OF ME IS  
HIDDEN THAN  
IS SEEN,  
I AM THE BANE  
OF THE MARINER,  
A TOOTH WITHIN  
THE SEA.  
WHAT AM I?

✎ Edited for space.

TECHNOLOGY

# Toyota Wants to Build Car From Seaweed

BY BEN MACK | *Wired Magazine* | February 24, 2009

Toyota is looking to a greener future — literally — with dreams of an ultra-light, superefficient plug-in hybrid with a bioplastic body made of seaweed that could be in showrooms within 15 years.

The kelp car would build upon the already hypergreen 1/X plug-in hybrid concept, which weighs 926 pounds, by replacing its carbon-fiber body with plastic derived from seaweed. As wild as it might sound, bioplastics are becoming increasingly common and Toyota thinks it's only a matter of time before automakers use them to build cars.

"We used lightweight carbon-fiber reinforced plastic throughout the body and frame for its superior collision safety," project manager Tetsuya Kaida said of the 1/X, which is pronounced "one-xth." "But that material is made from oil. In the future, I'm sure we will have access to new and better materials, such as those made from plants, something natural, maybe something like paper. In fact, I want to create such a vehicle from seaweed because Japan is surrounded by the sea."

A kelp car is not as far-fetched as it might sound. Bioplastics are being used for everything from gift cards to cellphone cases. Demand for the stuff is expected to hit 50 billion pounds annually within five years, a figure that would account for 10 percent of the world market for plastic, according to USA Today. A company called NatureWorks claims the production of its bioplastic Inego produces 60 percent less carbon dioxide than petroleum-based plastic and requires 30 percent less energy. And Oakridge National Laboratory has explored the possibility of producing carbon fiber from wood pulp.

Toyota is laying out its green vision of the future ahead of the Melbourne Motor Show, where it will highlight three sweet hybrids — the next-gen Prius, a cool Camry concept designed in Australia and the 1/X, so named because its carbon footprint is a fraction of that of other cars.

"The 1/X concept is a vehicle that completely redefines what it means to be environmentally considerate," David Buttner, senior executive director of sales and marketing, said in a statement. "The name says it all: a car that weighs a fraction of the others in its class today and uses a fraction of the fuel."

The 1/X has been kicking around the show circuit for more than a year, and the photo is from its North American debut at the 2008 Chicago auto show. It features a tiny 500cc engine and weighs about one-third as much as the Prius while offering about as much interior space. It's got a flex-fuel engine and electric motor powered by lithium-ion batteries.

But don't expect to drive a Toyota Sea-Class anytime soon.

"In reality, the seaweed car is another decade away," Buttner told the Sydney Herald-Sun. "However, it shows where we're going... Our thinking is that post-2020, cars like the 1/X will be made of plant-based plastic." •



LIGHTER THAN WHAT I AM MADE OF,  
MORE OF ME IS HIDDEN THAN IS SEEN,  
I AM THE BANE OF THE MARINER,  
A TOOTH WITHIN THE SEA.  
WHAT AM I?

Reddit.com

**HOW TO THINK WHEN YOU DRAW WITH LORNA!**

**TUTORIAL #115**

**SEA WEED PART A**

ALTHOUGH **SEAWEED** RESEMBLES SOME LAND-BASED PLANTS, IT'S METHOD OF **STAYING UPRIGHT** IS TOTALLY DIFFERENT!

MANY TYPES OF SEAWEED HAVE **AIR-FILLED POCKETS** WHICH WORK AS **TINY FLOATS**.

THE "FLOATS" WITHIN THE SEAWEED ADD A DISTINCTIVE **VISUAL THICKNESS**.

SOME HAVE **LARGE HEADS** ON **SEPARATE** STALKS.

