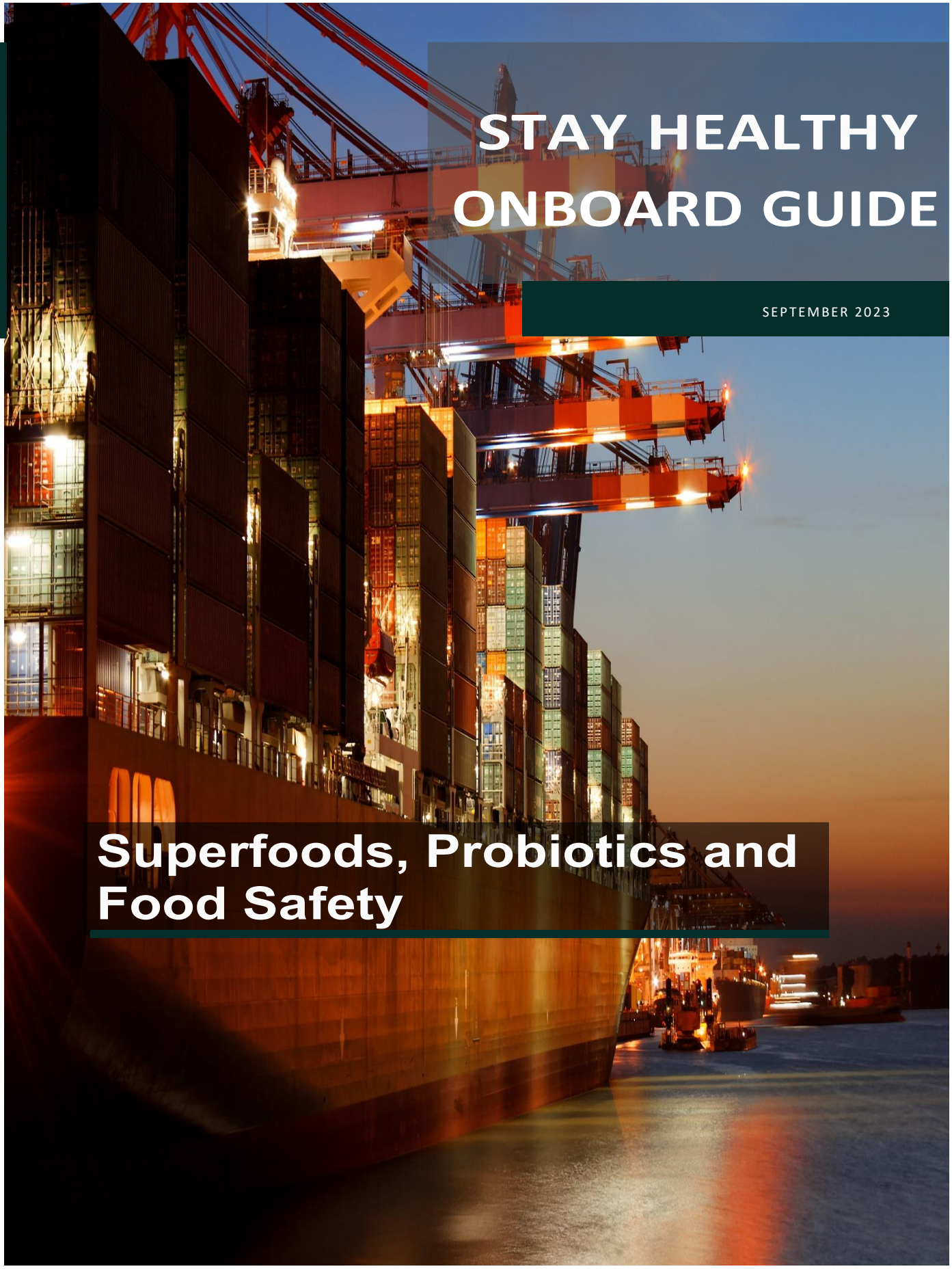


STAY HEALTHY ONBOARD GUIDE

SEPTEMBER 2023

Superfoods, Probiotics and Food Safety

Oceanic

SUPERFOODS

Overview

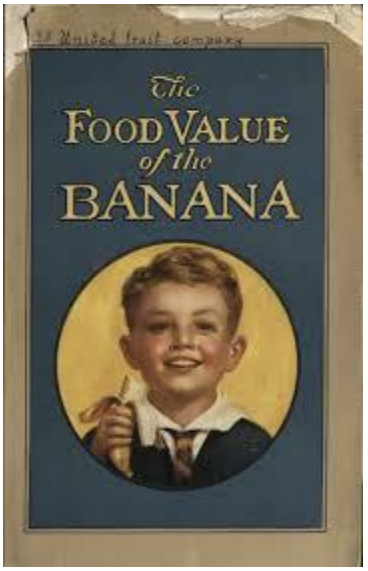
There is not a regulated definition for a superfood.

