BACHELOR OF SCIENCE (MARINE SCIENCE) 2020





MUHAMMAD AIMAN AKIF BIN ROSLAN MOHAMAD AMIRUL HIDAYAT BIN ABDURAHMAN ANIS ATASHA BINTI ALIAS NURUL HASNAH BINTI YEOP NONA NUR SOLEHAH BT MD SAFAR NUR FATIN ADRIANA BT NOR HUSAINI

Faculty of Science and Marine Environment INSTITUTE OF OCEANOGRAPHY AND ENVIRONMENT



Co-funded by the **Erasmus+ Programme** of the European Union

*The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein

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INTRODUCTION

Seafood is any type of marine life regarded by humans as food that live in the sea that can be eaten, including fish and shellfish in particular. Shellfish include molluscs, crustaceans and echinoderms of different species such as crab, shrimps and others. This food is very tasty to eat and loved by many people. Although it tastes good, it will cause poisoning if taken in excess. If taken in excess, it can cause poisoning as it is vulnerable to contaminants from waste such as industrial and municipal landfills, agricultural activities, and the flow of stormwater can all bring toxic substances into the water. Rain is also capable of washing contaminants into rivers, streams, lakes, and Puget Sound from land or air. Contaminants including PCB, PBDE, dioxin and so on are consumed by fish. Water naturally converted into methylmercury by bacteria and ingested by aquatic organisms would be absorbed by the soil and borne by waste that is poorly disposed of. As it becomes a food chain via the bioaccumulation process, mercury never lost.



TYPES OF COMMON SEAFOOD



and minerals

Fish Low-fat high quality protein filled with omega-3 fatty acids and vitamin.



High in protein, minerals and low in calories



THE IMPORTANCES OF FOOD HYGIENE



There are many importance of food hygiene for our health. One of them is to prevent food poisoning which can lead to vomiting or diarrhea and dehydration. It also can cause even more serious health problems such as kidney failure and death.

Next, it also important to prevent germs from multiplying in foods and reaching dangerous levels. This is because this risk is important for those in the high-risk category especially for babies, children, pregnant moms and others. we cannot see, taste or smell bacteria and did not know when the bacteria will multiply and grow. If we take care of the seafood hygiene, this will ensures safe family daily life. Keeping one safe and avoiding the extra expense of consuming medications and medical check-ups. This is particularly important in terms of industry.

If food or drink is not safe to eat, you cannot eat or drink. We would never drink water that did not come from a reputable source. The very same principle applies to food . Follow the food hygiene will keep our health more healthy and preventing the additional cost of buying medication and medical check-ups.

RISK OF EATING CONTAMINATED SEAFOOD

Contaminated substances in the body can cause health issues. It will take a woman 5 years or more to give birth to her PCB boy, and 6-12 months to substantially reduce her levels of mercury. For the developing foetus and young child, mercury associated health issues are most serious. Babies born to mothers with a lot of mercury in their bodies can grow more slowly and have learning difficulties. Infants and children are thought to be more vulnerable to the effects of mercury because their nervous systems continue to develop until puberty. Mercury in adults can lead to central nervous system issues and potential adverse effects on the cardiovascular system.



WAYS TO PREVENT SEAFOOD CONTAMINATION

1) SELECTING

Selection process is the first main thing that we must take care of in order to ensure that the seafoods are healthy to be eaten. Second, we have to buy seafoods from reliable suppliers. Examples include the business, the mega market and the market for seafood. We will ensure that the seafood is new to eat by going to those locations. Second, in order to make sure the meat is shiny and solid, we must inspect the seafood. When we buy fishes, make sure that the eyes are clear and fresh. The gills also must be red in colour to prove that the fishes are fresh. Plus, make sure that the odor is mild and fresh, which ensures that the odor is not necessarily fishy. Third, for example, for shrimp, crabs and smoked fish, do not buy unwrapped, cooked seafood. This is because if it is seen as raw fish, cross-contamination can happen. Finally, we must verify that the box is refrigerated in ice or we'll sealed. Please make sure that the temperature is 40 ° F or below.



WAYS TO PREVENT SEAFOOD CONTAMINATION

2) HANDLING



3) PREPARING SEAFOOD

It is easy to prepare seafood quickly and easy to cook. The easiest way to say whether a fish is finished is to test it with a fork. At the thickest point, insert the fork at an angle and twist gently. When it's finished, the fish can flake quickly and will lose its raw look. It can also cook the fish at an internal temperature of between 140 ° F and 145 ° F.

Next, handling process is one of the way to prevent our seafoods from any contaminations that may occur. We need to handle seafood with the right way by storing the seafood either the fresh seafood or frozen seafood in a cold and suitable place. We need to store the seafood immediately at 0° F or below before it is ready for use if we buy the frozen seafood. But if we're going to be able to store fresh seafood, we need to refrigerate the seafood right after purchasing it. It is very important to store the seafood at or below 40° F. In addition, within two days after purchase, the fresh seafood must be wrapped or stored it in a freezer. Plus, we must store the frozen seafood such as oyster, crabs, mussels, lobsters, clamps and catfish in well ventilated containers and cover them with a paper towel or damp cloth.