**GETTING THE ANGLES:**

- 1 DRAW A SPHERE
- 2 ADD CIRCLES
- 3 MAKE CONES
- 4 PUSH/PULL A FEW

MATHEMATICS

# Sudoku

#43 PUZZLE NO. 2957551

				6	9			8
							9	
	1		5					
5			3	9				
	8							6
2	9		7		8		1	
				5			7	4
						3		5
		2			4			

©Sudoku.cool

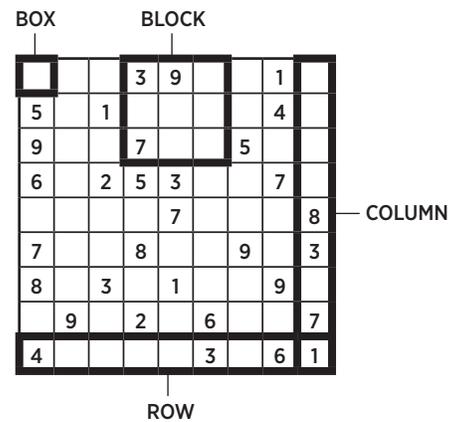
#44 PUZZLE NO. 4881469

			9		7	1		
	8	2		6				9
1		3	5				2	
		4		8		2		
			1					4
		9					6	1
4				3		7		
		5						2
			4					

©Sudoku.cool

## SUDOKU HOW-TO GUIDE

1. Each block, row, and column must contain the numbers 1-9.
2. Sudoku is a game of logic and reasoning, so you should not need to guess.
3. Don't repeat numbers within each block, row, or column.
4. Use the process of elimination to figure out the correct placement of numbers in each box.
5. The answers appear on the last page of this newsletter.



What the example will look like solved

2	4	8	3	9	5	7	1	6
5	7	1	6	2	8	3	4	9
9	3	6	7	4	1	5	8	2
6	8	2	5	3	9	1	7	4
3	5	9	1	7	4	6	2	8
7	1	4	8	6	2	9	5	3
8	6	3	4	1	7	2	9	5
1	9	5	2	8	6	4	3	7
4	2	7	9	5	3	8	6	1



“And it is an interesting biological fact that all of us have, in our veins the exact same percentage of salt in our blood that exists in the ocean, and, therefore, we have salt in our blood, in our sweat, in our tears. We are tied to the ocean. And when we go back to the sea, whether it is to sail or to watch it, we are going back from whence we came.”

JOHN F. KENNEDY // 35th President of the United States

**DID YOU KNOW?**

About 70% of the world's oxygen comes from seaweeds and other microscopic algae.

Seaweeds support primary production levels that are **6-10 times greater** than the most intensive land-based agricultural systems.

It is estimated that there are **nine times more** microscopic algae and seaweeds in the oceans than there are plants on land.

Seaweeds assimilate minerals directly from the sea and are thought to be the **single most nutritious foods** that you can eat. Many of them frequently contain more protein than meat and more calcium than milk.

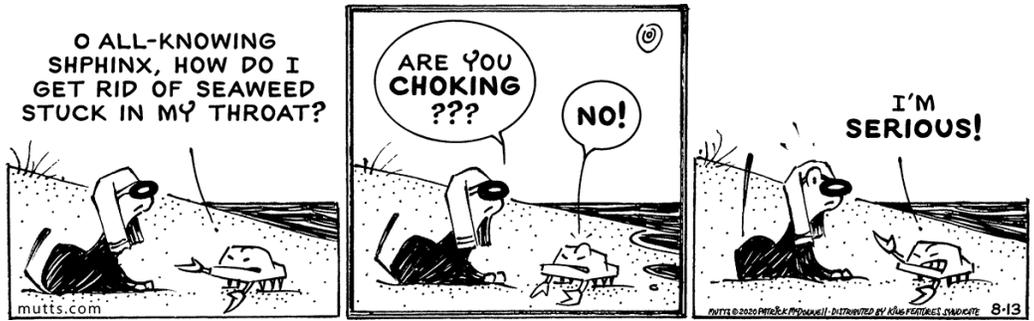
Although we often cannot smell or taste them, many ingredients in our foods and **household products** come from the sea and from seaweeds.

Seaweeds are amongst the fastest growing organisms on the planet. For example, under optimal conditions, the giant kelp can grow nearly **three feet a day**.

Strictly speaking, seaweeds are not plants. Only green seaweeds are considered plants as they have given rise to land plants. However, like plants, most algae and seaweeds depend on sunlight to create energy through **photosynthesis**.

