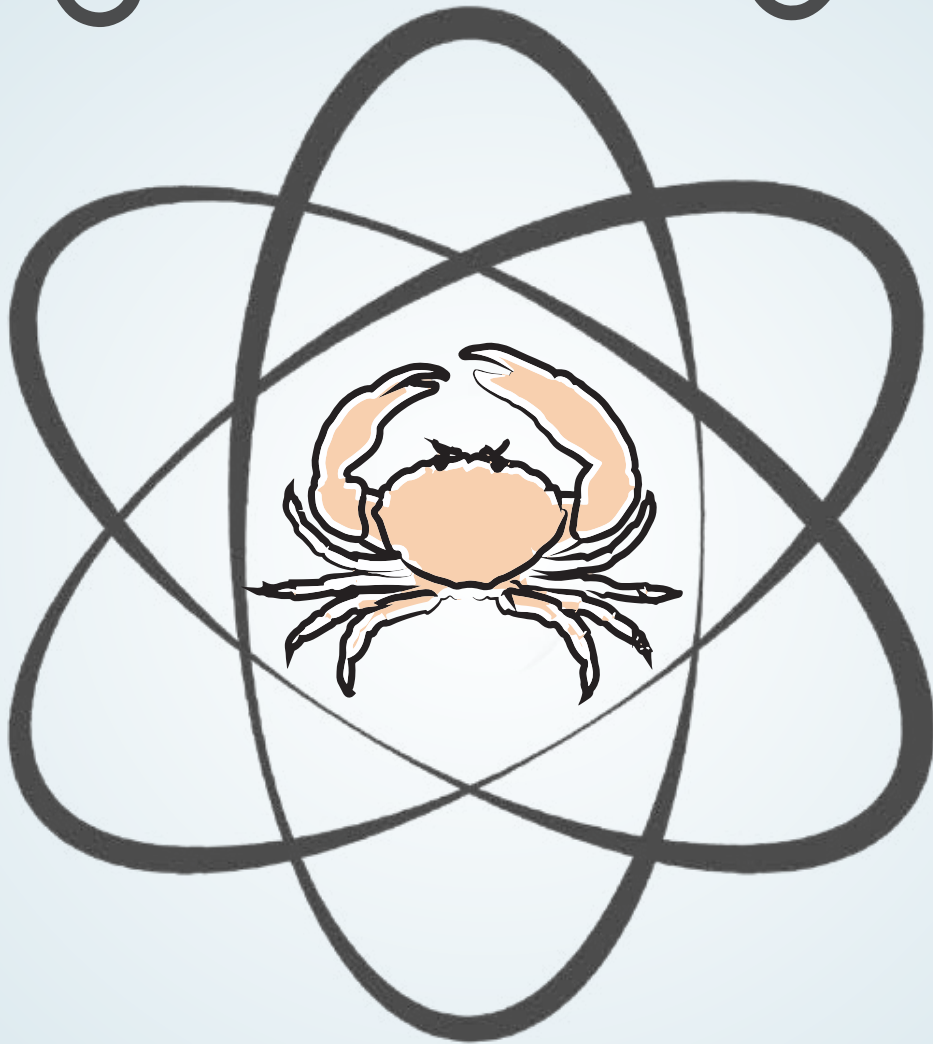


Nutrivore

GUIDE TO



Seafood

BY THE TEAM AT NUTRIVORE

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Introduction to Seafood

Out of all the animal-based foods out there, one group has consistently topped the scoreboard in terms of health benefits: seafood! In fact, seafood consumption can positively impact nearly every body system, helping improve both our physical and our mental health. It's also an incredibly ancient food group: archeological evidence shows that as far back as 1.95 million years ago, our early ancestors were using stone tools to butcher and process aquatic life. These foods may have supplied critical brain-growth compounds that helped pave human evolution.

Without further ado, let's take a dive into this amazing food group!



What Counts as Seafood?

The term “seafood” encompasses any edible aquatic creature—meaning all freshwater fish, saltwater fish, shellfish (both mollusks and crustaceans), and roe (fish eggs). (While other water-borne organisms like seaweed and algae are also technically foods from the sea, they have more nutritional similarities to other plant life, and are therefore considered vegetables.)

Although the full list is enormous, some of the most commonly eaten types of seafood include:

- ANCHOVIES
- ARCTIC CHAR
- BARRACUDA
- BLACK COD
- CAVIAR (STURGEON ROE)
- CATFISH
- CLAM
- COD
- CRAB
- CRAWFISH
- EEL
- FLOUNDER
- GROUPER
- HADDOCK
- HALIBUT
- HERRING
- IKURA (SALMON ROE)
- LINGCOD
- LOBSTER
- MACKEREL
- MAHI MAHI
- MONKFISH
- MUSSEL
- OCTOPUS
- ORANGE ROUGHY
- OYSTER
- PERCH
- PIKE
- POLLOCK
- SALMON
- SARDINES
- SEA BASS
- SEA CUCUMBER
- SEA URCHIN
- SCALLOP
- SHARK
- SHRIMP/PRAWNS
- SMELT
- SNAPPER
- SOLE
- SQUID
- STURGEON
- SWORDFISH
- TILAPIA
- TOBIKO (FLYING FISH ROE)
- TROUT
- TUNA
- WHITEFISH
- YELLOWTAIL

What Makes Seafood So Great?

Most of us have heard about seafood's greatest claim to fame (the omega-3 fats in oily fish), but seafood actually contains a variety of other impressive nutritional features, too—including important carotenoids and micronutrients. What's more, different types of seafood are particularly noteworthy sources of these nutritional goodies, making variety worth striving for!

