

# ” The Radioactive Contamination of the Baltic Sea”

- Per Hegelund
- coordinated a **workshop on the radioactive contamination of the Baltic Sea** at '**Baltic Sea NGO Forum 2006**' and is active in the “Swedish Environmental Movement’s Nuclear Waste Secretariat”.



The following letter has been sent to the Editor of Physics World **by the ESS Executive** to clarify information

- **Quote:** “For example, a feasibility study is currently underway for a high-intensity proton accelerator for condensed-matter research, **which could also be used for physics and engineering research into transmutation** and other applications..”
- Peter Tindemans  
**Chairman, ESS council**  
Kurt Clausen  
**ESS project director**  
Dieter Richter  
**ESS science co-ordinator**  
Uschi Steigenberger  
**Secretary, ESS council**

***December, 2000***

**Leijonborg**, Swedish Minister for Research  
talking in very positive terms of "**transmutation**"

- at the Royal Technological Highschool in Stockholm, 16 october 2007

"For me as a layman this new development (ESS)  
seems very attractive. For instance, for  
**transmutation (of nuclear waste)**.

My message as the minister for research  
is very clear: Research into nuclear  
technology is going to be a prioritised area  
of research for many years to come!"

Government member Maud Olofsson,  
(Center party) - 16 October 2007:

- "We allocated 39 miljon (SEK) for research, which also is aimed into nucuclear technology.
- A large amount of that money, we have now paid to promote the accelerator in Lund."

<http://www.centerpartiet.se/defaultnormal.aspx?id=55215>

- The former Swedish finance minister and EU Commissioner, Allan Larsson, was handpicked to promote and make sure that the European Spallation Source should be located in Sweden.
- In his report about the research project, he mentions a number of areas in society, which will be greatly influenced by ESS:
  - at the top of his list he first mentions nuclear research...

# 16 May 2002 ESS-PRESS RELEASE

*(Why Europe needs a Neutron Source)*

“The European Spallation Neutron Source (ESS) will provide a neutron beam which is **100 times brighter** than **present day** neutron sources.

It will be **10 times more powerful** than the spallation sources currently **under construction** in the USA and Japan”.

## Olof Karlsson, physicist and chairman of Sweden's alternative energy organisations (SERO):

- "The fact that the accelerator may be the first step towards a new prototype reactor (which was first imagined by Carlo Rubbia) on Swedish ground – this is something that nobody wants to talk about. But if you know something about nuclear physics, you should realise that the size and effect of ESS is meant for transmutation experiments on a large scale – not just as occasional experiments.
- ESS could be the first phase in developing a fullscale, scary Rubbia reactor – accompanied with the necessary reprocessing plants.
- The municipality (Lund) which is expected to give territory to establish the European Spallation Source project, should get **legal guaranties**, that transmutation of nuclear waste is not part of what ESS is going to be used for!"

# Here's a quote from the powerful OECD organisation:

ADS: “An *a*ccelerator-*d*riven nuclear waste transmutation *S*ystem would consist of three major sub-systems:

- a proton accelerator with very high power (5 MW for a demonstrator, up to ~50 MW for an industrial burner);
- a burner reactor where spallation and transmutation would occur;
- a processing plant in which short-lived isotopes that could not undergo further transmutation would be removed for secure disposal, and where other isotopes could be recycled into new fuel assemblies for the burner reactor.