While most seaweeds are soft and fleshy, a large number of particularly red seaweeds are hard as rock.

Source: [Africageography.com](http://Africageography.com)



**Idiom**

**“Red herring”**

**Meaning** A deliberate misleading and diverting of attention from the real issue.

**Origin** Red herrings are salted herrings that turn a reddish colour during the smoking process. They have come to be synonymous with the deliberate false trails that are the stock in trade of ‘who done it’ thrillers.

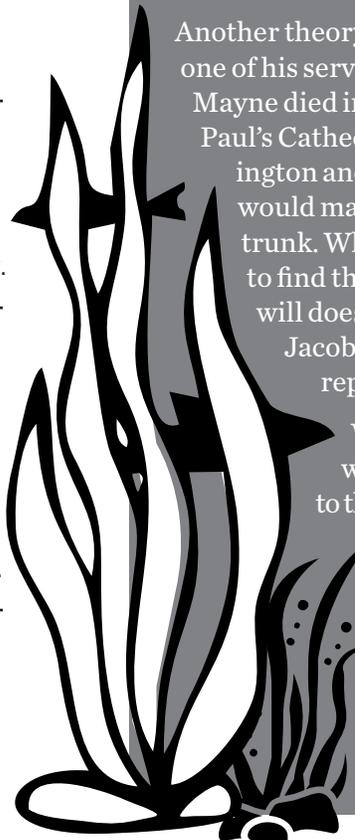
How do we move from the actual herrings in that expression to the figurative ‘throwing off the scent’ meaning? One theory has it that the meaning derives from the practice of using the oily and smelly herrings to lay false trails for hunting dogs. It’s likely that the use of red herrings was a training exercise, intended to put the hounds on the scent rather than to throw them off it.

Another theory is that the meaning derives from a trick played on one of his servants by the wealthy English clergyman Jasper Mayne. Mayne died in 1672 and willed large sums for the rebuilding of St Paul’s Cathedral and to the poor people of his parishes of Cassington and Pyrton. He also willed to a servant “Somewhat that would make him Drink after his Death”, which was left in a large trunk. When the trunk was opened the servant was disappointed to find that the bequest turned out to be a salted herring. The will doesn’t mention a ‘red herring’, but a report of the event in *Jacob’s Poetical Register*, 1719, does, so we can date the ‘false representation’ meaning to that date at the latest.

Whatever the source, the figurative usage of the phrase was well established in UK by the early 1800s and had migrated to the USA by the middle of the century, as in this example from *The New York Times*, in May 1864:

*But when the Emperor found that England would not join him in a war, he cleverly started the “red herring” of the Congress which he knew well enough was out of the question, but which has admirably answered his purpose of creating a diversion.*

Source: [Phrases.org.uk](http://Phrases.org.uk)



ART + CULTURE

# Archipelago

BY KENDEL HIPPOLYTE

If you really see the Caribbean archipelago, you will see yourself,  
the vivid scattered islands stirring to awakening in a sea of reverie and nightmare,  
the goldening light lifting green foliage out of darkness into its illumination  
and the surrounding blue immensity brooding an unknown creaturing of what can live only in depth

If you hear the Caribbean archipelago, you will hear it talking to you in tongues  
of the original tribes of the Americas, Africa, Europe, Asia; you will hear quarrelling, then a blur  
and you will hear the simultaneous translation of these languages into the first language,  
the sea talking to itself because in the beginning and the end there is no other

If you truly see the Caribbean archipelago, it will become clear  
how the fragmented, brittle arc of islands, resisting the onsurge of ocean, makes the sea the sea;  
how the ocean, reaching around breached rock, trying to rejoin itself, makes islands islands;  
how they both therefore define each other, how they refine your understanding of the selfhood  
into an acceptance of the necessary oneness of the known and the unknown

If you can be the Caribbean archipelago, acknowledging that your littoral shape is never final,  
that it shifts with your awareness that below the sublunary rise-and-ebb there is an undertow,  
a contrary flow that draws you down, deepening to where the separate i-lands reach  
beyond the scattered stones of their selves, growing down back into one bedrock, into the original  
ground from which the sea, the ocean, the self-dismembered yet defining archipelago rise into their being,  
if you can be this, beyond it, you will miracle into impossibility, you will see  
how to be broken and yet whole.