A superfood is the food that:

- offers high levels of desirable nutrients such as antioxidants or fibre,
- is linked to disease prevention,
- offers multiple health benefits.

Key Facts

- ❖ The first superfood derived from a food marketing strategy, in the 20th century and included bananas. (Harvard)
- ❖ A superfood on its own *cannot provide all essential nutrients, energy, and health benefits* for optimum human health.
- ❖ A 'superfood' is also called a 'power food'.



SUPERFOODS LIST

FOOD ITEMS	PROPERTIES
Fish 	Fish is a great source of protein and omega-3 fatty acids. Omega-3 fatty acids are cardioprotective. Oily fish, such as sardines, herring, and milk fish, can reduce cholesterol and slow the growth of arterial plaque.
Leafy greens 	Spinach, Swiss chard, kale, collard greens, and mustard greens are all included in the dark leafy vegetables. These vegetables are a great source of vitamin A, vitamin C, calcium, fibre, and phytochemicals, which have a positive effect on human health.
Nuts 	Nuts such as hazelnuts, walnuts, almonds, and pecans are a great source of plant-based protein and monounsaturated fats. Monounsaturated fats are healthy fats which if abundant in diet might help with weight loss, and heart disease risk.
Olive oil 	Olive oil is a great source of vitamin E, polyphenols, and monounsaturated fats. The extra virgin oil is the one with the highest antioxidants content that helps with oxidative stress. The oxidative stress is caused by the accumulation of free radicals; free radicals are substances produced by the body as a result of metabolism and other processes.

Whole grains 	Whole grains such as potato with the skin or buckwheat, are high in fibre, B vitamins, minerals, and phytonutrients. These substances have proved to lower cholesterol and protect against heart disease and diabetes.
Yogurt 	Yogurt is high in calcium and protein and contains probiotics. Probiotics are 'good bacteria' that protect the body from harmful ones.
Tomatoes 	Tomatoes contain high amounts of vitamin C. They also contain lycopene, a substance which promotes good oral health, bone health and blood pressure.
Legumes 	Legumes such as kidney, black, red, and garbanzo, soybeans, and peas, are a great source of fibre, folate, and protein. Consuming them may reduce heart disease risk.

A single food cannot offer all necessary nutrients, health benefits and energy for optimum health. Fruits and vegetables, lean proteins, grains, and dairy, are all vital components of a well-balanced diet. Therefore, while superfoods can be a healthy addition to a seafarer's diet, the focus should be on maintaining a balanced and nutritious diet that meets their specific needs and helps them stay healthy and perform their duties effectively while on board.

PROBIOTICS

Overview

Probiotics are live 'good bacteria' that promote several health benefits, found mainly in food sources such as yogurt and other fermented foods.

Their main properties include:

- Helping body to maintain a healthy community of microorganisms,
- Creating substances that have desirable effects,
- Enhancing the immune response of the body.

Positive Health Effects

Several studies have been conducted indicating the beneficial effects of probiotics:

- Constipation
  Studies suggest that probiotics might help with constipation, especially chronic constipation. The intake of probiotics regulates gut microbiota, decreasing constipation.

- Inflammatory Bowel Disease (IBD)
  This disease includes a group of conditions that might cause a flare up in the digestive system, causing symptoms such as abdominal pain, diarrhoea, appetite loss, unpredicted weight loss, and fever. The most common IBD types are ulcerative colitis and Crohn's Disease. Studies suggest that consuming probiotics might help with easing symptoms, and maintaining remission of this condition.

- Irritable Bowel Syndrome (IBS)
  IBS is a gastrointestinal condition, which includes symptoms such as repetitive abdominal pain, diarrhoea, or constipation, or both. Studies indicate that probiotics might help with reducing abdominal pain when having IBS.

Seafarers and Probiotics

Limited studies have been conducted to further dive into the effects of probiotics to seafarers.