Omega-3 Fats

Fish and shellfish are our dominant dietary sources of the long-chain omega-3 fatty acids DHA and EPA (opposed to ALA, the shorter-chain omega-3 fat found in plants). These important fats block multiple inflammation pathways in our cells, making them powerfully anti-inflammatory; they also play important roles in neurological health, immune function, eye health and vision, inflammation, pain signaling, gut health, fetal development, and some aspects of cardiovascular health (like triglyceride levels and blood clotting)!



Across endless studies, deficiencies in DHA and EPA have been linked to dyslexia, violence, depression, anxiety, memory problems, Alzheimer's disease, weight gain, cancer, cardiovascular disease, stroke, eczema, allergies, asthma, inflammatory diseases, arthritis, diabetes, autoimmune diseases, and many others. So, it's easy to see why getting enough of them is important! In fact, omega-3s have been shown to reduce our risk of many chronic diseases and chronic disease risk factors, such as high triglycerides.

Oily seafood like salmon, trout, mackerel, herring, sardines, anchovies, and caviar are some of the best sources of EPA and DHA in the world!

Carotenoids

Many types of seafood contain carotenoids—a class of fat-soluble pigments that impart a red, pink, orange, or yellow coloration. For aquatic life, carotenoids are useful for survival because they help protect against UV radiation, free radicals, reactive oxygen species, and other stressors encountered in the water. But, these compounds also impart important health effects for humans when we eat them!

One of the most common carotenoids in seafood is **astaxanthin**, a reddish pigment with potent antioxidant and anti-inflammatory properties. In fact, its ability to fight free radicals is up to 6000 times higher than another famous antioxidant, vitamin C! A variety of in vitro and in vivo studies have demonstrated astax-

anthin can help boost cardiovascular health, reduce high blood pressure, modulate the immune system, protect against diabetes, exert anti-tumor activities, protect the liver, boost neurological health (including protecting against neurodegenerative conditions like dementia, Parkinson's disease, and Alzheimer's disease), support bone health, improve skin health, enhance performance, support eye health (including protecting against glaucoma and cataracts), and beneficially influence the endocrine system. It's also been shown to improve the gut microbiome composition!



Due to its high concentration in algae and seaweed, astaxanthin is particularly abundant in algae-eating fish and shellfish such as salmon, rainbow trout, Arctic char, krill, shrimp, lobster, crawfish, and some crabs. (Indeed, their astaxanthin content is why all these creatures are similarly colored!)

A derivative of astaxanthin, **adonixanthin**, has also been found in seafood such as salmon and rainbow trout. Although relatively little research exists on it so far, the studies we do have show that adonixanthin may possess anti-tumor effects against glioblastoma, protect against hemorrhagic brain injury (even more so than astaxanthin!), and have beneficial activity in the central nervous system.

Some seafood also contains **canthaxanthin**, a red-orange carotenoid with powerful antioxidant activity—including potentially protecting LDL cholesterol from oxidation (in turn giving it a cardio-protective role). It can also help modulate the immune system, including enhancing the function and proliferation of immune competent cells. Canthaxanthin is found in Pacific salmon, sea trout, and some less common edible fish such as seabream and golden grey mullet.

Although less well-studied for their effects on human health, other antioxidant carotenoids in seafood include **mytiloxanthin** (found in shellfish like mussels and oysters, and possessing nearly as much antioxidant activity as astaxanthin!), **pectenolone** (found in scallops), **tunaxanthin** (found in albacore tuna, as the name might imply, as well as salmon and yellowtail), and **alloxanthin** (found in clams, mussels, catfish, lake shrimp, and lake trout). Although their specific benefits are still being explored, these carotenoids all possess antioxidant activity that would likely make them protective against a number of chronic diseases.

Magnificent Micronutrients

Seafood has a dazzling array of micronutrients, including:

- **VITAMIN A (RETINOL)**, a vitamin is essential for bone growth, tooth remineralization, skin health, vision, reproduction, and immune function. It's found in shrimp, salmon, sardines, and tuna.
- **VITAMIN B7 (BIOTIN)**, a water-soluble B vitamin that plays an important role in energy metabolism (serving as a coenzyme for five carboxylase enzymes), neurotransmitter production,

cellular function, and the function of various organs. A 4 oz serving of sardines contains 92% of the DV for biotin, while clams contain 87% of the DV. Halibut and mackerel are also great sources!