Source: Poets.org

**WRITING PROMPT**  
Beneath the surface of the sea (or lake, or river), it can seem like being on another planet. Life exists, but it's somehow alien to we who live on dry land. And yet our lives are forever tied to that other world, mysterious as it is. Write a poem about two other "worlds" that appear to be separate and distinct at first, but in reality are two halves of a whole.

- REVERIE
- ISLANDS
- SCATTERED
- BROKEN
- FRAGMENTED
- OCEAN
- VIVID
- UNKOWN
- TRANSLATION
- IMMENSITY
- FOLIAGE
- BLUR
- QUARRELING
- SEA
- WHOLE
- BEDROCK

## Word Search

I	M	M	E	N	S	I	T	Y	O	E	L	Q	B
G	G	D	U	I	F	Y	S	A	A	T	A	U	R
D	B	N	A	E	R	R	C	R	U	L	E	A	G
A	C	R	Y	E	A	O	A	E	A	F	L	R	T
E	O	A	O	E	G	O	T	V	E	C	F	R	N
S	S	E	T	K	M	A	T	E	L	K	O	E	W
A	E	E	M	V	E	W	E	R	I	W	L	L	O
E	U	A	E	I	N	N	R	I	E	H	I	I	N
I	N	A	I	V	T	I	E	E	L	O	A	N	K
R	B	O	B	I	E	S	D	I	R	L	G	G	N
D	U	T	C	D	D	R	I	K	E	E	E	C	U
E	O	L	Q	E	E	S	D	N	A	L	S	I	A
A	A	E	B	S	A	K	C	O	R	D	E	B	T
Q	R	I	T	R	A	N	S	L	A	T	I	O	N

Kendel Hippolyte was born in Castries, St. Lucia, in 1952. In the 1970s he studied and lived in Jamaica, receiving a BA from the University of the West Indies in 1976. Hippolyte is the author of several books of poetry. Of his work, Kwame Dawes writes, "One gets the sense of a writer working in a laboratory patiently, waiting for the right image to come, and then placing it there only when it comes." In 2000, Hippolyte received the St. Lucia Medal of Merit for his service in the arts. Hippolyte taught theater arts and literature at Sir Arthur Lewis Community College from 1992 to 2007. He still lives in St. Lucia.



FIND ME FLOATING THROUGH WATER OR STUCK IN THE SAND,  
OR MAYBE JUST RESTING IN THE PALM OF YOUR HAND  
SOMETIMES A TREASURE, SOMETIMES A HOME  
SOMETIMES A SPIRAL, SOMETIMES A DOME  
WITHIN MY WALLS THE OCEAN I HOLD  
AND IF YOU JUST LISTEN, A STORY IS TOLD  
WHAT AM I?

## HISTORY

# Scientists Find an Earthquake's Toll in an Organism's DNA

BY VERONIQUE GREENWOOD | *The New York Times* | July 14, 2020

Waving fronds of seaweed form a peaceful underwater scene, with dappled sunlight pouring down. Hidden in the organisms' genes, however, may be evidence of the planet's past geological violence.

In a paper published last week in the journal *Proceedings of the Royal Society B*, researchers say that the genes of bull kelp along the shore of the South Island of New Zealand bear marks of an earthquake that occurred 800 years ago, when part of the ocean floor rose upward and wiped out its inhabitants. That made way for newcomers of a different genetic background, the ancestors of today's kelp. The finding suggests that moments of cataclysmic change in an environment can be revealed by comparing genes across populations of some organisms.

New Zealand lies atop a nest of fault lines. After a quake four years ago, the edge of a fault near the town of Kaikoura shot more than six feet out of the water, and Jon Waters, a professor of zoology at University of Otago, and his colleagues began to wonder what happened to kelps after such destruction. Those stranded above the high tide line die swiftly, but as the ecosystem below the water shifts into a new normal, there's suddenly a lot of free real estate, where new individuals can sweep in and take over. And because of the way that a population of kelp carpets an area for the long term and makes little room for new arrivals, Dr. Waters said, the algae provided an ideal test bed for seeing whether a disaster's effects on the gene pool persist over time.