There are many ways, depending on imagination to make seafood dishes delicious. Some ingredients can be added to dishes to improve the delicate taste of seafood and do not have to be cooked for a long time to retain its freshness.



The crab is well cooked



The prawn is prepared well

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SEAFOOD CONTAMINATION

1) SEAFOOD TOXIN

In certain of seafood, toxin can occur naturally and not eliminated by cooking. Toxin from shellfish produced during algae bloom. Gastrointestinal or neurological disorders may be caused by them. Finfish toxin can occur naturally from improper handling. In some tropical reef fish, ciguatoxin occur. It causes gastrointestinal, neurological and respiratory problems.

2) PATHOGEN

There are many different pathogen forms associated with seafood have been described. It can occur in water or by incorrect handling method. Diagram below shows the example of pathogen.



Source, foodsafetynews.com





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source; infectious disease advisor.com
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Diagrams shows example of pathogens that causes seafood damage.

Source; rapidmicrobiology.com

3)ALLERGEN

In some individual, seafood can cause an allergic reaction. Current laws mandate that all food containing some of the major food allergens properly labelled. So that they can be avoided by people with an allergy to particular food. Certain people will only allergic to a species fish or shellfish and all forms of seafood can be consumed safety. The diagram below show the symptoms allergy.



QUALITY AND FRESHNESS

All people loves fresh seafood. But some people do not know that the "freshness" of seafood is often misunderstood by catching and freezing methods. Frozen seafood does not mean it is not fresh but frozen seafood is to trap its freshness. So seafood needs to be frozen to maintain its freshness. Seafood quality is identified through several important factors such as handling and storage temperature. For example, fresh Halibut. It has a shelf life more than 18 cold days on ice, but its lifespan becomes shorter if the handling is incorrect.

FACTORS THAT DETERMINE SEAFOOD QUALITY AND FRESHNESS

HANDLING

severe handling will cause damage and bacterial infection to seafood. TEMPERATURE Keeping seafood at cold and consistent temperatures will maintain the quality of seafood.

OIL CONTENT

Low oil content will increase the shelf life of seafood.

SPECIES

Seafood that taken in warm tropical seas will spoil faster than those taken in cold waters

Frozen Species Shelf Life

	PACIFIC HALIBUT		18 DAYS
	KETA CHUM SALMON	13 DAYS	
	SOCKEYE SALMON	12 DAYS	
-	PACIFIC COD	12 DAYS	
	COHO SALMON	10 DAYS	
- NO	CHINOOK SALMON	10 DAYS	
	SABLEFISH	10 DAYS	
NO	PINK 6 DAYS		

Source: J. P.Doyle. Seafood self life as a function of temperature.

The diagram above shows the comparison shelf life of various species chilled on ice at 0 degrees Celsius. Shelf life can be prolonged by pull down the storage temperature. Frozen seafood does not mean it is not fresh but frozen seafood is to trap its freshness. Indeed, immediately after the freezing of a fish, locks are trapped in its freshness. There's no time to start spoiling a fish that's frozen a few hours after being caught.

CONCLUSION

In conclusion, seafood is very beneficial for human especially in economy and other aspects. People must know how to select fresh seafood and how to prepare it well because this little thing might affect the goodness of seafood such as the superior sources of various nutrients like nutrients, amino acids, vitamin, and minerals. Hence, it is important for us to make sure and maintain the freshness and cleanliness of the seafood in order to have such a healthy body and lifestyle.

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Bachelor of Science (Marine Science) Year 2020

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SPECIAL THANKS TO -UNIVERSITI MALAYSIA TERENGGANU

-INSTITUTE OF OCEANOGRAPHY AND ENVIRONMENT (INOS)

-FACULTY OF SCIENCE AND MARINE ENVIRONMENT (FSSM)

-MARE (MARINE COASTAL AND DELTA SUSTAINABILITY FOR SOUTHEAST ASIA) -EUROPEAN UNION ERASMUS+ MARINE COASTAL AND DELTA SUSTAINABILITY FOR MALAYSIA

THE PROJECT BY FIRST YEAR STUDENT BACHELOR OF SCIENCE (MARINE SCIENCE) YEAR 2020 COURSE FUNDAMENTAL OF MARINE SCIENCE (MMS3009)

NUR FATIN ADRIANA BT NOR HUSAINI • HEALTHY SEAFOOD, HEALTHY LIFE



NONA NUR SOLEHAH BT MD SAFAR THE ONLY DELICIOUS SEAFOOD IS WHEN IT PREPARES WITH LOVE

MUHAMMAD AIMAN AKIF BIN ROSLAN
• NO SEAFOOD, NO LIFE

ANIS ATASHA BINTI ALIAS

KEEP OUR OCEAN CLEAN

 NURUL HASNAH BINTI YEOP
 PROTECT THE OCEAN AS WE PROTECT OURSELVES

 MOHAMAD AMIRUL HIDAYAT BIN ABDURAHMAN
 OCEAN IS LIKE OUR LIFE, GOOD OR BAD, IT DEPENDS ON OUR ACTS