- **CALCIUM**, a major structural component of bones and teeth that also serves as an electrolyte—a type of electricity-conducting mineral needed for regulating nerve impulses, muscle contraction, heartbeat, blood pH, and fluid balance. A 4 oz serving of bone-in sardines contains 34% of the DV for calcium, and crab, scallops, and canned salmon are also great sources.
- **COPPER**, a trace mineral involved in glucose and cholesterol metabolism, gene expression, free radical scavenging, red blood cell production, and the growth, development, and maintenance of various organs (including the heart and brain). Seafood rich in copper includes squid (242% of the DV per 4 oz serving!) and Alaskan king crab (118% of the DV!); sardines and trout contain about a quarter of the DV.
- **IODINE**, a trace mineral that serves as a structural component of thyroid hormones, giving it a major role in thyroid health and function (and subsequently metabolism, reproductive function, growth, and development). Per 4 oz serving, Alaskan king crab contains 162% of the DV for iodine, clams contain 120% of the DV, and mussels contain 80%. Atlantic mackerel, Atlantic herring, and sardines also supply notable iodine.
- **MANGANESE**, a mineral that serves as a cofactor and component of numerous enzymes—giving it roles in carbohydrate metabolism, amino acid synthesis, gluconeogenesis, detoxification, lipid processing, free radical defense, bone and collagen formation, and wound healing. Per 4 oz serving, mussels contain 170% of the DV for manganese, while trout contains 43%!
- **VITAMIN B3 (NIACIN)**, a water-soluble B vitamin that's needed for over 400 enzymes involved in DNA repair, fatty acid synthesis, antioxidant systems, detoxification, hormone synthesis, and macronutrient breakdown. Per 4 oz serving, skipjack tuna contains over 100% of the DV for niacin; halibut contains 47% of the DV for niacin, while sardines contain 38%.
- **SELENIUM**, a trace mineral that helps form over two dozen selenoproteins involved in reproduction, thyroid hormone metabolism, antioxidant defense, DNA synthesis, and immunity. Per 4 oz serving, sardines, Atlantic herring, halibut, squid and mussels all supply nearly 100% or more of the DV for iodine. Clams, crab, salmon, and shrimp are also great sources!
- **VITAMIN B1 (THIAMIN)**, a water-soluble vitamin that serves as a cofactor for a variety of enzymes involved in carbohydrate and amino acid metabolism, RNA and DNA production, and generating energy for the Krebs cycle. Seafood high in thiamin includes mackerel, trout, salmon, and tuna.
- **VITAMIN B12 (COBALAMIN)**, a water-soluble vitamin that serves as a cofactor for enzymes involved in energy metabolism, red blood cell production, DNA synthesis, neurotransmitter production, nervous system health, and folate metabolism. Shellfish are an outstanding source of vitamin B12, with mussels boasting 575% of the DV per 4 oz serving, clams containing 541% of the DV, and Alaskan king crab containing 431% of the DV. Other amazing marine sources of this nutrient include Atlantic herring (655% of the DV) sardines (428% of the DV), Atlantic mackerel

(417% of the DV), and trout (373% of the DV). Halibut, squid, and skipjack tuna also contain notable amounts.

- **VITAMIN D**, a fat-soluble vitamin and steroid hormone that's needed for immune function, gut health, calcium absorption, and skeletal health. Per 4 oz serving, Atlantic mackerel contains 93% of the DV, sardines contain 28% of the DV for vitamin D, and halibut contains 27%.

Health Benefits of Seafood

Given their awesome assortment of omega-3 fats, antioxidants, and micronutrients, it shouldn't come as a surprise that seafood consistently shows up as health-protective against a wide variety of diseases! Here are some highlights.



Cardiovascular Disease

Seafood's reputation as being heart-healthy has enormous backing in the scientific literature! In a [2021 meta-analysis](#) spanning 25 prospective cohort studies and over 2 million participants, cardiovascular disease mortality dropped by 4% with every 20 g increase in daily fish intake. A [2014 meta-analysis](#) additionally found that people in the highest category of fish consumption (four or more times per week) had a 21% lower risk of developing acute coronary syndrome (in which blood flow to the heart suddenly decreases); analyzed another way, every 100 g increase in weekly fish intake was associated with a 5% lower risk.

A [2021 meta-analysis](#) focusing specifically on seafood intake and stroke found that consuming 1000 g of fish per month was associated with a 17.3% drop in stroke risk. Interestingly, another analysis of prospective cohort studies, [this one from 2018](#), found that when fatty fish and lean fish were analyzed separately, both fish types were significantly protective for stroke risk. So, it's more than just the omega-3s in oily fish driving these cardiovascular benefits!

Among people with diabetes, [a 2018 cohort study](#) found that over the course of 18 years of follow-up, people who ate fish at least twice a week had a 70% lower risk of death from stroke and a 31% lower risk of death from cardiovascular disease in general.

Controlled trials have also supported the cardiovascular benefits of fish consumption. A [2017 meta-analysis of 14 intervention studies](#) found that oily fish consumption led to significant improvements in cardiovascular risk factors, including a drop in triglyceride levels (-0.11 mmol/L) and an increase in HDL cholesterol (0.06 mmol/L).

Lastly, a [2023 review of meta-analyses](#) found that per 100 g of daily fish intake, risk of myocardial infarction dropped by 25%, risk of heart failure dropped by 20%, risk of stroke dropped by 14%, risk of coronary heart disease dropped by 12%, risk of atrial fibrillation dropped by 40%, and risk of cardiovascular mortality dropped by 25%. Wow!

Depression and Anxiety



Seafood isn't just a boon for physical health: it's supportive of mental health, too! Specifically, research has linked fish consumption to a lower risk of mood disorders like depression and anxiety.

In a [2018 review of prospective studies](#), encompassing nearly 110,000 participants, every additional weekly serving of fish was associated with an 11% lower risk of depression. A [meta-analysis from 2016](#) likewise found that people with the highest versus lowest fish consumption had a 17% lower risk of depression. And, [a 2017 prospective study](#) in Japan found that people eating at least 111 g of fish per day had a 56% lower risk of depression!

Fish intake appears similarly protective of mental health during pregnancy. Two studies, [one from 2013](#) and [one from 2009](#), found that at 32 weeks gestation, women with no omega-3 intake from seafood had a 53% higher risk of anxiety and a 54% higher risk of depression, compared to women eating over 1.5 of omega-3s from seafood per week.



