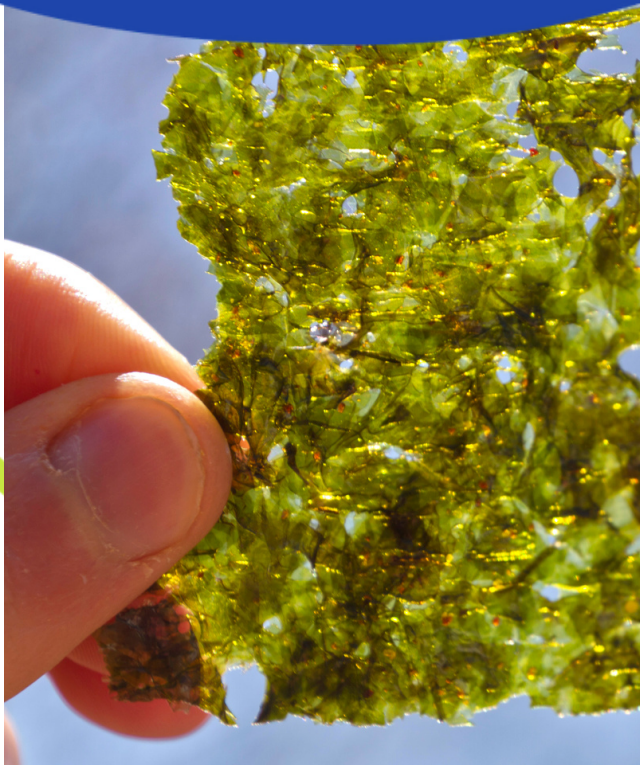




How to Talk About
SEA VEGETABLES
in Consumer Packaged Goods



Sea Vegetables are Gems of the Water



Crisp sea vegetable sheets have grown in popularity as a fun and delicious snack option.

#nutrientdense

#umamipacked

#sustainable

#versatile

#immunityboosting



Dulse



Kelp



Nori



Wakame

Sea vegetables offer incredible taste, versatility, nutritional value, and sustainability. While sea vegetables are a loved staple in cultures around the world, they remain underutilized on many menus.

Sea veggies meet consumer interests in adaptable, easy-to-use ingredients that boost wellbeing and add a one-of-a-kind, umami flavor. They also fit seamlessly within today's top food trends, be it plant-based eating, immunity-boosting foods, or climate-smart eating. As such, incorporating sea vegetables into your products is a great way to appeal to eaters, especially to Millennial and Gen Zers.

At the same time, you'll be utilizing an eco-friendly ingredient that will support your company's sustainability efforts and give a significant nutritional boost to your products!

Everyday foods for everyone!

Sea vegetables are enjoyed as popular, everyday foods in Japan, Korea, China, and Polynesia, as well as in Native American and Asian American communities in the U.S. and in coastal regions in Scotland, Iceland, and France. They are associated with health and longevity as staple ingredients in the world-famous "Blue Zone" Okinawa and Mediterranean diets.

In this toolkit, you will find **research-backed ways to talk about sea vegetables and drive eater interest.**



Salad with fresh cucumber, pepper, cabbage, carrot, sea vegetables and sesame.

How to drive demand for sea vegetables

While taste is always king when it comes to trying new foods, many people are unfamiliar with sea vegetables and are a bit skeptical of the flavor. Lead your communications with messages around **health** and **sustainability**, paired with **versatility**.

Emphasize...



HEALTH

Sea vegetables are among the world's most nutrient-dense foods



SUSTAINABILITY

Sea vegetables are more environmentally friendly than many land-grown greens.



VERSATILITY

Sea vegetables come in many different forms and may be promoted as an easy, flavorful addition to one's diet as a snack, seasoning, or land-grown leafy green alternative.

Why aren't we eating more sea vegetables?

33%
UNAWARE OF SEA
VEGETABLES

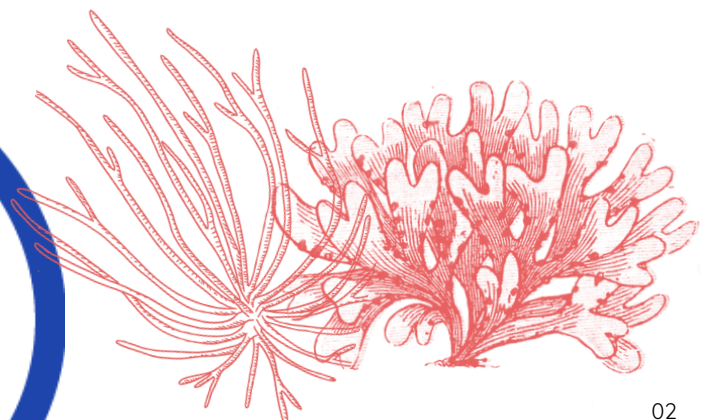
33% of U.S. eaters surveyed say they don't consume sea vegetables because they're simply unaware of them.¹

20%
DON'T KNOW HOW
TO PREPARE THEM

20% of those surveyed said they don't consume sea vegetables because they are not sure how to prepare them.¹

89%
GROWTH

Eaters' interest in sea vegetables is poised to grow by 89% in the next 1-2 years, moving sea vegetables into mainstream acceptance.²



In our narrative test for sea vegetables, two health-focused messages were most successful in driving eater interest, compared to ten other messages.⁶ But these are not the "heart-healthy" seafood health messages of generations past; now, "health" is more strongly tied to general well-being.