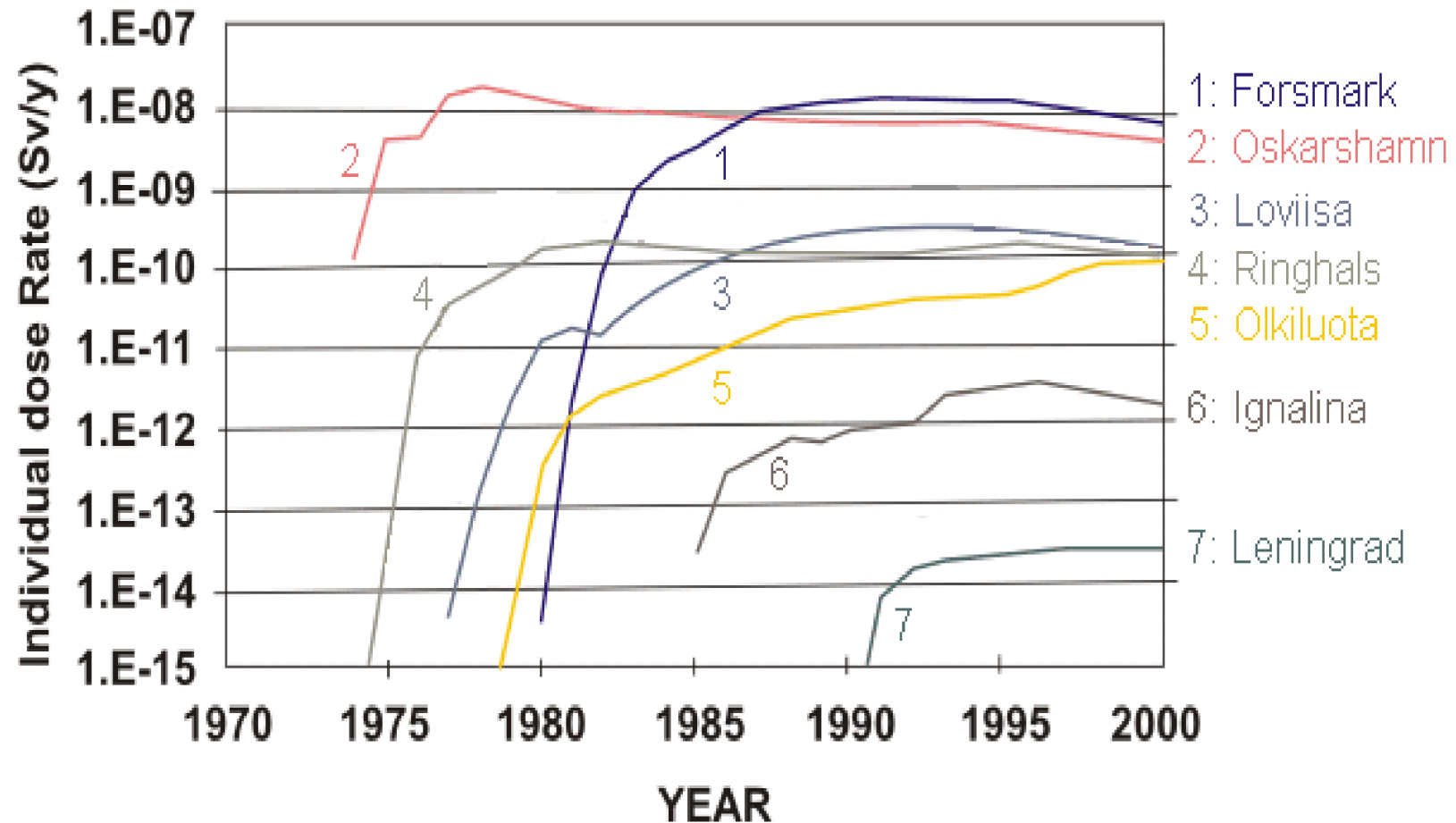


Our ocean – the Baltic Sea – is already *the most radioactive body of water* in the whole world (according to the best international experts, from the Helsinki Commission's regional group of scientist, HELCOM MORS).

*Reprocessing plants*, like Sellafield - which spreads radioactivity hundredfolds more than usual nuclear reactors, is exactly the very last thing we want to have by an ocean, which we already know is in serious radioactive crisis.

- The Baltic Sea has a negative world record – and Swedish reactors routinely release 100.000 times more radioactive pollution into the sea, than the Russian reactors near St Petersburg.
- Since the theory of "transmuting" nuclear waste automatically means more reprocessing plants, this would only multiply our problems of radioactive contamination.
- Radioactivity can kill people, or make them - or our children - seriously sick (cancers, mutations, deformities).
- **ESS - Not in our backwater!**  
"NUCLEAR POWER? NO THANKS!"