Cognitive Impairment

Studies suggest a protective role of seafood on cognitive disorders. In a [2016 meta-analysis](#) of 21 cohort studies, every 1 serving per week increment of fish intake was associated with a 5% lower risk of dementia and a 7% lower risk of Alzheimer's disease. A [2021 cohort study](#) likewise found that people in the top two quartiles of fish intake had a 61 – 78% lower risk of developing dementia later in life. And, [a 2023 review of meta-analyses](#) found that per 100 g of daily fish intake, risk of Alzheimer's disease dropped by 39%!



Inflammatory Bowel Disease

A [2020 meta-analysis](#) found that higher fish consumption was associated with a 46% lower risk of ulcerative colitis.



Cancer

Seafood intake has been associated with a decreased risk of many different cancers! So far, the research shows protection against:

- **BRAIN CANCER:** A [2020 meta-analysis](#) of eight observational studies found that higher fresh fish intake was associated with a 28% lower risk of developing glioma.
- **COLORECTAL CANCER:** A [2022 meta-analysis](#), looking at the results of 25 different prospective studies, found that every 50 g increase in daily fish consumption was associated with a 4% reduction in colorectal cancer risk. And, a [2022 analysis](#) looking specifically at canned fish consumption (tuna, mackerel, and sardines) found a significantly protective effect at higher intakes: people eating canned fish 1 – 2 times per week had a 19% lower risk of colorectal cancer, while people eating canned fish at least twice a week had a 34% lower risk! Assessed another way, every 10 g daily increase of canned fish reduced colorectal cancer risk by 20%.
- **ESOPHAGEAL CANCER:** In a [2013 meta-analysis of 34 studies](#), people with the highest versus lowest intake of fish had a 36% lower risk of developing esophageal cancer.
- **LIVER CANCER:** A [2015 meta-analysis](#) of 17 case-control and 3 cohort studies found that people with the highest (versus lowest) fish intake had a 35% lower risk of developing liver cancer!

- **LUNG CANCER:** A [2014 meta-analysis](#) found that people with the highest versus lowest consumption of fish had a 21% lower risk of developing lung cancer.
- **LYMPHOMA:** A [2020 meta-analysis](#) found that people in the highest category of fish consumption had a 20% lower risk of developing non-Hodgkin's lymphoma, compared to people in the lowest category of fish consumption. This translated to a 15% lower risk per every additional three weekly servings of fish!
- **ORAL CANCER:** A [meta-analysis from 2019](#) found that Europeans with the highest versus lowest consumption of fish had a 33% lower risk of oral cancer.
- **OVARIAN CANCER:** Research suggests seafood has a protective effect against ovarian cancer, and may even improve survival among patients who already have the disease. [Two case-control studies](#) found that high fish intake was associated with a 24% lower risk of ovarian cancer, and a [2022 meta-analysis](#) found that ovarian cancer patients with the highest intake of fish had significantly lower mortality—a 26% lower risk.
- **PROSTATE CANCER:** A [2010 meta-analysis](#) of 12 case-control studies found that among patients with prostate cancer, people with the highest fish consumption had a 63% lower risk of cancer-specific death.



Hearing Loss

That's right: the benefits of seafood might extend all the way to our hearing! A [2014 prospective study](#) found that compared to rarely eating fish (less than one serving monthly), consuming fish at least twice per week was associated with a 20% lower risk of hearing loss. When the data was stratified by seafood type, the protective effect remained for all types of fish: canned tuna, light meat fish, dark meat fish, and shellfish (in fact, eating just one serving of shellfish per month was associated with a 14% lower risk of hearing loss!).



Age-Related Macular Degeneration

In [a meta-analysis from 2016](#), looking at data from nearly 129,000 participants across eight cohort studies, higher fish consumption was associated with a 24% lower risk of age-related macular degeneration, with dark-meat fish and tuna fish showing a particularly protective effect (32% lower risk and 42% lower risk, respectively).

A [2023 review of meta-analyses](#) also found that per 100 g of daily fish intake, risk of age-related macular degeneration dropped by 56%.



Total Mortality

A number of studies indicate that regularly eating seafood can reduce risk of death from all causes. A [2023 umbrella review](#) of meta-analyses found that every incremental serving of fish per day was associated with a 7% drop in all-cause mortality risk.

Cooking Method Matters!

Paradoxically, some studies (especially from Europe) have shown a U-shaped curve when it comes to fish consumption, where both low and high intakes are associated with increased risk of cardiovascular disease and all-cause mortality. What's going on here?

Although researchers initially speculated this could be due to increased exposure to some of the toxins that can accumulate in fish (including methylmercury, dioxins, and polychlorinated biphenyls or PCBs), this didn't explain the lack of a U-shaped curve in non-European cohorts (such as from North America or Asia) where fish is equally as likely to contain these toxins. It turned out, the reason may be a simple matter of preparation method! Traditional preparations of fish in many parts of Europe include deep-frying, battering, pickling, or salting—introducing variables such as trans-fatty acids or oxidized frying oils.



What About Mercury?

Amidst the many health benefits of seafood is one well-publicized risk: potential contamination with an organic form of mercury called methylmercury (as well as other toxins, such as PCBs and dioxins). In fact, pregnant women are advised to limit seafood consumption to just two 6-oz servings per week over fears that mercury will cause brain damage to the developing fetus. But, are these concerns based on sound science?

It turns out, there's more to the story than meets the eye! The high micronutrient content of seafood comes to the rescue here—specifically, the trace mineral selenium. Among selenium's many roles is an ability to bind irreversibly with mercury, in turn reducing its absorption and preventing its harmful effects in our bodies. In

fact, the selenium in seafood can help protect us from mercury exposure from other sources beyond the seafood itself!