Sea veggies are nutritional powerhouses. They have...

10x
MINERALS

10x the mineral content of plants grown in soil.⁴

23
ESSENTIAL
NUTRIENTS

23 essential nutrients including Vitamin A, folate, omega-3 fatty acids (DHA/EPA), iron and magnesium.⁵

Learn more about the nutritional profile of sea vegetables in Ch. 4 of the Food + Planet nutrition guide at eataquaticfoods.org/toolkits



Add a bed of sea vegetables to other stir fired vegetables

Of the Millennial and Gen Z eaters we surveyed...

31%

VALUE HEALTH
ABOVE OTHER
FACTORS

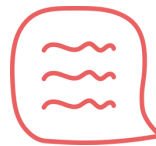
31% rank health higher in importance than familiarity, affordability, foodie relevance, or climate impact.⁶

50%

FOLLOW A DIET

50% are following at least one type of diet or dietary restriction.⁶

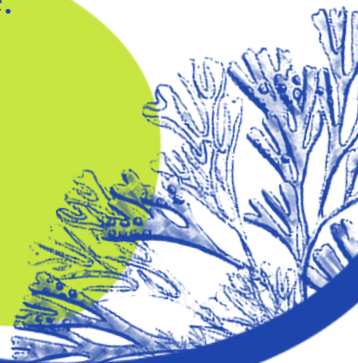
Keep in mind:



"Consumers feel that eating sea vegetables offers multiple health benefits because they're packed with essential vitamins, minerals, and antioxidants, but are wary of their sodium and heavy metal content."²

Words to use:

Nutrient-rich
Nutrient-packed
Superfood
Power food
Antioxidant-rich
Immunity-boosting



Give people a land-based comparison.

Comparing these aquatic ingredients with terrestrial foods like other leafy greens is an easy way to help people understand the nutritional value and uses of these aquatic foods.



SUSTAINABILITY

In our narrative test for sea vegetables, two sustainability messages were the second-most successful narrative theme in driving eater interest, behind our health messages.⁶ Sea vegetables are more environmentally friendly than many land-based foods.⁷ They also provide marine ecosystem support, contributing to marine biodiversity, fish habitat improvement, and ocean restoration.⁸

Good to keep in mind:

58%

ALARMED ABOUT
CLIMATE CHANGE

58% of Millennial and Gen Z eaters we surveyed said they are concerned or alarmed about climate change.⁶

50%

EST. GROWTH

A growth of 50% in using sea vegetables as sustainable food source is estimated over the next two years.²

99%

CONFIDENCE
IN CLIMATE
MESSAGING

Our social media test among a Whole Foods audience with Atlantic Sea Farms confirmed with 99% confidence that a climate message will perform better than messages that do not include any emphasis on the sustainability of the product.⁶

Words to use:

Climate-smart	Sustainable
Ocean-friendly	Climate-friendly
Environmentally-friendly	Planet-friendly

Sea veggies are a planet-friendly food choice.



LAND OR
FERTILIZERS

Most sea vegetables require no land or fossil fuel-based fertilizers to grow.

20x

MORE EFFECTIVE

Sea vegetables are 20 times more effective at sequestering carbon than land-based plants.⁷

Learn more about the sustainability profile of sea vegetables in Ch. 2 of the Food + Planet toolkit at eataquaticfoods.org/toolkits



Sea vegetables can easily be integrated into delicious crackers.

Sustainability should be added to messages on health.

While Millennial and Gen Z eaters are highly concerned about the climate crisis, only 3% of our study sample agreed that “Above all, my food has to be sustainable and environmentally conscious.”⁶ Instead, health, familiarity, foodie-relevance, and affordability were all ranked as higher priorities when making a food-related decision. Therefore, sustainability should be added to messages on health.

