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## TIME BOMB AT THE SEABED

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The survey of the sea disposal grounds of hazardous wastes has finally gone under way in Russia

*Ilya Stulov, Kaliningrad*

### Темы дня:

- African has found a niche in livestock farming in Belarus
- Project 627A submarines, like K-159s, have been dismantled at Gremlikha

Several marine expeditions are working these days in different parts of Russia. They share the same objectives: access a scale and establish exact coordinates of the seabed disposal grounds where chemical ammo and radioactive wastes were buried. There're dozens of such places scattered in the seas washing the shores of this country. Experts believe

that a massive release of poisonous materials in the sea areas used for fishing may happen at any moment.

### As you sow

Apart from other trophies, the Allies captured 270,000 tons of chemical weapons of the Third Reich when the WWII was over. In compliance with a secret agreement they dumped the dangerous cargo in the Baltic Sea. One can't call that decision irresponsible since no cheaper methods of disposing of the deadly burden have been invented so far. The captured German ships and decommissioned U.S. Navy vessels loaded with shells containing yperite, lewisite, tabun, clarke and sarine were to have had eternal peace under the waters of the North Atlantic, and in the Bornholm and Gotland trenches in the Baltic.

"Life itself made adjustments to those plans," said Doctor of Physicomathematical Sciences Vadim Paka, Director of Atlantic Division of the Institute of Oceanology named after P.P.Shirshov under the Russian Academy of Sciences, in an interview to *Izvestia*. "Around 230,000 tons of toxic substances were under control of the U.S. and U.K. While carrying the deadly cargo to the Atlantis, a convoy got caught in a fierce storm in Scagerrak. As a result, orders were issued by the Navy Command to sink the vessels in Scagerrak to avert the threat of contamination of Sweden's shoreline.

The Soviets changed their part of the plan too. They apparently wanted to keep as many captured ships as they could so they decided to dump shells overboard in bulk. It was a breach of commitments.

"The operation was carried out under the supervision of the famous admiral Vladimir Tributs," says the scientist. "It wasn't the best operation he was in charge of, as far as I'm concerned. Labor camps inmates and POWs were used for doing the job. Small wonder that they began throwing the shells into the sea within striking distance from the shore.

### The war echoes

The bodies of the shells stuffed with poisonous substances are disintegrating due to the effect of seawater and time. Man-made death is leaking into the sea out of the worm holes caused by corrosion. Some chemicals, like phosgene or tabun, become harmless on contact with water in no time, but the decay period of yperite lasts a few decades.

"We found a piece of soft material, resembling the modeling clay, in one of the sea floor samples in 1997," recalls Vadim Paka. "We put the stuff in a dryer and immediately felt

a pungent smell of mustard. Could be no doubts about the find – it was yperite. We donned the gas masks and sealed a briquette. We sent it to the lab for further examination. We were right in our initial guess.

There've been hundreds of incidents involving dangerous finds at the bottom of the Baltic. The remaining parts of the shells and chemical weapons containers often come with the fishing net. The director of the Atlantic Division of the Oceanology Institute expresses another concern: "Apart from the threat of catching a lethal dose of poisoning for fishermen (a few cases already on record), fishing in the vicinity of the above locations contributes to the widening of the burial ground limits. Shells are scattered around the seabed by the fishing trawls. As time goes by, the Bornholm burial ground coordinates on the chart look more and more like an octopus, with its tentacles stretching for many miles in all directions.

### **Dead swell**

A lot of questions still remain as to what and where the Allies were burying in that harsh winter of 1946. The U.K. archive records pertaining to the events have been declared classified for another 50 years by the British government. Other parties followed suit.

"It's still unclear who was in charge of dumping of 2,000 tons of sarine," Paka sounds perplexed. "We found the traces of the stuff a couple of years ago in the Skagerrak, but further sampling didn't show the release of this toxic substance. Same year we located the wrecks of three vessels dating back to the WWII in the Bornholm trench. It means that some of the Allies dumped their portion of poison into the Soviet sector. Our expedition made a great number of discoveries of that kind."

Research ship "Professor Stockman", owned by the Institute of Oceanology, conducts the monitoring of the seabed chemical disposal grounds. An increase in the natural level of arsenic (basic component of lewisite) constitutes the most accurate method of detecting the release of poisonous substances. If the content of that well-known poison in one kilo of the seabed soil equals one gram, an area where samples are taken is to be declared a zone of total chemical contamination. One of the samples taken in the Bornholm trench last year exceeded the rate by two times and a half.

### **What's looming on the horizon**

"The last thing I want to do is build up hysteria and make public some crazy details of our research," says Vladimir Pack in conclusion of his story. "I'd like to draw attention to the most irksome part of the situation. It has to do with a lack of funding and proper publicity for the survey of disposal grounds. The lack of information leads to dismay and panic. I've already heard a few times the populist predictions about the coming apocalypse in the Baltic. These speculations will go on until we conduct a thorough study of the seabed burial sites and develop a mathematical model of possible risks on the basis of data obtained. A current daily rate for services rendered by M/V "Professor Stockman" at sea costs \$3,000. For this year only \$20,000 were allocated to the institute to pay for ship's maintenance and research.