About 800 years ago, according to the geological record, there was a similar quake in New Zealand along the coastline near Dunedin. The scientists took samples of kelp along a 60-mile stretch of that shore. Each individual kelp looked much the same as the others of its species. However, when the scientists examined the genetics, there were large differences linked to where the kelps had been collected. Bull kelp that lived along a 15-mile stretch that had been forced into the air during that long-ago earthquake were distinct from their neighbors of the same species on either side, whose homes had long lain undisturbed.

"We were just gobsmacked when we looked," Dr. Waters said. "We could see where the uplift zone was just by looking at the genetics."

When wandering bull kelps from farther down the coast arrived at the wasteland left by the earthquake, they most likely proliferated swiftly, dominating

the entire footprint of the uplifted area within a few decades, before any others could get in. Their descendants are still living there. Their presence is a sign of an ancient disruption, but also of renewal.

"One of the things we learned from this is how quickly nature recovers," Dr. Waters said. "It's reassuring that nature has that power."

The work corroborates the idea that after ecosystems recover from catastrophes, the genetic makeup of the



organisms there can bear signatures of the change for hundreds of years or longer. The fact that the new kelp has barely mixed with its neighbors 800 years after the earthquake is particularly interesting — it suggests that a "winner takes all" effect is going on, where the first individuals on the scene can maintain their dominance for centuries, the researchers wrote. The group is now watching the recolonization of the Kaikoura earthquake's uplifted zone, collecting samples as new kelps arrive. Kelps are travelers, it turns out. Individuals can float thousands of miles and still be viable when they wash up on a distant shore.

And when the kelp proliferates, Dr. Waters said, many small creatures that live within it can return, too. The tangled strands that attach kelp to rocks form tiny, protected worlds in the surf where small crustaceans and other animals take up residence.

"You've got a sheltered little environment for things to go about their daily lives," he said. ●

Bull kelp and a Hooker's sea lion in coastal New Zealand. The kelp's genes bear marks of an earthquake that occurred 800 years ago, researchers said.

Photo by Ceridwen Fraser

✎ Edited for clarity.

## PERSONAL HISTORY

## Scotland's Love Affair With Seaweed

BY ANNALENA MCAFFEE | *The New York Times Style Magazine* | May 16, 2017

In the 1960s, my aunt Annalena kept a small tin in the kitchen cupboard of her Glasgow flat and would bring it out to dispense treats to visiting children — not candies but dulse, red shards of dried seaweed that we would place on our tongues, savoring the mysterious sweet-bacon tang, until they melted away like communion wafers.

To many urban westerners, seaweed is Asian fare, a staple of the sushi bar, but it has long been regarded as a delicacy in the western highlands and islands of Scotland. Because of tidal conditions, constant sea temperatures and unpolluted shores, the region is particularly rich in seaweed varieties, which were used for fertilizer as well as food. A sixth-century Gaelic poem, sometimes attributed to St. Columba, who lived on the Hebridean island of Iona, asks God to assist the monk's daily routine: "Let me do my daily work/Gathering dulse/Catching fish/Giving food to the poor." The early travel writer Martin Martin, visiting the Hebrides in the 18th century, noted that seaweed was eaten by "vulgar natives," and it was widely regarded as famine food.

Today, the vulgar natives have been vindicated. Seaweed is recognized as a mineral-rich superfood, and its harvesting for culinary use is big business. One award-winning company, based in Edinburgh, Mara Seaweed, now exports to outlets like Blue Apron in the U.S.A. The female founders, along with their team, harvest their seaweed on the coastline around the charming fishing villages of the East Neuk of Fife, north of Edinburgh.

Even farther north, on the pristine beaches of the islands of the Outer Hebrides, the Hebridean Seaweed Company has found an alternative outlet for some of its marine flora — the movie business. The company has provided weeds for "The Pirates of the Caribbean" movies and nine tons of knotted sea wrack from the Isle of Lewis for the film set of "Les Misérables."