The only exceptions to this rule are the top-predator fish from contaminated waters, in which the methylmercury accumulation is higher than their selenium content. Mercury levels in these fish can be quite high not only due to absorbing mercury from the water, but also from biomagnification, where mercury accumulates from the organisms that these fish consume. Luckily, the list here is fairly short: fish with potentially unsafe mercury levels are king mackerel, marlin, pilot whale, shark, tarpin, tilefish, and swordfish (although some studies show that swordfish is okay!).

What's more, the majority of commonly eaten seafood is actually quite low in methylmercury to begin with. The vast majority of ocean fish and approximately 97% of fresh water fish are low in mercury and/or contain enough selenium to protect against its effects. Extremely safe seafood varieties include shellfish (including oysters, clams, scallops, mussels, crab, shrimp, and lobster), anchovies, salmon, trout, herring, haddock, pollock (Boston bluefish), sole, flounder, Atlantic mackerel, and lake whitefish.

Ultimately, increasing your dietary intake of selenium is a great way to protect yourself from mercury exposure from food sources or from environmental factors. Along with seafood and seaweed, selenium is abundant in Brazil nuts, mushrooms, onions, sunflower seeds, and meat and poultry (especially the liver!).



Seafood Nutrivore Scores

The average Nutrivore score of seafood is 695!

Anchovies	812
Caviar (sturgeon roe)	1582
Catfish	559
Clams	1046
Cod	475
Crab (Alaskan king)	1211
Crawfish	616
Eel	385
Flounder	749
Grouper	400
Haddock	464
Halibut	523
Herring (Atlantic)	996
Lingcod	418
Lobster	839
Mackerel (Atlantic)	922
Mackerel (King)	1242
Mackerel (Spanish)	770
Mussels	1564
Octopus (Alaska Native)	2322
Orange roughy	392

Oyster, Eastern	3049
Oyster, Pacific	2255
Perch	508
Pike	573
Pollock	675
Salmon (wild Atlantic)	868
Sardines (canned)	654
Sea bass	575
Scallop	645
Shrimp/prawns	535
Smelt	834
Snapper	548
Sole	749
Squid	890
Sturgeon	528
Swordfish	557
Tilapia	409
Trout	710
Tuna (skipjack)	645
Whitefish	663
Yellowtail	210

Some Practical Pointers

Getting the most out of your seafood is a matter of proper selection and storage! Here are some tips for optimizing both.

Selecting seafood at the store:

- If buying whole fish, check for clear, bright eyes, red gills, and intact scales. The fish should have a mild ocean scent—not overpoweringly “fishy”! Avoid fish with sunk-en eyes, dull skin, or a strong ammonia-like smell.
- If buying fish fillets and steaks, they should be moist, translucent, and free of any browning or discoloration. They should have a fresh, mild smell.
- If buying frozen seafood, ensure that the packaging is intact without any signs of freezer burn. The seafood should be solidly frozen and free from ice crystals (which can indicate the package previously thawed and re-froze).



Storage:

Seafood is highly perishable, so it's important to store it at the right temperature and in the right environment!

- The general rule is to keep seafood refrigerated at or below 40°F (4°C), or frozen at or below 0°F (-18°C). If you're not planning to consume it within a couple days, it's best to freeze it.
- If storing seafood in the refrigerator, place it in a clean, sealed container or wrap it tightly in plastic wrap or aluminum foil. This helps prevent any fishy odor from permeating other foods (and also protects your seafood from contamination!).
- If storing seafood in the freezer, wrap it tightly in moisture-proof freezer bags. Alternatively, you can use a vacuum sealer to minimize air exposure (which can cause freezer burn). It can also help to label the packages with the date to keep track of the storage time!



- Fatty fish (like salmon or mackerel) can be stored in the freezer for 2 – 3 months, while lean fish (like cod) can be stored for up to 6 months. Shellfish (like shrimp or scallops) can be stored for 3 – 6 months, and cooked seafood can be stored for 2 – 3 months.
- When ready to use frozen seafood, thaw it properly to maintain its quality and safety. The best method is to thaw it overnight in the refrigerator. Alternatively, you can use the defrost function on your microwave, or place the seafood in a sealed bag and submerge it in cold water. Avoid thawing seafood at room temperature, as it can promote bacterial growth.

Seasonality:

Thanks to the power of freezing and refrigeration, most types of seafood are available year-round. But, if you're going for fresh, specific fish and shellfish have their own peak seasons!

- **AMBERJACK:** January through May
- **BRANZINI:** Year-round
- **CATFISH:** Year-round
- **CHAR:** Year-round
- **COD:** Year-round, with peak season of late winter for Pacific cod and late summer for Atlantic cod
- **FLOUNDER:** October through early spring
- **GROUPE:** February through June
- **HADDOCK:** Fall through winter
- **HALIBUT:** Year-round
- **MAHI MAHI:** Summer
- **MARLIN:** Spring through December
- **SALMON:** Year-round for Atlantic; summer for king, sockeye, Pacific, Keta, and Coho
- **SEABASS (CHILEAN):** Year-round
- **RED SNAPPER:** Winter
- **SOLE:** Year-round
- **WORDFISH:** Summer
- **SKATE:** Winter
- **TILAPIA:** Year-round
- **TROUT:** Year-round
- **TUNA:** Summer
- **CLAMS:** Winter through mid-summer

- **CRAB:** Mid fall through winter or spring for Dungeness, king, and stone crab; winter for snow crab; spring and summer for soft shell crab
- **CRAWFISH:** Winter through early summer
- **LOBSTER:** December through spring
- **MUSSELS:** Early winter through mid summer
- **OYSTERS:** Fall through winter
- **SCALLOPS:** Year-round for sea scallops; November for bay scallops
- **SHRIMP:** Late March through early December
- **SQUID:** Year-round

The Bottom Line

No matter which way you filet it, seafood is swimming in benefits!