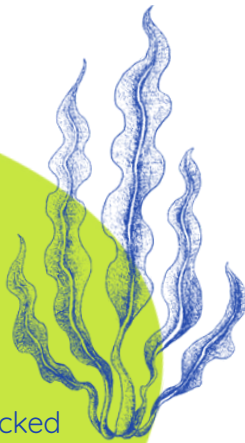
VERSATILITY

In our narrative test for sea vegetables, a versatility message was successful in driving eater interest to purchase.⁶ Sea vegetables can be used just like soil-grown vegetables. Play up the fun and practicality of sea vegetables such as the colors, textures, or easy-to-use formats. Showcase meals that connect with your audience's backgrounds and interests, be it traditional uses—onigiri, Irish sea moss pudding, miso soup—or modern uses like kelp burgers, seaweed-infused hot sauce, or BLTs with dulce bacon. Get inspired by the versatility of sea vegetables.

Learn more about the versatility of sea vegetables in chapters 3 and 5 of the Food + Planet nutrition guide at eataquaticfoods.org/toolkits

Words to use:

Simple	Umami
Common	Delicious
Traditional	Crunchy
Pantry-staple	Everyday
Widely used	Flavor-packed
Must-have	Affordable



Seaweed sheets are a great shareable snack.

Some eaters appreciate that sea vegetables are typically more flavorful than land-based, cooked greens.²



Nori sheets and other sea vegetables are a go-to lunch option.

Eaters appreciate that sea vegetables can be used as meat alternatives, as some plants boast a "meaty" texture and/or flavor.²

Who already eats sea vegetables?

Our survey of 900 Millennial and Gen Z eaters in the U.S. found that those who most frequently eat sea vegetables include: people of a higher socio-economic status, people who prioritize sustainability and work to reduce their meat consumption, urban residents, health-focused eaters, people of Asian descent, foodies, females, coastal residents, and those on a diet.⁶



Nutrient-rich sea vegetable smoothies bring nothing but a smile.

Sea vegetables can be paired with other foods, eaten raw in salads, sautéed, cooked, or added to smoothies in a similar way as land vegetables.²

Communication Best Practices

Whether it's on packaging or in marketing materials, our research has found the following communication strategies will help drive eater demand and purchases of sea vegetables.

1 Compare them to land-based vegetables.

Reference kale, spinach, chard, lettuce, and more, when it comes to nutrition and use. Most U.S. eaters are more familiar with terrestrial greens than aquatic greens.

2 Visually present them as convenient everyday foods.

Showcase the fun, and practicality of sea vegetables—be it the colors, textures, or easy-to-eat formats. Use imagery that emphasizes the deliciousness of sea vegetables rather than their underwater habitat.

3 Use trusted voices.

Friends and family, medical professionals, dietitians/nutritionists, farmers, and chefs are the most trusted voices when it comes to information on what foods to eat.

4 Use popular descriptors.

Some eaters are concerned about fishy, bitter, or overly salty flavors, and slimy textures. Play up the many other textures and flavor notes offered by sea vegetables (e.g. "umami," "crunchy") and steer clear of flavor descriptions like "briny" or "tastes like the ocean."



Sea veggies are a perfect addition to energizing lunch bowls.



Friends trust friends to show them the most delicious and nutritious foods.

5

Call sea vegetables sea vegetables.

Using the term “sea vegetables” helps eaters who aren’t familiar with seaweeds think more broadly about the many ways we could be enjoying seaweeds, and provides an immediate, familiar frame of reference to land vegetables.⁶

If your audience is familiar with sea vegetables, calling them by their species names — like “sugar kelp,” “nori,” or “dulse” — increases the desirability of these foods even more.

If your audience is not familiar with sea vegetables, use the category name first, and introduce the species name later. Then, use the name of the ingredient as often as possible. As an example, for a kids cracker product, call them “sea veggie cracker” instead of “kelp cracker” and introduce the species via your storytelling.

Eventually, calling different varieties by their specific names will help breed understanding and familiarity with the vast array of delicious options from the underwater world.



Nori sheets add flavor and texture to traditional dishes like Ramen.



Dulse bread with green sea vegetables soup.

6

Highlight safety.

In your storytelling, include:

Where you source your ingredients from.

Your safety standards. (Help customers understand that the same safety standards for food apply on land and underwater.)

Verifiable information on clean and safe waters.

If applicable, the benefits of aquaculture and the growing network of domestic producers. Check out our Aquatic Foods Ecosystem at www.eataquaticfoods.org/ecosystem

69%

VALUE SAFETY
IN FOOD

69% of eaters say being “safe to eat” is an important criterion when consuming sea vegetables.⁶



Offering transparent sourcing information is one of the best ways to create a sense of safety and help your customers feel in control. Eaters are looking for trustworthy, relatable, and specific information to evaluate the quality of sea vegetables.

Expert Perspectives

"Sea vegetables are some of the most nutrient-dense foods on the planet, and add a boost of texture, umami, and access to micro and macronutrients that are otherwise difficult to come by. But ultimately, we find that consumers love knowing that enjoying this zero-input, regenerative crop is improving the health of our oceans and coastal livelihoods in the face of climate change."

