

## The Radioactive Contamination of the Baltic Sea

Written version of a presentation, given by Per Hegelund – MILKAS, (The Swedish Environmental Movements Nuclear Waste Secretariat). at the Baltic Sea NGO Forum 5-7 October 2006 in Sweden.



Per Hegelund, 6 October 2006. Photo: Gennady Shabarin.

A short pamphlet, “The Baltic Sea is Radioactive,” with the most important hard facts is present here at the workshop, and can be downloaded from MILKAS’ homepage at: [www.milkas.se/files/baltic-radioactive200612.pdf](http://www.milkas.se/files/baltic-radioactive200612.pdf) (PDF, 692 KB). There you will also find a long report in English on a three-day worldwide legal workshop on the subject of “Updating International Nuclear Law” at: [www.milkas.se/hooqe20051203.html](http://www.milkas.se/hooqe20051203.html)

I will add a little more background and facts in this written presentation.

My interest in this subject really started when, in 1998 - I and my oldest son were on our way to Murmansk region in Russia to participate in an international antinuclear camp, located on a mountainside a little ways from the nuclear reactors on the Kola peninsula. We found that a small airline had just started flying from Luleå, way up in north Sweden – and since there was an international meeting at that time, in Luleå, with representatives from Swedish, Norwegian and Russian authorities, to discuss raising tens of millions of Euros in order to help Russia deal with enormous amounts of nuclear waste in poor condition – we therefore decided to go via Luleå.

At the meeting I managed to find a little coloured pamphlet from the Swedish Defence Research Establishment (FOI) – and it has stayed with me ever since, now badly worn out. I tried my best to get more copies from the Swedish author, for this workshop – but didn’t succeed (I’ll make a few photocopies for you). And it has been impossible to find an electronic version of it...

Two illustrations in this pamphlet especially caught my attention:

One was a pie-graph, showing the content of Cesium-137 in fish caught north of Scandinavia and Murmansk – and it's sources... More than 50% derived from Sellafield, located in England far, far away (routine releases). Only about 10-15% came from the Chernobyl accident (!) – which is admittedly the worst nuclear **accident** ever. This proves that routine releases from one country's single nuclear facility may be as relevant, as accidents (in my opinion).

The second illustration shows that (in the first half of the 90s) – the fish in the Baltic Sea contained more Cesium-137 than the fish swimming outside Sellafield in the Irish Sea. Caesium is what we got from Chernobyl and Sellafield, and is also – among all radioactive nuclides – the main source of radioactive pollution of human beings.

The two illustrations made me think hard about the radioactive condition of the Baltic Sea. This presentation is the result of several years of research to find more documentation about the subject (which is very hard to find – at least in Sweden). However, when I started to check the regular +100 pages reports from the Swedish Radiological Protection Agency (SSI) – and compared that information to the examples above, I got even more worried.

In the beginning of the 90s, the report from FOI gave the Caesium content in fish of the Baltic Sea as around **20** Bq/kilogram.

I found a study from Uppsala University which said – at the end of the 90s, the content had gone up to (not more than) **50** Bq/kg. The limit for what people may safely eat – in Sweden (what is it in your country? I would like to know!) is **300** Bq/kg.

By checking the latest reports from the Swedish Radiological Protection Institute, when they test catch fish close outside the Swedish nuclear facilities (Oskarshamn, Forsmark, Studsvik and Ringhals) – you will find that after year 2000, it is not unusual to catch fish with contents **above 200** Bq/kg (**220-230!**). That means we have moved much closer to the limit, where these fish can no longer be considered safe to eat!

There is an awful lot of nuclear facilities located by the coasts of the Baltic Sea – and more are being planned. When you know the above facts – and add one crucial factor about the Baltic Sea, you'll understand where we are heading: there's almost no exchange of the water in the Baltic Sea – only about 1% a year is exchanged with the great and cleaner oceans.

That also means, all the shit that we release to the Baltic Sea more or less stays there forever!!! (If you take 1% of something away every year, it will never disappear – and meanwhile we keep adding to the pollution.)

**Now** Sweden and Finland plan to store even their most dangerous spent nuclear fuel (which nobody in the world, so far, has figured out how to deal with in a safe manner) – yes, you may have guessed it: Sweden and Finland plan to place even this waste in “final repositories” located **at - or in - the Baltic Sea!!!**

There's nothing final about these repositories – they will eventually leak into the Baltic Sea (even SSI and the nuclear companies admit this – they call the Baltic Sea a “recipient!”).

Here's where international and regional conventions come into the picture:

The United Nations “Esbo Convention” has rules and stipulations when it comes to important transboundary projects, which will have an environmental impact on neighbouring countries. Sweden and Finland **must notify and inform** their neighbouring countries in advance – and offer these countries a place in the consultation process to find the safest solution. If they fail to do this – the Esbo convention gives the neighbouring countries the right to notify the secretariat of the Convention to set up an “Inquiry Commission” which then helps to decide the matter!