The Outer Hebrides is the collective name for a remote archipelago of more than 100 islands, scattered like a broken string of beads off the far northwest coast of Scotland. Only 15 of the islands are inhabited and the physical character of each — from the mountains of Harris to the low-lying grass-fringed beaches of South Uist and Barra — is as distinctive as its culture. All, though, boast some of the most remarkable coastal landscapes in the world.

This is the last redoubt of Gaelic, the beautiful ancient language, a treasure house of song and folklore, now spoken by fewer than 2 percent of Scots. Its rich vocabulary reflects the islanders' preoccupation with land and family, soil and soul, weather and ocean.

There are more than 40 words relating to seaweed; one, "ortha-fheamainn," means "seaweed charm," for conjuring abundance and happiness.

From a distance, to the unaccustomed eye, heaps of seaweed on a white sand beach can look like burst garbage bags, while the slippery tangles adhering to rocks seem nothing more than a potential hazard to the casual shore-stroller. The name doesn't help, of course, with its association with ugly garden interlopers, and explains why some companies have renamed their edible marine algae "sea vegetables." But look closer into the deep tidal pools, at the ruby fronds of dulse and carrageen, the dark leather-like straps and cords of kelp, the bubbles of sea wrack and the luminous green silk of sea lettuce: In their watery element, they glow and undulate like liquid stained glass. Mara's co-owner Fiona Houston describes the pleasures of harvesting as "like walking into an undiscovered forest. It's amazing — another world."

Her rapturous tone would have resonated with Victorian women swept up by the seaweed craze. Given access to the coast by newly built railways, genteel women from the cities would roam beaches, foraging, picking and identifying (though there is no record of them eating), then pressing and labeling samples of "ocean flowers" in elaborately bound albums that were part sentimental keepsake, part scientific record. Queen Victoria was said to have made an album, and the political economist and abolitionist Harriet Martineau was also an enthusiast. In 1856, after visiting the tidal pools of Ilfracombe in North Devon, the novelist George Eliot wrote that she was "quite in love with sea-weeds." William Henry Goss, the renowned ceramist, capitalized on the cult, using images of seaweed to decorate his prized glazed heraldic porcelain.

In 1862, Margaret Gatty, the doyenne of 19th-century seaweed enthusiasts, or algologists, recommended that when foraging, boys' "sporting boots" should be worn and that the serious collector "must lay aside for a time all thought of conventional appearances." On the question of petticoats, "if anything



Laminaria digitata, a kind of kelp, and Palmaria palmata, or red dulse, are both found on the East Neuk (Scots for "corner") of Fife on the coast of Scotland.

Photo by Kyoko Hamada.

✎ Edited for space.

would excuse a woman for imitating the costume of a man, it would be what she suffers as a sea-weed collector from those necessary draperies. ... let woollen be in the ascendant ... and let the petticoats never come below the ankles.”

The craze offered women, constrained by educational limitations as well as by restrictive garments, freedom — license to wander unchaperoned in comparatively wild places, lost in romantic contemplation of nature’s splendors and “God’s handiwork,” pursuing the intellectual disciplines of taxonomy, hitching their petticoats and briefly abandoning the strict dress codes which forbade the most fleeting glimpse of an ankle.

Gatty, the wife of a North of England vicar, was a writer of morally improving books for children. She discovered the pleasures of seaweed foraging when she was sent to convalesce by the English seaside town of Hastings in 1848 following the birth of her seventh child. Wandering the shore at low tide, she became entranced by the variety of forms and color in Neptune’s garden. “It is the consolation of consolations,” she wrote to a friend, and it was the start of a lifelong passion for beachcombing that would result in her definitive two-volume study, “British Sea-weeds.” Though her gender excluded her from membership of the prestigious Royal Society and the Linnean Society, she was respected by male natural scientists, and her name was given to an Australian seaweed.

Marine mania was trans-Atlantic. Newport, R.I., was a popular spot for scissor-wielding women in woolen petticoats and stout boots, and in 1845 Henry Wadsworth Longfellow wrote a poetic celebration of seaweed, comparing it to fragments of song cast up by storms of emotion. An 1875 issue of the American children’s magazine *St. Nicholas* featured a didactic story called “The Sea-Weed Album,” which instructed readers in the gentle art of algology.