Recipes



BREAKFAST

Smoked Kipper Breakfast Hash

PREP TIME

15 minutes

COOK TIME

30 minutes

YIELD

4 servings

1 to 2 tablespoons oil
1 large leek, sliced
2 to 3 cloves garlic, minced
1 pound potatoes, cut into ½-inch or smaller pieces
2 cups mushrooms, sliced
½ cup water
2 3 ½-ounce cans smoked kipper (also called kipper snacks) or 6-8 ounces vacuum sealed smoked kipper*
½ teaspoon salt, plus more to taste
¼ teaspoon pepper
¼ cup chopped fresh herbs (tarragon, parsley, chives)
4 sunny-side-up fried eggs to serve

1. Add oil to a large skillet over medium heat. Add leeks and brown, stirring frequently. Add garlic and potatoes, and continue to cook, stirring frequently, for 5 to 7 minutes until starting to brown but still firm.
2. Add mushrooms, water, and smoked kipper and cook 15 more minutes, stirring frequently, until vegetables are cooked through. If hash starts to stick while cooking, add 1 or 2 tablespoons of additional water to deglaze the pan, and repeat as necessary.
3. Add salt and pepper, to taste.
4. Serve topped with a sunny-side-up fried egg and garnished with fresh herbs, if desired.



TIP: The smoked kipper that comes vacuum sealed (usually found near the smoked salmon in the grocery store) will need to be deboned. For an easier meal, purchase canned smoked kipper instead (located near the other canned seafood), which does not require deboning.



APPETIZERS

Shrimp and Avocado Skewers

PREP TIME

20 minutes + chilling time

COOK TIME

none

YIELD

30 skewers

2 tablespoons oil of choice
2 tablespoons fresh lime juice
1 teaspoon finely grated lime zest
½ cup chopped fresh cilantro
⅛ teaspoon sea salt

Pinch cracked pepper
1 pound large shrimp (about 30 per pound), peeled, deveined and cooked
2 medium avocados, peeled, pitted and cut into 30 large chunks

1. In a small bowl, combine the oil, lime juice, lime zest, cilantro, salt and pepper. Pour over the shrimp and refrigerate. Marinate at least 3 hours and up to overnight.
2. To serve, skewer one shrimp and one chunk of avocado with a toothpick (they hold together better if you skewer one end of the shrimp, then the avocado, then skewer the other end of the shrimp). Repeat with the rest of your shrimp. (You can also add several shrimp and chunks of avocado to a single skewer.)
3. Drizzle a little marinade over the skewers. Serve!



Crab-Stuffed Mushroom Caps

PREP TIME

15 minutes

COOK TIME

15 minutes

YIELD8 to 10 stuffed
mushroom caps

1 tablespoon oil of choice
1 shallot, minced
1 clove garlic, minced
8 ounces white or cremini mushrooms,
ideally 1½- to 2-inch diameter
1 6-ounce can crab meat, drained
2 tablespoons chopped fresh parsley
1 teaspoon lemon zest
¼ teaspoon sea salt
3 tablespoons mayonnaise

1. Preheat oven to 350°F. Line a rimmed baking sheet with parchment paper or a silicone liner.
2. In a small skillet, heat oil over medium-high heat. Add shallot and cook until browned, about 3 to 4 minutes. Add garlic and cook 1 more minute. Remove from heat and let cool.
3. Remove stems from mushrooms. Using a paring knife or melon baller, carefully cut away the gills and scoop out some of the mushroom interior to make a deep well for the crab stuffing. Arrange on prepared baking sheet. (Discard stems and gills or save for another use.)
4. In a small bowl, mix together crab meat, parsley, lemon zest, salt, mayonnaise, and sautéed shallots and garlic. Spoon mixture into mushroom caps, to level with the top of the mushroom or slightly rounded over the top.
5. Bake for 15 minutes, until mushrooms are cooked and stuffing is bubbling. Serve warm.



SOUP AND

SALAD

Shrimp and Fennel Salad

PREP TIME

20-30 minutes

COOK TIMEnone (if using precooked
shrimp)**YIELD**

2 to 3 servings

½ cup chopped fresh cilantro
3 tablespoons lime juice (about 2 limes)
3 tablespoons oil
2 tablespoons fish sauce
1 pound precooked shrimp
½ large fennel bulb, sliced extremely thin, about 3 cups
1 medium mango, peeled and diced
½ cup very finely sliced red onion
1 large avocado, diced

- 1. MAKE DRESSING:** combine the cilantro, lime juice, oil, and fish sauce in a bowl or measuring cup. Set aside.
- 2.** Toss the shrimp, fennel, mango, and onion in a bowl.
- 3.** Drizzle the dressing over the shrimp salad and toss to completely coat.
- 4.** Add the diced avocado and gently toss to incorporate. If you're making this salad ahead of time, keep the avocado separate and add just before serving.

Seafood Leek Chowder

PREP TIME

10 minutes

COOK TIME

35-40 minutes

YIELD

4 to 6 servings

2 tablespoons butter

1 pound leeks, chopped, about 4 cups

1 pound potatoes, cut into ½-inch or smaller pieces

1 cup dry white wine (or extra broth)

4 cups chicken broth or fish stock

1 pound mixed seafood (shrimp, calamari, clams, scallops, lobster, crab, mussels, clams, etc.)

