What Are the Various Types of Seafood?

Seafood is any form of sea life regarded as food by humans. Seafood prominently includes fish and shellfish. Shellfish include various species of mollusks, crustaceans, and echinoderms. Here in Alaska, sea mammals such as whales, seals, and walrus are consumed as food. Edible sea plants, such as some seaweeds and microalgae, are being sustainably harvested in Alaska and sold to markets as seafood around the world, especially in Asia.

There are too many to mention here so I tried to stick with just the larger categories we are luck enough to have here in Alaska! Here are a few to try. . .

- Fish are aquatic vertebrates that lack limbs with digits, use gills to breathe, reproduce externally, and have heads protected by hard bone (boney fishes) or cartilage (sharks and rays) skulls.
  - Marine pelagic fish – these fishes live and feed near the surface of the ocean but not on the bottom. Due to their need for powerful swimming muscles, these fishes tend to have red flesh. This group of fishes can be broken down further into two groups:
    - Predator fish – like rockfishes and salmon, feed on the smaller forage fish.
    - Forage fish – like herring and smelt, feed on plankton and become food for the predator fish
  - Marine demersal fish – these fishes live and feed on or near the bottom of the ocean like cod and halibut. They tend to feed mainly on crustaceans they find on the ocean floor and are more sedentary than pelagic fish and therefore have white flesh.
  - Diadromous fish – these fishes migrate between salt water and fresh water and include salmon and eels.
  - Freshwater fish – we aren’t really going to talk about them this week as we’ll stay in the oceans or follow the salmon upstream!
- Mollusks are invertebrates with soft bodies that are not segmented like crustaceans. Bivalves and gastropods are protected by a hard shell that grows as the mollusk grows. Cephalopods are not protected by a shell.
  - Bivalves – these mollusks have a protective shell in two hinged parts. A valve is the name of the shell so bivalve means two shells. Important seafood bivalves in Alaska are oysters, scallops, mussels, cockles, and geoduck clams. Most of these bivalves are filter
feeders that bury themselves in the sediment on the ocean floor to hide from predators. Other bivalves attach themselves to rocks or other hard surfaces. Some, like scallops, can swim.

- **Gastropods** – aquatic gastropods, also known as sea snails, are univalves that have only a single shell. Gastropod literally means *stomach-foot*, because they appear to crawl on their stomachs. Limpets and periwinkles are in this seafood group.

- **Cephalopods** – cephalopods are not protected with a shell. Cephalopod literally means *head-foot*, because they have limbs which appear to issue from their head. They have excellent vision and high intelligence. Cephalopods propel themselves with a water jet and lay down "smoke screens" with ink. Examples are octopus, squid and cuttlefish. They are eaten in many cultures and are common foods in coastal regions of Alaska along the south and east.

- **Crustaceans** (from Latin *crusta*, meaning *crust*) are invertebrates with segmented bodies protected by hard crusts (shells or exoskeletons), usually made of chitin and structured somewhat like a knight's armor. The shells do not grow, and must periodically be shed or molted. Usually two legs or limbs issue from each segment. Most commercial crustaceans are decapods, that is they have ten legs, and have compound eyes set on stalks. Their shell turns pink or red when cooked.
  - **Shrimps and prawns** – these are small, slender, stalk-eyed ten-legged crustaceans with long spiny rostrums. They are widespread, and can be found near the seafloor of most coasts and estuaries, as well as in rivers and lakes. They play important roles in the food chain. There are numerous species, and usually there is a species adapted to any habitat. Any small crustacean which resembles a shrimp tends to be called one.
  - **Crabs** – these are stalk-eyed ten-legged crustaceans, usually walk sideways, and have grasping claws as their front pair of limbs. They have small abdomens, short antennae, and a short carapace that is wide and flat.
  - **Lobsters** – we only have these in fancy grocery stores 😊

- **Krill** – these are like baby shrimps, except they have external gills and more than ten legs (swimming plus feeding and grooming legs). They are found in oceans around the world where they filter feed in huge pelagic swarms. Like shrimp, they are an important part of the marine food chain, converting phytoplankton into a form larger animals can consume. Each year, larger animals eat half the estimated biomass of krill (about 600 million tons).