# Which reactors pollute the most ?



**'HELCOM MORS PRO':** The estimation of the contribution of the Baltic Sea area nuclear power plants into the annual individual doses of the critical groups of population

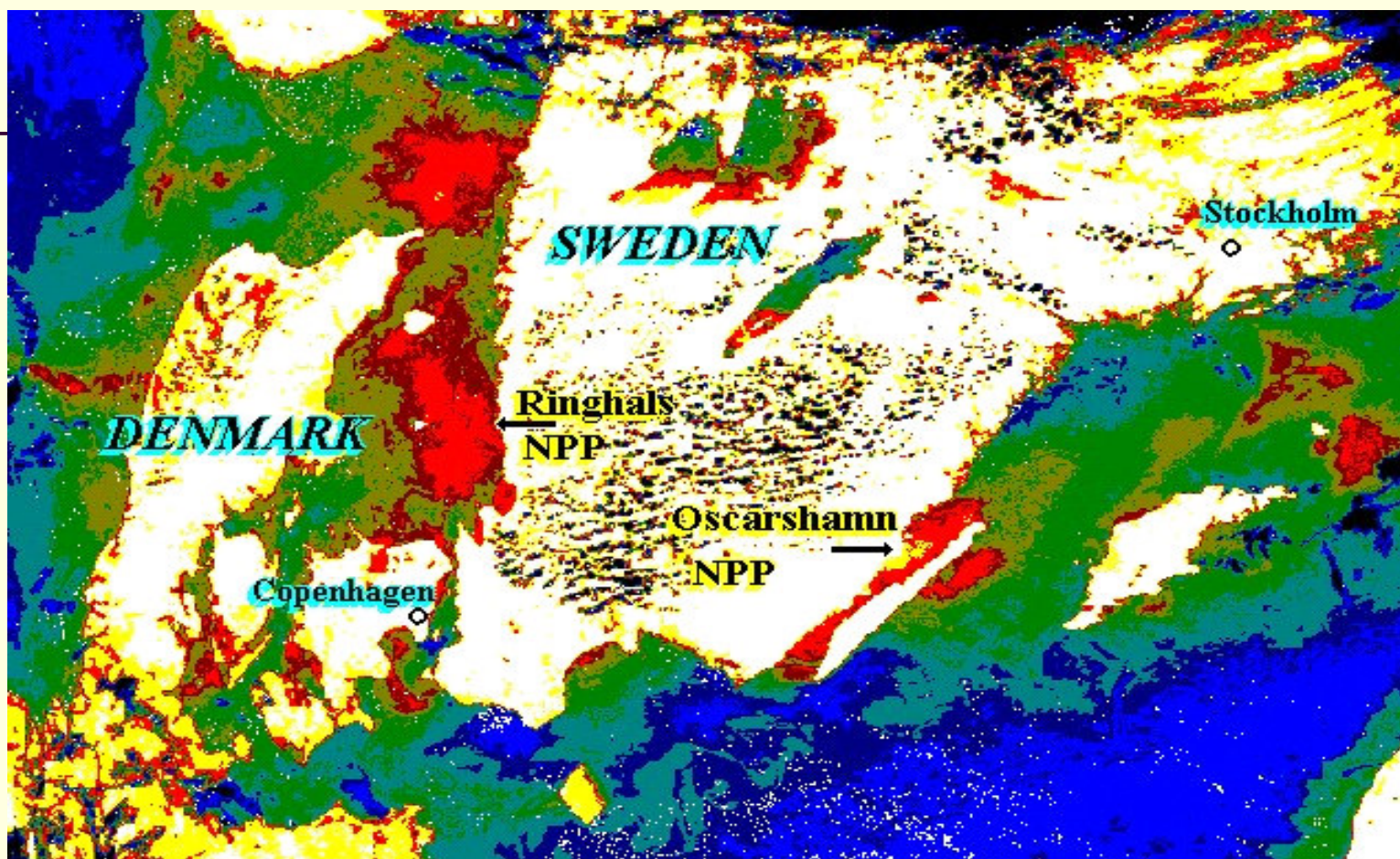
# The “Swedish solution”?

- Both Sweden and Finland have come up with a plan to store their most dangerous radioactive waste (their spent nuclear fuel) - which nobody in the world knows how to take care of – at the coasts of the Baltic Sea!
- However, this is not a private matter for the two countries to decide: international law gives every neighbouring country the right to object to these plans. **Make your voice heard – ask your governments to protest, before it is too late!**

# Nuclear Power & Climate Change!

- Nuclear power stations emit gigantic amounts of hot water (from their cooling systems) – this negatively affects climate change in our ocean, knocks out the fish breeding grounds and speeds up the growth of poisonous blue-green algae, which pollute our waters. It also speeds up the loss of oxygen, which creates “dead” sea beds (7 of the world’s ten biggest areas of dead ocean bottom are within the Baltic Sea!)

