



## **Joint Norwegian-Russian mission to investigate dumped atomic waste in the Kara Sea**

**In autumn 2012, a joint Norwegian-Russian mission will visit areas in the Kara Sea where spent nuclear fuel and radioactive waste have been dumped. The purpose of the mission is to obtain new, up-to-date information about radioactive pollution in these areas and about the condition of the dumped items. The last joint Norwegian-Russian mission to the area took place in the early 1990s.**



*Map showing the areas that the mission will visit. (Map illustration: Morten Sickel, NRPA)*

Dumping at sea was previously an internationally-accepted method of disposing of radioactive waste. Most countries stopped this practice in 1985, but the former Soviet Union and later Russia dumped radioactive waste in the Kara and Barents Seas until 1992. The latest summary from the Russian authorities shows that, in addition to liquid waste, the following is to be found on the seabed in the Arctic sea areas:

- Three nuclear-powered submarines with fuel.
- A submarine reactor with fuel.
- Shielding elements and nuclear fuel from the nuclear icebreaker *Lenin*.
- Five reactor sections from nuclear submarines and icebreakers.

- 19 ships loaded with solid radioactive waste.
- 735 other radioactive items.
- More than 17,000 containers of radioactive waste.

Some liquid waste and some of the smaller items of solid waste were dumped in the Barents Sea. The remainder was dumped in the Kara Sea and in bays on the east coast of Novaya Zemlya.

### **Potential source of radioactive pollution**

The dumped radioactive waste is a potential source of pollution in the northern areas. This applies especially to the spent nuclear fuel. According to a Russian report of 2009, some of this fuel is so highly enriched that the possibility

of a nuclear chain reaction could not be excluded under certain circumstances.

Three Norwegian-Russian missions to the dumping sites in the Kara Sea took place in the early 1990s. The conclusion at that time was that radioactive pollution in the area was low, but that there was a risk of future leaks from the dumped items. Since that time, there have been no further missions to these areas involving Norwegian participants, but Russia has carried out its own investigations in later years. The results of a Russian mission in 2004 indicate that activity levels in sediments were somewhat lower than in the early 1990s.

### **Investigating the marine environment**

The mission will investigate Stepovogo Bay on the east coast of Novaya Zemlya. This area was also investigated by joint Norwegian-Russian missions in 1993 and 1994 and by the Russians in 2004.

The first task of the mission will be to take samples, for the study of levels of radioactive pollution in water, sediments, fish and seaweed in the dumping areas.

In addition, the dumped items will be studied using underwater cameras. This is to assess their physical condition and the possibility of raising them. Particular interest is being given to the [nuclear submarine K27](#). This has two reactors with spent uranium fuel on board and was dumped at a depth of 30 metres in Stepovogo Bay in 1981.



*Water samples from one of the 1990s missions. (Photo: Bjørn Lind, NRPA)*

### **The mission participants**

The mission will start with the departure of the Russian ship *Ivan Petrov* from Kirkenes at the end

of August 2012 and will last approximately one month.

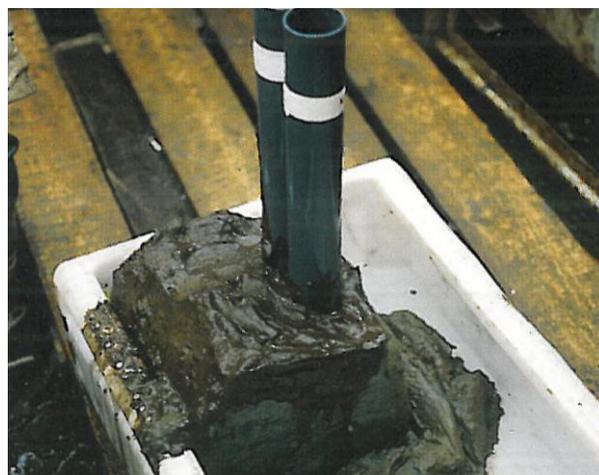
From Norway, there will be participants from the Norwegian Radiation Protection Authority, the Institute of Marine Research, the University of Life Sciences and the Institute for Energy Technology. From Russia, there will be participants from the Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet), the Kurchatov Institute and the Yuzhmorgeologiya research center. The International Atomic Energy Agency (IAEA) is sending an observer.

Analyses of the samples collected will be performed in both Norway and Russia. There will be close collaboration over the analyses, the condition of the dumped items and the possibility of raising them.

### **Great interest in the mission**

Russia has set up an interdepartmental group to assess the condition of the dumped objects. There is also great international interest in collaborating in missions and monitoring of the northern sea areas. The joint mission has been the subject of discussion by the Joint Norwegian-Russian Commission on Environmental Protection and is being financed through the Norwegian Government's atomic action plan. In the event of [the nuclear submarine K27](#) being raised, Norway will emphasise the need for an assessment of environmental consequences.

It is very important for Norwegian fishery interests that monitoring of the northern sea areas should be stepped up, since any radioactive pollution could have negative consequences for the fishing industry.



*Sediment samples from an earlier mission. (Photo: Bjørn Lind, NRPA)*