There's no much comfort in the forecasts made by oceanologists. One version presently in circulation within a scientific community says about a possible massive release of toxic materials and a large-scale environmental disaster in the aftermath. It's been already confirmed that yperite and some other chemical-warfare compounds were mutagens i.e. substances capable of boosting the mutation of a genetic code. Tatyana Shuka, an oceanologist from Kaliningrad, found significant deviations in the organism of the bio-plankton living in the Skagerrak strait. She also found a large percentage of cancer cells in those species during her research. The list of shocking discoveries and frightening versions can go on till the end of time.

### **"Everything may happen"**

by Nadezhda Shilova, Arkhangelsk

Starfish were dying in great number at the start of the '90s in the White Sea. Since then some experts have been putting a blame for the incident on a possible leak in the sunken containers loaded with toxic chemical-warfare materials. However, nobody could give any data regarding the exact type of substances nor exact locations of disposals. A research vessel "Akademik Boris Petrov" has recently started conducting a survey of a seabed nuclear-waste disposal ground in the vicinity of the islands of Novaya Zemlya in the Arctic Ocean.

"It's true that we were aware of some disposal operations that took place at the White Sea," says to *Izvestia* Viktor Gusev, Deputy Chief of Central Directorate for Natural Resources and Environmental Protection of the Arkhangelsk region. "But all our attempts to find any official documents were to no avail. Nobody actually denied that the disposal took place when we approached the military. But no further details with regard to exact time, location, volumes and storing methods were made available. The expedition is now working in the western part of the Karsk Sea in accordance with an environmental impact assessment program. They will be evaluating the consequences of the disposal of emergency reactors and other components posing the threat of radioactive contamination.

*Izvestia*: A nuclear submarine K-27, containers loaded with solid radioactive waste and a reactor room of another sub K-254 are listed as objects that were disposed of. Can you confirm this information?

*Kuznetsov*: There're several disposal locations. Even a submarine was sunk. So far we've had no aggravations due to the events. But everything is possible, in theory. Corrosion may lead to disintegration and a nuclear materials release.

In August this year, scientists on board the M/V "Professor Stokman" carried out the survey in the central part of the White Sea. According to Professor Mikhail Spiridonov, Chief of the Department of Marine Biology of All-Russian Geology Institute, two grounds represented in the marine charts as Area No121 and Area No121 were surveyed. The scientist believes that the ground No121 showed clear signs of the disposal, and arsenic content indicates that an anomaly was man-caused. Special equipment enabled scientists to locate a few dozen of man-caused objects. Maxim Vladimirov, Senior Officer for Underwater Operations of the Ministry of Emergency Situations, said that the expeditions surveyed two the most likely disposal locations of chemical weapons at the White Sea. Magnetic anomalies were detected. 12 man-caused objects, measuring from 7 to 10 meters, were located. Abnormal arsenic content was recorded in all cases.

### **"No Equipment to Combat the Threat"**

by Oleg Zhubusov, Vladivostok

An expedition of the Ministry of Emergency Situations that surveyed locations in the Japanese Sea thought to have been used for disposing of nuclear waste and artillery shells with chemical substances is due in Vladivostok on September 12, 2003.

The military has been dumping waste into the sea for decades. The liquid nuclear waste materials were collected by special barges. When those barges were filled to the brim, they were simply sunk in areas with considerable sea depths. These methods are no longer in use, but the public has yet to learn about thousands of tons of toxic waste disposed of into the sea by the military during all those years.

"The military has a lot of secrets, and this one is one of them," says Anatoly Lebedev, Director of Environmental Organization "Brok". "The barges loaded with dangerous cargo might have developed leaks due to corrosion during that period. It may bring about an increase in the radiation level."

What's going on now? To find an answer to this question is one of the aims of the

expedition launched by the Ministry of Emergency Situations on board the special M/V "Professor Khromov". Specialists from the Moscow Design bureau "Elektron" and the Far East Research Institute of Hydrometeorology composed a research crew. They're making a survey of the disposal sites reportedly used for dumping nuclear wastes and chemically-stuffed artillery shells near the shores of Primorye, in the northern part of the Japanese Sea and in the vicinity of Sakhalin.

"The shells with chemical-warfare compounds are more dangerous than nuclear wastes, said to *Izvestia* Yuri Volkov, Director of the Far East Research Institute. We'd see a disaster if they happen to "uncork" in the masses. The underwater currents reach the surface of the sea in some areas. If an emergency of this sort happens, we'll have no adequate equipment to combat the threat. The depths at which the disposed materials were put are too deep."

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