- **Sea mammals** form a diverse group of 128 species that rely on the ocean for their existence. In Alaska, whales, seals, and walrus are harvested by Alaska Native people for food and cultural connections.

- **Echinoderms** – are headless invertebrates found on the ocean floor in all oceans and at all depths. They are not found in fresh water. They usually have a five-pointed radial symmetry, and move, breathe and perceive with their retractable tube feet. They are covered with a calcareous and spiky skin. The name echinoderm comes from the Greek *ekhinos* meaning *hedgehog*, and *dermatos* meaning *skin*. Echinoderms used for seafood include sea cucumbers, sea urchins, and occasionally starfish.

- **Aquatic plants** – seaweed is a loose term that lacks a formal definition. Generally, the term is applied to the larger forms of algae. Examples of seaweed groups are red, brown, and green algae. Edible seaweeds usually contain high amounts of fiber and contain complete protein.

**Shopper's Tips**
Selecting good seafood includes looking at fresh, frozen, or canned choices:
• **Fresh** – Fish should not look dry or have scales flaking away. Everything should have a wet look to it. The eyes should be clear and the gills should be bright red. The flesh should bounce back when touched. Filets should have an even tone in color and have any dark or dry spots. Fresh shrimp should be shiny with a wet appearance and tight scales. Fresh bivalves should have closed valves or quickly shut them when touched and if not do not cook or buy. Fresh crab should be alive. Generally, if it smells fishy, walk away!

• **Frozen** – Take a close look at the packaging to make sure it’s not torn or tampered in any way. Look out for frost inside the package or ice crystals, spots or discoloration on the fish itself. Liquid inside the package suggests partial thawing, which isn’t good. The fish should be frozen solid when you buy it. Frozen fish will keep for at least six months and up to a year.

• **Canned** – don’t buy a can with any dents as that could introduce bad bacteria. Do not eat anything out of a can that is bulging or misshapen as this is a sign of very bad fish.

**Food Safety to Keep in Mind**
Eating raw or undercooked fish/seafood can cause significant health risks. However following a few guidelines can significantly reduce these risks.

• Keep fresh fish well wrapped or in air-tight containers below 40°F, and always store separate from other ready-to-eat foods.

• The number 1 thing you can do to help reduce risk is to wash your hands with warm water and soap for at least 20 seconds before you handle uncooked fish or shellfish, even prior to harvesting can help reduce the number of bacteria your food is exposed to.

• After working with your raw fish/shellfish be sure to wash all utensils, prep surfaces and your hands to ensure you do not cross contaminate your raw and cooked fish.

• Ensuring your fish reaches the proper internal temperature before eating is critical in reducing food safety risk. All fish and shellfish should reach an internal temperature of 145°F or until the center turns opaque and easily flakes with a fork.

• Be sure to properly cool any leftover cooked portions and eat them within 2-3 days of cooking.

**How Do You Store Seafood?**
Put seafood on ice or in the refrigerator or freezer soon after buying it. If seafood will be used within 2 days after purchase, store it in the refrigerator. Otherwise, wrap it tightly in plastic, foil, or moisture-proof paper and store it in the freezer.

Smoking and canning fish can preserve the fish to keep out of the freezer or refrigerator. Check out great information from the Alaska Cooperative Extension Service about safe smoking and canning methods.

**Reasons to Eat Seafood**
• Seafood is a great source of omega-3 fatty acids that support good health.

• A great source of lean protein. The protein in meat helps in building and repairing body tissues as well as improves muscle activity. Tissues and muscles are made of protein which is why the individuals who are building muscle strength increase their protein intake significantly.

• Seafood has a high level of good cholesterol, or high density lipids (HDL). HDL breaks down the bad cholesterol (LDL) build up in your blood stream.
How Do You Prepare Seafood?
Seafood is prepared in many ways, as steaks, in stews, steamed, grilled, microwaved, marinated, poached, broiled, pan seared, fried, and baked.