6 ounces salmon, cut into chunks

6 ounces white fish cut into chunks (tilapia, halibut or cod)

¼-½ cup heavy cream

1 teaspoon salt, to taste

1-2 tablespoons fresh parsley, chopped

1. Add butter to a large pot over medium heat. Add leeks and potatoes and cook, stirring frequently for 5 to 7 minutes, until starting to brown but still firm.
2. Add wine to pot and deglaze.
3. Add broth and bring to a boil, then lower heat to keep a rolling simmer.
4. Add seafood and fish to the broth. Cook until seafood is completely cooked and potatoes are fork tender, about 15-20 minutes.
5. Add heavy cream and salt, to taste. Stir to combine.
6. Garnish with fresh parsley and serve.



ENTRÉES

Beer Battered Fish

PREP TIME

10 minutes

COOK TIME

20 minutes

YIELD

3-5 servings

1 ½ pounds white fish filets (such as cod or halibut), cut to the desired shape

Oil, for frying i.e. avocado, canola, sunflower

½ cup flour, grain-free flour alternative, or your favorite flour blend

½ teaspoon sea salt

¼ teaspoon baking soda

⅔ cup beer or gluten free beer (or sparkling water or unflavored kombucha for alcohol free)

1. Pat the fish dry with a paper towel and set aside.
2. Add enough oil to a countertop deep-fryer or a large heavy-bottomed pan so that it will cover the fish filets when frying (about 2 inches of oil for a pan or half full for a deep fryer). Heat the oil to between 350F and 375°F.
3. Combine the flour, salt and baking soda in a bowl. Pour the beer or sparkling water into the bowl and mix for a smooth batter.
4. When the fat reaches temperature, dip the fish into the batter to coat completely.
5. Carefully place the battered fish in the deep fryer; 4- to 5-ounce filets will take 5 to 6 minutes total. Gently flip the filets after 3 to 4 minutes. The batter should be a deep golden brown and the fish should be opaque throughout.
6. Carefully lift the pieces out of the deep-fryer with a fry basket and place them on paper towels or a cooling rack.



TIP: Serve with oven-baked or fried potatoes or cassava for a true Fish N' Chips experience.



Broiled Salmon with Dill-Caper Sauce

PREP TIME

15 minutes

COOK TIME

10 minutes

YIELD

4 servings

½ cup mayonnaise
3 tablespoons chopped fresh dill
2 to 3 tablespoons capers, chopped if they are on the larger side
1 to 2 tablespoons oil
4 6- to 8-ounce salmon filets
½ teaspoon sea salt
¼ teaspoon black pepper
1 ½ teaspoons fresh thyme leaves, about 5-6 sprigs

1. To make the dill-caper sauce, combine the mayonnaise, dill and 2 tablespoons of capers. Taste and add an additional tablespoon of capers, if desired. Store the sauce in the refrigerator until you are ready to serve the salmon.
2. Place a rack high up in the oven so that the surface of the salmon will be 6 to 8 inches from the top element. Turn the broiler to high and let it preheat for about 10 minutes before putting the salmon in the oven. Coat a rimmed baking sheet with the oil.
3. Place the salmon filets skin side down on the oiled baking sheet. Sprinkle it with salt, pepper and thyme.
4. Broil for 8 to 9 minutes, until the segments flake apart easily and the salmon is opaque throughout. Serve with the dill-caper sauce.



Poached Tilapia with Asian Pear Slaw

PREP TIME

20 minutes

COOK TIME

22 minutes

YIELD

3-4 servings

1 pound carrots
2 Asian pears
1 tablespoon fresh lemon juice
½ teaspoon honey
1 teaspoon chopped fresh mint
½ teaspoon sea salt, divided

⅓ cup chopped pitted dates
2 tablespoons chopped fresh parsley
½ cup butter, or more as needed to be ¼
inch deep in the pan
3 or 4 6- to 7-ounce tilapia or other white
fish filets

1. PREPARE THE ASIAN PEAR SLAW:

Grate Asian pears on the coarse side of a box grater, discarding the core. Grate carrots on the same coarse side of the box grater. Place in a large bowl.

2. In a small bowl, whisk together lemon juice, honey, mint and half of the salt.
3. Pour dressing over grated carrot and Asian pear and toss to coat. Add pitted dates and parsley and toss to combine. Place the slaw in the refrigerator until the fish is ready.
4. **TO COOK THE FISH:** heat the butter and the remaining salt in a skillet over medium-low heat until hot and just starting to bubble, but not at a rolling simmer. Add the tilapia to the pan.
5. Cover and cook until the top edges of the fish are opaque, 10 to 12 minutes. Flip each piece of fish and cook for another 8 to 10 minutes, until the fish is fully cooked and opaque throughout.
6. Serve with slaw.