Though the fashion faded at the start of the 20th century, Gatty’s scholarly book was still used for reference as late as 1946 at the former Scottish Marine Biological Association’s station on the west coast Isle of Cumbrae. Her seaweed collection is kept in St. Andrew’s Botanical Garden, less than 20 miles from the East Neuk of Fife, where today Fiona Houston can be found, petticoat-less, pursuing the 21st-century seaweed craze.

My aunt Annalena, now 97, lives in residential care outside Glasgow. Her mind, once a trove of poetry, history and song, has faded. Mostly, she sits in contented silence. But if memories of distant times are summoned, her eyes shine and she smiles beatifically. When I visit her next month, along with the usual bunch of flowers, I’ll be bringing her my own orthafheamainn — a tin of Mara’s dried dulse. ●

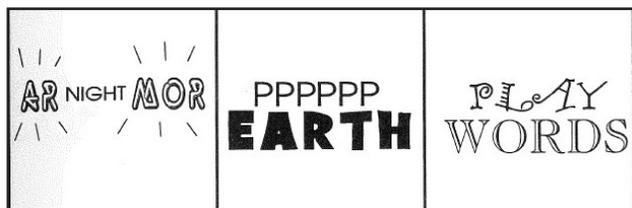
## RANDOM-NEST

### Edible Sea Plants

INFORMATION ADAPTED FROM [ACTIVEBEAT.COM](http://ACTIVEBEAT.COM)

You might not think of sea plants as vegetables, but there is actually much edible flora growing on the ocean floor! Here are some of the more common ones:

- 1. Wakame** While this vegetable’s English name is actually ‘sea mustard’, wakame has a mild, subtly sweet flavor and is very popular in Japanese soups and salads.
- 2. Dulse** When fresh, dulse sort of resembles a red leafy lettuce, but dried, it has a salty, sort of smoky flavor and leathery texture when dried as whole leaves. This red seaweed grows in cold waters and has long been a dietary staple for people in Iceland and Northern Europe.
- 3. Spirulina** Spirulina is a type of blue-green algae that can be consumed by humans and animals. Its popularity has grown rapidly in recent years as it has been used as a dietary supplement.
- 4. Kombu** A type of edible sea kelp often called the “King of Seaweed” because it’s the only one that can be used to make Dashi, a type of soup stock that’s an integral part of Japanese cuisine.
- 5. Nori** This edible species of red algae is used to make those green paper-like sheets of seaweed most commonly used in sushi-making. Nori is processed throughout Japan and China, producing over 350,000 annual tons.
- 6. Carrageen Moss** Also known as Irish Moss, this is a type of red algae that grows in abundance along the coasts of the Atlantic Ocean in North America and Europe. It is commonly used to thicken soups, stews, smoothies and even make pudding.
- 7. Arame** Also known as sea oak, arame is another type of brown algae that’s popular in Japanese cuisine. The dried form comes in dark brown strands that reconstitute quickly for soups and salads and has a mild, semi-sweet flavor and a firm texture which makes it a great ‘starter-seaweed.’
- 8. Chlorella** Chlorella is another type of single-cell blue-green algae that has gained massive popularity as a nutritional supplement. During the late baby boom of the late 1940’s and early 1950’s chlorella was seen as a promising food source and solution to a global food crisis due to its nutritionally-dense makeup.
- 9. Sea Grapes** This edible sea vegetable, popular in Indonesian and Japanese cuisine, gets their name from the small round shape and are often called green caviar because of how the salty little spheres pop under your teeth. They have a soft, succulent texture contrasted by a sharp peppery flavor.

