

1. Hygiene requirements in restaurants: website. URL: <https://cpdonline.co.uk/knowledge-base/food-hygiene/food-hygiene-requirements-in-restaurants/> (Last accessed: 12.11.2020).

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## CONSEQUENCES OF ENVIRONMENTAL DISASTER IN KAMCHATKA

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There are many environmental problems in the modern world and the most global of them is happening now in Kamchatka. The Far Eastern piece of paradise on earth, the land of active volcanoes, bears and red fish, which managed to preserve the beauty of prehistoric nature on its territory, the abode of all kinds of flora and fauna listed in the World Red Book - the Kamchatka Peninsula is now experiencing the biggest environmental disaster associated with large-scale pollution water by an unknown chemical, which in the shortest possible time caused the death of almost 95% of the marine inhabitants of the coastal part of the Pacific Ocean near the Khalaktyr Beach.

Disaster struck started on September 9, when the workers and visitors of the surf club, located on the beach of the ocean, felt badly. The symptoms of poisoning and burned eyes were felt by everyone, who had entered the water. [1] Surfers noted that the water turned yellow, tasted bitter and its structure felt and looked like jelly. Then terrible news came from the scuba divers who were sinking under the water in the bay nearby - the whole reef was dead. The scale of the disaster became clear to everyone after the storm, when the dead bodies of thousands of sea inhabitants, from starfish and hedgehogs to Dorfer's octopuses, covered the coast. [2] The official reasons of what had really happened are still unknown, but the main assumption is that chemicals have leaked from a military proving ground, located not far from the place of environmental disaster. In the seawater and river samples as well as biomaterials (shellfish, crabs) the components of oil fractions and fatty acids were found. Moreover, the presence of various metals, including compounds of mercury, boron, vanadium, selenium had been identified in the samples as well. Experts from the international independent organization Greenpeace inferred that this incident may have global consequences, because everything in nature is interconnected. Some species of animals are associated with other food chains and if something happens to one link, the whole chain suffers. Nowadays, much attention is drawn to sea otters and anthurs - these are rare species of marine predatory mammals that are listed in the Red Book. They feed on the inhabitants of the ocean and in this situation are forced to starve or eat the poisoned bodies, which, in its turn, will negatively affect their existence in the future. [3] Speaking about humanity it should be noted that we are part of the food chain too and a huge percentage of red fish we buy in the stores is caught exactly in the places, where the above disaster happened. Mercury, for example, poses a threat to fetal development and early childhood development. Fetal exposure to mercury in the course of its development may result to pathological diseases if mother consumes fish or shellfish, even in small quantities. The child may have impaired cognitive thinking, memory, attention, speech, as well as fine motor skills and visual-motor coordination. Inflammation of the skin and mucous membranes of the eyes, being observed in the victims, is the sign confirming the effects of vanadium.

It should be concluded, that insufficient information coverage, hiding the real causes and dimensions of this ecological catastrophe leads to the question - how may the disaster happened in September by the coast of one of the main world fishing centers of the Kamchatka Peninsula affect humanity and the environment in the future? Only time might give us the answer to this question.

## References

1. Massive marine die-off: website. URL: <https://www.nationalgeographic.com/animals/2020/10/algae-bloom-kills-marine-life-kamchatka-peninsula/> (Last Accessed 31.10.2020)
2. Russian Greenpeace received the first test results: website. URL: <https://greenpeace.ru/news/2020/10/14/rossijskij-greenpeace-poluchil-pervye-rezultaty-prob/> (Last Accessed 29.10.2020)
3. Consequences of the death of animals in Kamchatka: website. URL:<https://greenpeace.ru/blogs/2020/10/20/posledstviya-gibeli-zhivotnyh-na-kamchatke/> (Last Accessed 1.11.2020)

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## EDIBLE INSECTS AS FOOD OF THE FUTURE

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Eating insects is a common practice in many parts of our planet. According to the UN Food and Agriculture Organization data, insects are one of the staple foods for 2 billion people around the world (namely in 36 African, 29 Asian and 23 countries in the Americas).

Since 2016-2017 ten times more researches on edible insects has been done and more scientific publications were made than in the previous 10 years. In the course of studying edible insects, experts came to the conclusion that the amount of nutrients they content are equal to those from common farm animals but their most significant advantage is environmental stability. Scientists believe that this factor will play a key role in the development of insects as “superfood of the future” [1].

Edible insects can be interesting in terms of nutritional content of minerals such as iron, zinc, potassium, sodium, calcium, phosphorus, magnesium, manganese and copper. For example, the large caterpillar of the moth *Gonimbrasia belina* called mopani or mopane has a high iron content (31–77 mg per 100 g of dry matter) and so does the grasshopper *L. migratoria* (8–20 mg per 100 g of dry matter). Caterpillars of mopane could be a good source of zinc (14 mg per 100 g of dry matter) together with palm weevil larvae *Rhynchophorus phoenicis* (26.5 mg per 100 g of dry matter). On the other hand, the heavy metal content of an edible grasshopper *Oxya chinensis formosana* determined by Hyun et al. was low and safe for human consumption [3, p.22].

Until recently, beetles and caterpillars were the most popular edible insects, but crickets have the greatest potential in the global market. If you try, you can find bread or beetle noodles in some European grocery stores, but protein bars made from cricket flour are becoming quite common in the European and North American markets. For some reason, crickets look more appetizing in the eyes of Western culture, although other insects, such as the flour beetle, contain the same amount of native protein.

In the past, the only Westerners who dared to try insects were curious tourists, but nowadays food made from edible insects has become so popular that there is a real opportunity of opening an international trade. For example, the batch of limited-edition Crunchy Cricket Loaves has been whipped up in The Exploratory - Roberts' concept kitchen. Each loaf contains around 336 crickets, which are dried, ground, mixed with wheat flour and grains and then baked, resulting in a crunchy finish, according to the firm. Roberts' Crunchy Cricket Loaf contains more protein than standard bread and is also a much more environmentally-friendly and sustainable source of it, claimed by the company [2].

Food experts believe insects can also actually help to significantly reduce body fat, due to being packed with good fatty acids, calcium, iron, vitamin B12 and vitamin C. They're also low in saturated fat [2].