- A recent study in 2022, conducted amongst 30 seafarers who undertook a 6-month voyage, indicated that seafarers' gut microbiota significantly altered at the end of their voyage. Therefore, probiotics might help, improving the gut health of seafarers. (Jiang C.-H. et al., 2022)
- A recent study in 2023, indicated that consuming probiotics, helps with maintaining the homeostasis of the gut microbiome, making the gastrointestinal tract working properly while on board. (Lopez-Santamarina A. et al., 2023)

PRODUCTS WITH PROBIOTICS

FOOD ITEMS	PROPERTIES
Yogurt 	Yogurt is one of the greatest sources of probiotics. It is made from fermented milk by lactic acid and bifidobacteria. Consuming yogurt can improve bone, heart, and gastrointestinal health, reduce risk of diabetes, and certain types of cancer, and improve weight management.
Kefir 	Kefir is a fermented milk drink, made by adding kefir grain to cow or goat milk. Consuming kefir can help with bone health, digestive problems, and protects against infections.
Sauerkraut 	Sauerkraut is a cabbage fermented by lactic acid bacteria and is mainly used in the Eastern Europe cuisine. Its taste is sour and salty, and it is added in several dishes from soups to pastas. Sauerkraut can be stored for months in an airtight container. It contains lutein and zeaxanthin antioxidants that play an important role in eye health.
Kimchi 	Kimchi is a popular spicy Korean dish with cabbage. It is made of red chilli pepper flakes, garlic, ginger, scallion, and salt. The bacteria contained are Lactobacillus kimchii and lactic acid. Kimchi is high in vitamin K, vitamin B2, and iron.

Pickles 	Pickles are cucumbers preserved in salt and water. They contain their own lactic acid bacteria; hence, they ferment on their own. Pickles are low in calories and contain vitamin K. Keep in mind that pickles with added vinegar, do not have probiotic effects. **IMPORTANT!** Pickles are high in salt/sodium. People with high blood pressure should consume pickles in moderation.
Buttermilk 	Buttermilk is a fermented dairy drink which can be found in two types: traditional and cultured. Traditional buttermilk is the leftover liquid from butter and contains probiotics. It is famous in India, Nepal, and Pakistan. However, cultured buttermilk usually does not contain probiotics. Generally, buttermilk contains vitamin B12, vitamin B2, calcium, and phosphorus.
Specific Types of Cheese 	Cheddar, mozzarella, gouda, and cottage cheese usually contain high amounts of probiotics. Cheese is a great source of protein, vitamin A, vitamin B12, vitamin D, vitamin K, calcium, iodine, magnesium, potassium, phosphorus, selenium, and zinc. **IMPORTANT!** Cheese contains saturated fat. People with high cholesterol should consume cheese in moderation.

FOOD SAFETY, SUPERFOODS AND PROBIOTICS

Food safety is vital in the prevention of food related problems on board. It requires good working practices in accordance with basic principles of both personal and food hygiene.

Food safety is crucial to ensure that seafarers can enjoy the benefits of superfoods and probiotics without risking their health.

Poor Practices – Food Poisoning

Several improper food practices may lead to food poisoning and are indicated below:

- Undercooking
- Unsafe Temperatures (cooked food, hot food, food kept in the refrigerator/freezer)
- Poor Personal Hygiene
- Cross-contamination (between raw food or raw food with cooked food)
- Inappropriate Defrosting Practices
- Inappropriate Waste Disposal
- Inappropriate Galley Cleaning

Food Items and Foodborne Illnesses

Food items related to foodborne Illnesses are indicated below:

- **Raw Animal Food Items (raw/undercooked meat, poultry, eggs, shellfish)**
  Most raw poultry contain *Campylobacter*. Additionally, they may contain *Salmonella, Clostridium perfringens*, and other bacteria. Raw meat may contain *Salmonella, E. coli, Yersinia*, and other bacteria. Eggs might contain Salmonella, and raw fish might vibrio bacteria.

- **Unpasteurized Dairy Products (milk, cheese)**
  Raw milk may carry harmful gems, such as *Campylobacter, Cryptosporidium, E. Coli*, *Listeria*, and *Salmonella.*

- **Fruits & Vegetables**
  Raw fruits and vegetables may contain Salmonella, *E. Coli*, and *Listeria* due to cross-contamination during transportation or improper handling practices, such as washing.

- **Raw Flour**

  Flour is typically a raw agricultural product where harmful germs can contaminate it while it is still in the field or during other producing stages. Bacteria in the flour are killed only during cooking.

  VERY IMPORTANT! Never taste raw dough or batter!

- **Raw Sprouts**

  The warm, humid conditions needed to grow sprouts, are also ideal for the growth of germs. Eating raw or lightly cooked sprouts such as alfalfa or bean, may lead to food poisoning from *Salmonella, E. Coli,* or *Listeria*.

- **Unpasteurized Fruit Juices or Cider**

  Fruits and vegetables that have not been properly washed prior to juice production, may cause poisoning, similar to the one caused by improper handling of fruits and vegetables.