Shrimp Pad Thai

PREP TIME

10 minutes

COOK TIME

10 minutes

YIELD

2-4 servings

2 tablespoons oil of choice
4 cloves garlic, minced
3 tablespoons fish sauce
1 tablespoon soy sauce or coconut aminos
¼ cup lime juice (about 2 limes)
1½ teaspoons rice vinegar or coconut water vinegar

1 12-ounce bag broccoli slaw
2 medium carrots, cut into thin julienne strips
16 to 20 ounces salad shrimp, precooked and tails off
4 to 5 green onions, finely chopped
⅓ cup chopped fresh cilantro
⅓ cup chopped roasted peanuts or cashews, for garnish

1. Heat a large frying pan or wok over medium-high heat. Add the oil and garlic. Cook for 1 minute, until garlic is starting to brown and fragrant.
2. Add the fish sauce, soy sauce, lime juice, vinegar, garlic, broccoli slaw, and carrots. Cook, stirring frequently, until broccoli slaw and carrots are cooked al dente, about 5 to 7 minutes.
3. Add the shrimp and cook an additional 1 to 2 minutes, stirring frequently, just until shrimp are warmed.
4. Add the green onions and cilantro, and cook for 30 more seconds. Remove from heat and serve. Garnish with the peanuts.



Heart of Palm Linguini with Clam Sauce

PREP TIME

10 minutes

COOK TIME

15 minutes

YIELD

2 servings

2 12-ounce packages or 14-ounce cans of heart of palm linguini or spaghetti

1 10-ounce can chopped clams

2 tablespoons oil

½ onion, finely chopped

1 clove garlic, minced

½ teaspoon sea salt

⅛ teaspoon cracked pepper

2 tablespoons fresh chopped parsley

1. Drain heart of palm linguine, rinse thoroughly, and set aside.
2. Drain clams but reserve liquid. Set aside.
3. Heat oil over medium-high heat in a skillet. Add chopped onion and sauté for 4 to 5 minutes, until soft and aromatic. Add garlic and cook for an additional minute.
4. Add chopped clams and clam liquid. Bring to a boil and then reduce heat to maintain a rapid simmer. Simmer until liquid has reduced by more than half (pan should have very little liquid), about 5 minutes.
5. Add salt, pepper and parsley. Add heart of palm linguini and cook, stirring constantly but gently, until linguini has heated through, about 1 to 2 minutes.



Plantain Gremolata-Topped Fish Filets

PREP TIME

15 minutes

COOK TIME

20 minutes

YIELD

4 servings

2 tablespoons oil of choice
¼ cup bread, panko, cracker or
plantain chip crumbs
¼ cup chopped fresh parsley
1 clove garlic, crushed to a coarse
paste
Finely grated zest and juice from 1
lemon

1 tablespoon butter, melted
1 to 1½ pounds medium-firm fish filets
(such as seabass, mahi mahi, halibut,
swordfish), cut into 4 pieces
¼ teaspoon sea salt
⅓ teaspoon ground black pepper

1. Preheat the oven to 425°F. Line a rimmed baking sheet with aluminum foil and spread the oil over the top or use a silicone baking mat.
2. Mix the bread/chip crumbs with parsley, garlic, lemon zest, and melted butter.
3. Place the fish filets on the prepared baking sheet. Drizzle with lemon juice and sprinkle with salt and pepper.
4. Evenly coat the top of the fish filets with the crumb mixture from Step 2.
5. Bake for 15 to 20 minutes until fish is fully cooked.



TIP: You can make your own crumbs by putting crackers, croutons, stale bread, or plantain chips in a plastic resealable bag and then pounding the outside of the bag with a kitchen mallet or rolling pin. You can also pulse in a food processor.



Easy Canned Salmon Fish Cakes

PREP TIME

10 minutes

COOK TIME

20 minutes

YIELD

4-6 servings

2 6-ounce cans salmon or 1 15-ounce can, drained

1 egg

¼ cup mayonnaise

1 teaspoon mustard

1 cup bread, panko, cracker or plantain chip crumbs or ¼ cup (wheat, gluten free, cassava flour, almond flour)

1 clove garlic or 1 teaspoon garlic powder

¼ cup fresh herbs (parsley, dill, chives, etc.), chopped

1 teaspoon salt

½ teaspoon pepper

1. Mix all ingredients in a large bowl with a fork.
2. Form into 6-8 patties.
3. To oven bake: preheat oven to 400°F. Place salmon cakes onto a parchment or silicone lined baking sheet. Bake for 15-20 minutes until slightly golden and cooked through.
4. **TO PAN FRY:** heat a large skillet over medium heat. Add 2 tablespoons of oil. Cook patties in batches until golden brown, about 3-4 minutes per side. Repeat until all patties are cooked.



TIP: You can make your own crumbs by putting crackers, croutons, stale bread, or plantain chips in a plastic resealable bag and then pounding the outside of the bag with a kitchen mallet or rolling pin. You can also pulse in a food processor.

I prefer the texture with bread/cracker crumbs, however flour will work if you do not have bread crumbs on hand or don't want to make them. The salmon cakes will just be a bit more dense.



About the Creators of this Book

Dr. Sarah Ballantyne, PhD

FOUNDER OF NUTRIVORE

Award-winning public speaker, New York Times bestselling author and world-renowned health expert, Dr. Sarah Ballantyne, PhD believes the key to improving public health is scientific literacy. She creates educational resources to help people improve their day-to-day diet and lifestyle choices, empowered and informed by the most current evidenced-based scientific research.



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Charissa Joy has over 15 years of experience working in the wellness space. Charissa has many roles on the team. She is Dr. Sarah's right hand woman and touches every part of Dr. Sarah's businesses. She manages all communications for Nutrivore, both external and internal. She is the project and team manager. She handles all marketing internal and external marketing, as well as all brand/affiliate partnerships.



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On Nutrivore.com she is a researcher, writer, and content creator and is responsible for developing and maintaining the expanded Nutrivore Score database of over 7,500 foods (plus many of the nerdy puns sprinkled throughout the website!).

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