Jesse Baines
CMO, Atlantic Sea Farms



"Seaweed is super, super versatile. So we have chefs drying it, grinding it up, and putting it into fresh pasta noodles, seaweed can be put on pizza, and we have chefs making butter out of it."

Alanna Kiefer
Farmer & Community Coordinator
Oregon Dulse



"Seaweed is one of the most nutrient-dense and diverse foods on the planet, and is uniquely abundant and regenerative; I believe its powers are undervalued in the West - and I saw an opportunity to change that."

Sachi Singh
CEO and Founder, Rootless



Research methodology

This toolkit is a result of research conducted with Millennials and Gen Zers of diverse racial and cultural backgrounds.

71

academic papers reviewed

184

organizations engaged with bivalves and sea vegetables analyzed

28

trend reports reviewed

30

health professionals interviewed

17

healthy dietary patterns for compatibility assessed

1.5K

eaters surveyed and interviewed

AI

leverage for cutting-edge ethnographic insights

200K

people reached by conducting one social media test

Citations

- 1 Maine Aquaculture Innovation Center. n.d. Average Seaweed Consumer.
- 2 MotivBase. 2022. Eaters' Perceptions of Sea Plants.
- 3 Animal Feed Science and Technology. 2016. Seaweeds for livestock diets: A review.
- 4 American Scientist. 2017. The Science of Seaweeds.
- 5 Critical Reviews in Food Science and Nutrition. 2022. Minerals in edible seaweed: health benefits and food safety issues.
- 6 Food for Climate League. 2022. Aquatic Foods Research.
- 7 Harvard University: The Graduate School of Arts and Sciences. 2019. How Kelp Naturally Combats Global Climate Change.
- 8 Lloyd's Register Foundation. 2020. Seaweed Revolution. A manifesto for a sustainable future.

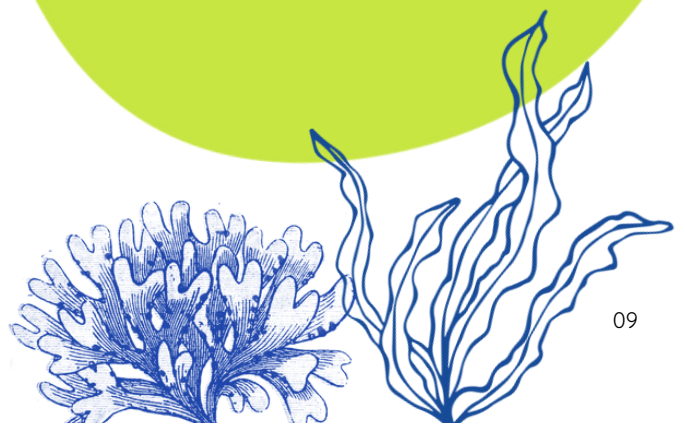
Additional Resources

For additional resources, including the sea vegetables version of this toolkit, please visit eataquaticfoods.org.

[Getting to Know Sea Vegetables](#)

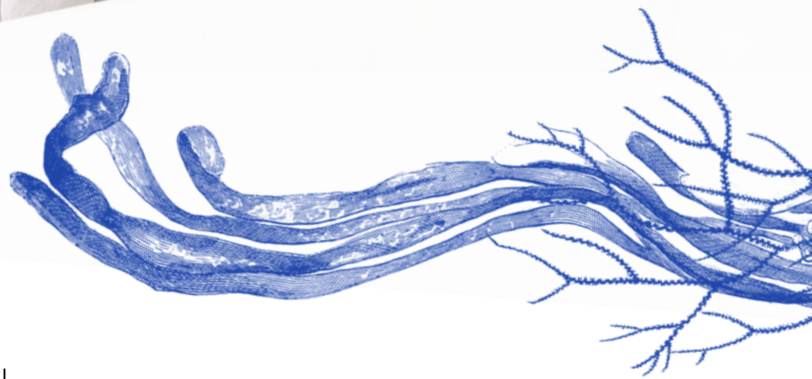
[Sea Vegetables Buying Guide: Choosing with Confidence](#)

[How to Use Sea Vegetables Everyday](#)





This toolkit was created by Food for Climate League, a women-led 501(c)3 research collaborative working to make climate-smart eating the norm, in partnership with Food+Planet, a visionary 501(c)3 collective aimed at empowering health professionals to be leaders in sustainable food systems. It was made possible by a grant from Builders Initiative, which invests in partners working towards sustainable solutions to societal and environmental challenges.



Interested in collaborating
on products with sea
vegetables?

If you are interested in partnering with us, please reach out to info@eataquaticfoods.org.



BUILDERS INITIATIVE



FOOD FOR
CLIMATE
LEAGUE

FOOD+
PLANET