Some seafood is cured by smoking, which is the process of flavoring, cooking, or preserving food by exposing it to the smoke from burning or smoldering plant materials, most often wood. In Alaska, alder is the traditional smoking wood. Seafood, especially fish, can also be cured by pickling, preserving in salt or brine (see salted fish and other curing methods).

How Much Do I Need?
According to the American Heart Association, a serving of cooked fish is 3.5 ounces. Three and a half ounces of fish is about the size of a full deck of cards. From that you will gain all the nutritional benefits of eating seafood without consuming too much.

Recommended Daily Amounts

<table>
<thead>
<tr>
<th></th>
<th>Kids, Ages 2-6</th>
<th>Teens and Adults, Ages 13 and up</th>
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</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td>2 ounces twice a week</td>
<td>3.5 ounces twice a week</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td>2 ounces twice a week</td>
<td>3.5 ounces twice a week</td>
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Meat Recipes for Classrooms, Cafeterias, and Home Kitchens

Thai Steam Pouch Fish

Serves 4

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Fish, any kind, white fish or salmon for example</td>
<td>4 fillets</td>
</tr>
<tr>
<td>Garlic cloves, peeled, smashed</td>
<td>8 cloves</td>
</tr>
<tr>
<td>Ginger, peeled, cut into 1-inch chunks</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Limes, sliced</td>
<td>2 each</td>
</tr>
<tr>
<td>Lemongrass,</td>
<td>4 3-inch stalks</td>
</tr>
<tr>
<td>Scallions, chopped</td>
<td>4 each</td>
</tr>
<tr>
<td>Zucchini, sliced thin</td>
<td>1 each</td>
</tr>
<tr>
<td>Mushrooms, sliced</td>
<td>1 cup</td>
</tr>
<tr>
<td>Sweet peppers, sliced thin</td>
<td>½ cup</td>
</tr>
<tr>
<td>Soy sauce, low sodium</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Rice wine vinegar</td>
<td>2 Tablespoons</td>
</tr>
<tr>
<td>Sesame oil</td>
<td>2 Tablespoons</td>
</tr>
<tr>
<td>Fish sauce</td>
<td>1 Tablespoon</td>
</tr>
<tr>
<td>Chili sauce</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Salt</td>
<td>To taste</td>
</tr>
<tr>
<td>Pepper, ground</td>
<td>To taste</td>
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</tbody>
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1. Preheat oven to 375°F.
2. Tear 4 squares of parchment paper for the pouches. Place a fish fillet on each of the parchments. Surround the fish with zucchini, mushrooms and a clove of garlic. Top the filet with ginger, lime slices, scallions and peppers.
3. Combine soy sauce, rice wine vinegar, sesame oil, chili sauce, and salt and pepper. Pour onto fish and vegetables.
4. Fold parchment into pouches*. Bake for 20 minutes. Remove from oven and let set for 2 to 3 minutes before serving.
5. To serve, place fish pocket on a plate, open it up, and enjoy.


### Clam and Tomato Pasta

**Serves 4**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable oil</td>
<td>3 Tablespoons + 2 teaspoons</td>
</tr>
<tr>
<td>Onion, diced</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Garlic, peeled, minced</td>
<td>1 Tablespoon</td>
</tr>
<tr>
<td>Clams, fresh, frozen or canned, drained and juice reserved</td>
<td>12 ounces</td>
</tr>
<tr>
<td>Chopped tomatoes, canned</td>
<td>28 ounces</td>
</tr>
<tr>
<td>Tomato paste</td>
<td>1 Tablespoon</td>
</tr>
<tr>
<td>Spinach or kale, chopped</td>
<td>1 ½ cups</td>
</tr>
<tr>
<td>Basil, fresh or dried, chopped</td>
<td>2 Tablespoons for fresh, 1 Tablespoon for dried</td>
</tr>
<tr>
<td>Salt</td>
<td>To taste</td>
</tr>
<tr>
<td>Pepper, ground</td>
<td>To taste</td>
</tr>
<tr>
<td>Whole wheat pasta</td>
<td>½ pound uncooked pasta</td>
</tr>
<tr>
<td>Parmesan cheese, grated</td>
<td>¼ cup</td>
</tr>
</tbody>
</table>