- **Food Items that get in contact with ill people**

  If a person is ill with vomiting or diarrhoea or was recently ill, and comes into contact with a food item, then the food may be contaminated. If the contaminated food item is not properly cleaned or subsequently cooked when preparing a salad, then the food is considered contaminated.

Proper Food Storage Practices

Below proper storage practices should be followed to avoid food contamination:

- Food items should be stored immediately after delivery.
- Food should be stored on thoroughly clean and dry stocking shelves, not in contact with walls and floors.
- Storage temperatures for perishable fresh food items, should be below 5^0C.
- Proper food handling and sufficient ventilation in storage rooms will minimize food spoilage.
- Use well-ventilated storage containers for fruits and vegetables, and separate storage containers for fruits and vegetables if possible.
- Use food grade labels if available to specify food item name, date marking, storage instructions, and use instructions. This will ensure that food items are consumed in a safe and timely manner.
- Keep perishable food items, such as eggs, away from the storage areas doors, where temperatures fluctuate upon entry.
- Use always clean and dry containers for storage.
- Do not place any cart boxes inside the walk-in fridge and do not carry them to the galley.
- The inspection of vegetable fridge and other perishable fresh food items is required on a daily basis.
- Use FIFO method for slow-moving items; first in, first out.

Refrigerator & Freezer Storage Chart

Below chart indicates the safe limits that will help keep refrigerated food 40°F (4°C) from spoiling or becoming dangerous.

- Follow handling recommendations on the product.
- Keep meat and poultry in its package until just before using.
- If freezing meat and poultry in its original package longer than 2 months, overwrap these packages with airtight heavy-duty foil, plastic wrap, or freezer paper, or place the package inside a plastic bag.

Reference: United States Food and Drug Administration

PRODUCT	REFRIGERATOR	FREEZER
Eggs		
Fresh, in shell	3 - 5 weeks	Don't freeze
Raw yolks, whites	2 - 4 days	1 year
Hard cooked	1 week	Don't freeze
Liquid pasteurized eggs or egg substitutes,		
opened	3 days	Don't freeze
unopened	10 days	1 year
Deli & Vacuum-Packed Products		
Store-prepared (or homemade) egg, chicken, tuna, ham, macaroni salads	3 - 5 days	Don't freeze
Pre-stuffed pork & lamb chops, chicken breasts stuffed w/dressing	1 day	Don't freeze
Store-cooked convenience meals	3 - 4 days	Don't freeze
Raw Hamburger, Ground & Stew Meat		
Hamburger & stew meats	1 - 2 days	3 - 4 months
Ground turkey, veal, pork, lamb	1 - 2 days	3 - 4 months
Ham, Corned Beef		
Corned beef in pouch with pickling juices	5 - 7 days	Drained, 1 month
Ham, canned, labeled "Keep Refrigerated,"		
unopened	6 - 9 months	Don't freeze
opened	3 - 5 days	1 - 2 months
Ham, fully cooked, whole	7 days	1 - 2 months
Ham, fully cooked, half	3 - 5 days	1 - 2 months
Ham, fully cooked, slices	3 - 4 days	1 - 2 months
Soups & Stews		
Vegetable or meat-added & mixtures of them	3 - 4 days	2 - 3 months

PRODUCT	REFRIGERATOR	FREEZER
Hot Dogs & Lunch Meats (in freezer wrap)		
Hot dogs,		
opened package	1 week	1 - 2 months
unopened package	2 weeks	1 - 2 months
Lunch meats,		
opened package	3 - 5 days	1 - 2 months
unopened package	2 weeks	1 - 2 months
Bacon & Sausage		
Bacon	7 days	1 month
Sausage, raw from pork, beef, chicken or turkey	1 - 2 days	1 - 2 months
Smoked breakfast links, patties	7 days	1 - 2 months
Fresh Meat (Beef, Veal, Lamb, & Pork) *		
Steaks	3 - 5 days	6 - 12 months
Chops	3 - 5 days	4 - 6 months
Roasts	3 - 5 days	4 - 12 months
Variety meats (tongue, kidneys, liver, heart, chitterlings)	1 - 2 days	3 - 4 months
Meat Leftovers		
Cooked meat & meat dishes	3 - 4 days	2 - 3 months
Gravy & meat broth	1 - 2 days	2 - 3 months
Fresh Poultry*		
Chicken or turkey, whole	1 - 2 days	1 year
Chicken or turkey, parts	1 - 2 days	9 months
Giblets	1 - 2 days	3 - 4 months
Cooked Poultry, Leftover		
Fried chicken	3 - 4 days	4 months
Cooked poultry dishes	3 - 4 days	4 - 6 months
Pieces, plain	3 - 4 days	4 months
Pieces covered with broth, gravy	3 - 4 days	6 months
Chicken nuggets, patties	3 - 4 days	1 - 3 months
Fish & Shellfish*		
Lean fish	1 - 2 days	6 - 8 months
Fatty fish	1 - 2 days	2 - 3 months
Cooked fish	3 - 4 days	4 - 6 months
Smoked fish	14 days	2 months
Fresh shrimp, scallops, crawfish, squid	1 - 2 days	3 - 6 months
Canned seafood	**after opening**	**out of can**
(Pantry, 5 years)	3 - 4 days	2 months

