

advantage of these installations is that they let us work out dozens of variants for dock use in the course of a single winter. Under natural conditions this would require many, many years."

The laboratory has already achieved its principal aim: it has issued recommendations that ensure that docks are kept in good working order and thus, ensure smooth operation of the port and of the entire Arctic maritime line. But there is still one extremely important facet to the research being done by the Dudinka scientists. This local maritime port is perhaps the only one in the world, the entire extent of which is subject to flooding. It owes this "distinction" to the Enisei River. As a result, after the breakup of ice all storage areas, train and crane tracks, and electric power supply must be completely restored.

The primary danger to the docks, however, is not the flood waters but the breakup of the ice, and more precisely the first two ice movements. These occur, as a rule, when the water level is still rather low and the ice floes are resting virtually on the shore. An unruly mass of blue-white blocks sweeps everything in its path, carries away concrete slabs, and twists steel rails into knots. Each year, the Norilsk Combine, which owns the port, spends approximately 1.5 million rubles cleaning up the damage caused by the breakup of ice.

The first attempts to reduce this expense were undertaken as early as 1974 when a special protective dike was completed. This cut the time required for restoration work in half. But nature continued to take its toll.

In the early 1980's E. Lyubogoshchinskii, captain's mate of the harbour icebreaker "Avraamii Zavenyagin", proposed the following idea: to cut special slits in the river's coat of ice in the spring in order to force the ice to take a different route. He put this proposal to Kizim and Budin.