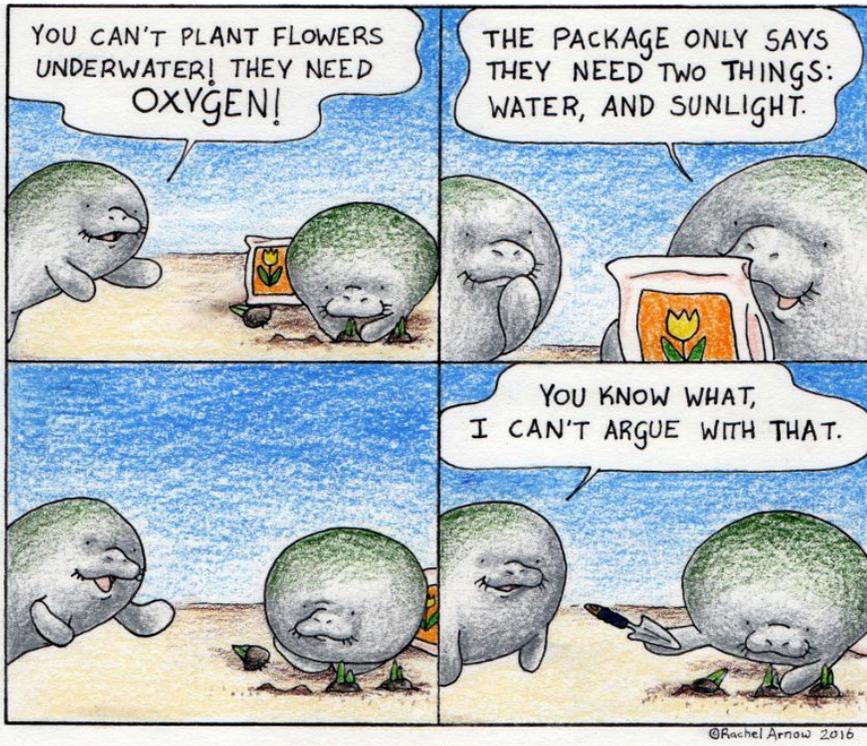


### WORD PLAY

A Rebus puzzle is a picture representation of a common word or phrase. How the letters/images appear within each box will give you clues to the answer! For example, if you saw the letters “LOOK ULEAP,” you could guess that the phrase is “Look before you leap.” *Answers are on the last page!*

“I am absolutely enraptured by the atmosphere of a wreck. A dead ship is the house of a tremendous amount of life – fish and plants. The mixture of life and death is mysterious, even religious. There is the same sense of peace and mood that you feel on entering a cathedral.”

JACQUES YVES COUSTEAU // French naval officer, oceanographer, and scientist



## Words of Encouragement

I hope this message finds you all healthy and safe. I just wanted to share my experience of transition from prison to society with the help of a prison education program ... [This program] gave me hope and confidence when I lacked in those areas. I now have 2 more semesters to go and I will have my associates degree in Sociology. I hope to become a drug and alcohol counselor to help prevent others from making the many mistakes that I have made. [Getting an education] was the turning point in my life not only while incarcerated but in general ... I wish you all health, happiness, safety, and hope. You can do this, and they will help you. Be strong, and believe in yourself. If I can you can and I believe in you all. Keep your heads up as well as in the books. Even if you aren't getting out soon, what else would you be doing while inside. Stay well family.

Colin



1061 Beard-Eaves Memorial Coliseum // Auburn University, AL 36849

## Answers

SUDOKU #43

4	2	3	1	6	9	7	5	8
8	7	5	4	2	3	6	9	1
6	1	9	5	8	7	4	3	2
5	4	1	3	9	6	8	2	7
3	8	7	2	1	5	9	4	6
2	9	6	7	4	8	5	1	3
9	3	8	6	5	1	2	7	4
1	6	4	9	7	2	3	8	5
7	5	2	8	3	4	1	6	9

SUDOKU #44

5	4	6	9	2	7	1	3	8
7	8	2	3	6	1	4	5	9
1	9	3	5	4	8	6	2	7
3	1	4	6	8	9	2	7	5
2	6	7	1	5	3	9	8	4
8	5	9	2	7	4	3	6	1
4	2	1	8	3	5	7	9	6
9	3	5	7	1	6	8	4	2
6	7	8	4	9	2	5	1	3



### Brainteasers

Page 2 Ice

Page 3 Starfish

Page 6 Seashell

Page 9 Rebus Puzzle:

1. Knight in shining armor
2. Peace on earth
3. Play on words

Send ideas and comments to:

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UNTIL NEXT TIME !