Probiotic-rich Recipe

Kimchi

Ingredients (10 servings):

1 large Napa cabbage

1 cup Korean coarse sea salt for kimchi or sea salt

5 cups water

500g white radish

¼ Korean pear (optional)

3-4 scallions

1 pc dashima

Seasonings:

1 tbsp glutinous rice powder

½ cup gochugaru (Korean red chili pepper flakes) or adjusted to your taste

¼ cup salted shrimp finely minced (saeujeot)

3 tbsp fish sauce

3 tbsp minced garlic

1 tsp grated ginger

1 tsp sesame seeds (optional)

½ cup water

Method:

1. Boil dashima into 1 ½ cups of water for approximately 5 minutes.
2. Mix the glutinous rice powder with ½ cup water simmer over low heat until it thickens to a paste and cool. This will yield about 3 to 4 tbsp.
3. Cut the thick white part of the cabbage lengthwise in half. Then, slowly pull apart by hand to separate it into 2 pcs. Do the same for each half to make quarters; running the knife through all the way would cut off the cabbage leaves.
4. In a large bowl, dissolve ½ cup of salt in 5 cups of water. Thoroughly, bathe each cabbage quarter in the salt water, one at a time, shake off the excess water back onto the bowl, and transfer the cabbage to another bowl.
5. Using the other half cup of salt and starting from the outermost leaf, generously sprinkle over the thick white part of each half (like salting a piece of meat). Try to salt all the cabbage quarter

with ½ cup of salt; more salt could be added if needed. Repeat with the test of the cabbage quarters. Pour the remaining salt water over the cabbage. Set aside for 6–8 hours, rotating the bottom ones to the top every 2–3 hours.

6. The cabbages should be ready to be washed when the white parts of the leaves are easily bendable. Rinse thoroughly 3 times, especially between the white parts. Drain well and cut side down.
7. Boil a small piece (2–3 in) in 1 ½ cup of water for 5 minutes, and cool. Mix the rice powder with ½ cup of water and simmer over low heat, stirring occasionally, until it thickens to a thin paste, and cool.
8. Prepare the garlic, ginger and saeujeot. Combine all the seasoning ingredients, including the rice paste and about ½ cup water, and mix well. Set aside until the red pepper flakes dissolve and become pasty.
9. Cut the radish and optional pear into matchsticks (use a mandoline if desired) and place them in a large bowl. Cut the scallions diagonally, about 1-inch-long pieces. Add the prepared seasoning mix in the bowl with the radish and mix well. Add the scallions and mix everything. Taste a little bit of the mixture; it should be a little too salty to eat. You can add salt, more salted shrimp, or fish sauce, as needed. Let it sit for about 30 minutes to allow the flavours to mix nicely.
10. Cut off the tough stem part from each cabbage quarter, leaving enough to hold the leaves together. Place one cabbage quarter in the bowl with the radish mix. Spread the radish mix over each leaf, 1–2 tablespoons for large leaves. (Eyeball the stuffing into 4 parts and use one part for each cabbage quarter.)
11. Fold the leaf part of the cabbage over toward the stem and nicely wrap it with the outermost leaf. Place it, cut side up, in a jar or airtight container. Repeat this with the remaining cabbages. Once all the cabbages are in the jar or airtight container, press down hard enough to remove air pockets. Rinse the bowl that contained the radish mix with ½ cup of water (or any remaining) and pour over the kimchi.
12. Leave it out at room temperature for 1–2 days, depending on the weather and how fast you want your kimchi to ripen; a half day is recommended during hot summer days. Then, store in the fridge.

Note: Minimum internal cooking temperature for poultry: 165°F (74°C) for 15 seconds.

If a certain food item is not available onboard your good vessel, you might order.

Oceanic's Suggestions:

- ✓ Ensure proper hygiene and food safety practices are followed on board!
- ✓ Follow a healthy and well-balanced diet to ensure optimum health and energy levels!
- ✓ Remember that a single food item, even if it is a superfood, cannot provide you with all essential nutrients!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