1. In large saucepan, heat 3 Tablespoons of oil over medium heat on the stovetop. Once oil is hot, add in onions and cook for 5 to 10 minutes, or until onions are translucent and beginning to brown. Add in chopped garlic and clams. Cook for 2-3 minutes. Add in tomato paste, chopped tomatoes, and clam juice. Reduce heat and simmer for 4 to 6 minutes. Add in spinach, basil, salt and pepper. Place a lid on pan and continue to simmer for 15 to 20 minutes.
2. While sauce is simmering, bring a large pot of salted water to a boil over the stove. Once boiling, add in pasta to water. Cook for 8 to 10 minutes or until al dente. Drain pasta. Place pasta in a serving bowl and toss with 2 teaspoons vegetable oil to prevent sticking.
3. To serve, top cooked pasta with sauce and sprinkle parmesan cheese.

### A Slice of Seafood History

- Archaeological examination of a cave in Torremolinos unearthed early tools used to crack open shellfish collected off rocks along the Iberian coast and found fossilised remains of the early meals.
- The discovery is the earliest of its kind in northern Europe and shows that early man were fish eaters in Europe some 100,000 years earlier than previously thought.
The findings suggest that early coastal cavemen supplemented their hunter/gatherer diet of nuts, fruits and meat from animals such as antelopes and rabbits with seafood.

**Just the Facts**

- **Dishwasher salmon recipe:**
  - Wrap a 3 to 4 pound piece of salmon in tin foil. Season with salt, pepper, lemon juice, if desired. Double or triple wrap with the foil. Place the tightly wrapped salmon on the top rack of your dishwasher, close and run the washer on the regular, or normal cycle. That's it!

- Petrale Sole is considered to be the highest quality fish for eating in the Pacific Ocean.
- Always cook fish at a low to moderate temperature to retain the moisture and preserve the tenderness. Never more than 350 degrees.
- If you doubt the freshness of a fish, place it in cold water. If it floats (or swims away) it has recently been caught.
- Thaw frozen fish in milk. The milk draws out the frozen taste and provides a fresh caught flavor.
- If you soak oysters in club soda for about five minutes, they are usually more easily removed from the shells.
- The world’s rarest species of whale is the Spade-Toothed Beaked Whale.
- If you’re going to share fish with your feline friends, it’s best to go with a whitefish such as Cod, Haddock, or Flounder. Too much tuna can deplete the levels of Vitamin E within a cat’s system.
- The fish currently holding the record for the longest time living in an aquarium is Granddad, an Australian Lungfish who has been living in Chicago’s Shedd Aquarium since 1933.
- The Sea Sponge possesses neither a brain nor a central nervous system.
- A typical octopus can swim between 12 and 14 miles per hour. That puts them at a speed nearly double that of the average motorized mobility scooter!
- Comet, a goldfish living in the UK, has been trained by his owner to play basketball, soccer, and even limbo!
- The largest oyster ever caught (on record at least) measured in at 13 inches long and 6 inches wide.
- The Stonefish is the most venomous and dangerous fish in the world.
- Most fish don’t just have tastebuds in their mouths – many species are covered in tastebuds throughout their whole bodies! (We hope they like the taste of salt water)
- The slowest moving species of fish is the Seahorse. The Dwarf Seahorse can take up to a full hour to travel 5 feet.
- One of the most expensive fish in the world is the Golden Tigerfish, which is native to the coast of China. One recently was sold for the equivalent of $75,000 US Dollars.
- The Blobfish is the ugliest fish in the world and is also in great danger of extinction. They probably have more than a little trouble finding dates.
- Crabmeat is one of the healthiest seafoods for human consumption. It is rich in Omega 3 fatty acids, is relatively low in mercury content, and is a great source for Vitamin A and C, as well as several B vitamins.
- The most commonly eaten seafood in the United States is shrimp, with the average American consuming 4lbs of the tasty little critters every year.
- The Colossal Squid is the largest invertebrate species on Earth.