Sweden has, symbolically, made attempts to satisfy this requirement. I can prove that the authorities have known about this requirement for years (and discussed it in formal meetings within themselves). However, they only sent out the notification this new year – and gave the countries only about one month to reply. And they didn't send it to **all** affected countries. Proof:

In the before mentioned report from FOI, the Swedish Defence Research Establishment – they state:

(Quote): “The amount of Cesium-137 deposited over the Baltic, or transferred there by runoff, now arrives in considerable amount to the Barents Sea – through the output from the Baltic to the North Sea and transfer by the North Atlantic Current.”  
(End of quote)

That means, the Baltic Sea is so radioactive, that – even though only about 1% leaves our waters every year – it can be traced up along the Norwegian west coast (just like Sellafield's releases) all the way to the waters north of Scandinavia and Russia! As far as I know (from the sendlist of the notification, which only went to one single place in each country!) Sweden never notified Norway – so my recommendation to the Norwegians, is to protest and ask for such an inquiry commission to be set up, since locating the Swedish final repository on the Baltic Sea coast will certainly affect Norway! Norway has been very active protesting against Sellafield's releases – but seems to have missed the problem coming from the Baltic Sea (and not least from the Swedish nuclear projects! – as I will explain a little further down, in this text).

First let me say something about Finland. As compared to Sweden, which has had a deliberate consultation process going on for years (within their own country!), supposedly to find the best location and method to safeguard their spent nuclear fuel – it seems like Finland has simply copied the Swedish “final solution” and started building it (!) – without a proper consultation process within their own country (!) – and without notifying and offering to consult with their neighbouring countries! Please correct me if I'm wrong about this! Otherwise, all the neighbouring countries should protest, and ask the Esbo Convention's Secretariat, to set up such an “Inquiry Commission” to find the best solution for the environment! I confronted a

representative from a Finnish research institution, who was in a meeting with Swedish authorities, about my point: he answered me and the audience, that he didn't know about the requirements of the Esbo Convention (although it specifically mentions nuclear facilities and waste storage facilities, as such transboundary projects which the Convention applies to. How can he not know about that? Both the Esbo Convention, as well as the Helsinki Convention which I will mention in a second – were agreed and signed in Finland by lots of countries!!!).

We also have the regional “Helsinki Convention” which aims at protecting the marine environment of the Baltic Sea: In article 17, it says that all signing countries are obligated to make sure that information about the condition of the Baltic Sea is made available to the public. They also have to make sure that tests and measurements of the releases to the water, are carried out in a scientific, reliable manner.

I do not believe that this is what is happening. As an example – let me tell you what I found out, from Ignalina's homepage – about Sweden's releases. Almost everybody in the Swedish public believe that Swedish reactors are the safest in the world – in fact, many think that if we could close down the reactors in Ignalina and Russia, and export Swedish nuclear technology to them instead, all problems would be solved! Well, the fact is that **Swedish reactors are the worst polluters – of all the reactors around the Baltic Sea!** In fact, as the most thorough investigation ever carried out by the European Community shows, Swedish reactors – at Oskarshamn and Forsmark, have releases **100,000 times larger** than for instance the reactors near St Petersburg, at Sosnovy Bor. Much larger than any of the other reactors at the Baltic Sea. I talked to the scientist who was responsible for the report, and he confirmed my understanding on this. I also talked to one of the Swedish constructors of these reactors, and he told me: “You don't have to prove this to me – I've known about that for a long time!”

As for finding the best solution for the spent nuclear fuel, you might want to know about an article in “Dagens Nyheter” (a daily newspaper, quite serious, and normally friendly to business and the nuclear industry). In January 2002 they carried a headline on their front page, that totally contradicts “the Swedish and Finnish solution”! It reads:

**“The worst possible solution has been chosen!”**

The article was based on the opinion of geologists, political scientists and environmental organisations – and explains that the safest location for such a storage is a place where the groundwater does not lead into the ocean, and such locations are usually found inside the country, far from the coast. Even the Swedish state's nuclear authorities (SKI and SSI) have made the same point – but they leave it up to SKB, a company of Swedish nuclear industry, to lead the process to find a solution. And the nuclear company wants to locate the spent nuclear fuel at either Oskarshamn or Forsmark, no matter what anybody says.

My final questions are:

Why would we leave it up to the nuclear companies to **decide** where to put their spent nuclear fuel? And how can the two installations, who have - without comparison – caused the worst pollution of the Baltic Sea for all of the past twenty years since Chernobyl – be **trusted** to take care of the most dangerous waste the world has ever produced?

If we cannot influence our own governments (in Sweden and Finland) to change their plans, what right will we ever have to protest about anybody else's radioactive releases to the Baltic Sea?

I hope that this conference will enable us, NGOs and government institutions alike, to intensify our cooperation from now on – and that all the people will care enough about future generations (fish as well as human beings) to realize the serious condition of the Baltic Sea, and to introduce a ban – **a moratorium** – on any new radioactive projects, on the coasts of our common ocean!

Thank you for caring!  
Per Hegelund.  
Email: valiantdk@yahoo.com

PS. If you want to be kept updated on this subject in the future – I hereby invite you to join the international mailing list, which I started a couple of years ago, and where you'll find a lot of additional hard facts. You'll find it on the Internet, at the address:  
**<http://groups.yahoo.com/group/BalticSea-RadioactiveRescue/>**