# Thermal pollution near the Swedish NPPs



Thermal pollution from the Swedish NPP reach Denmark

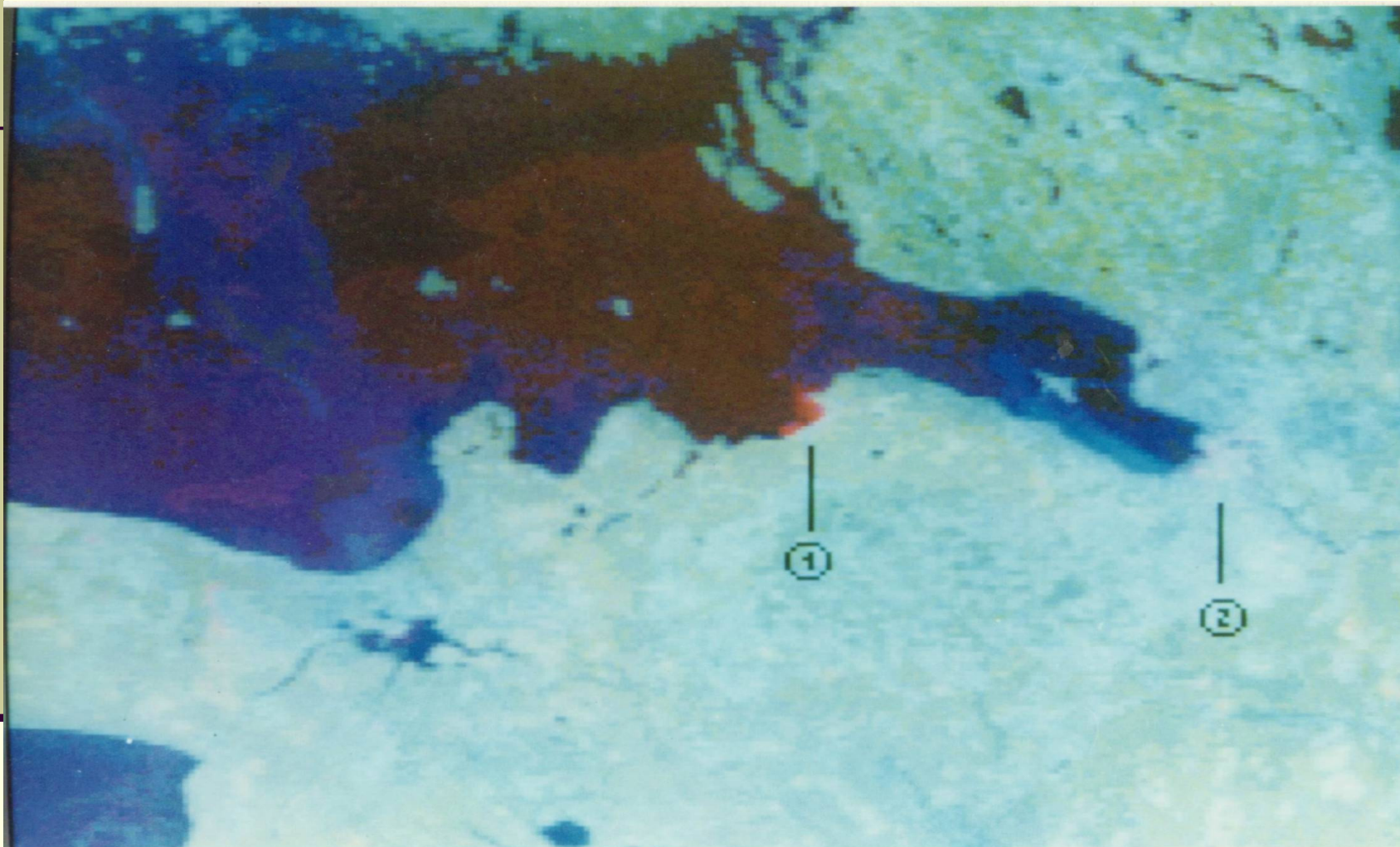
*NPPs use 2 times more cooling water than thermo power plants*



«Зеленый Мир»



# THERMAL POLLUTION LENINGRAD NPP

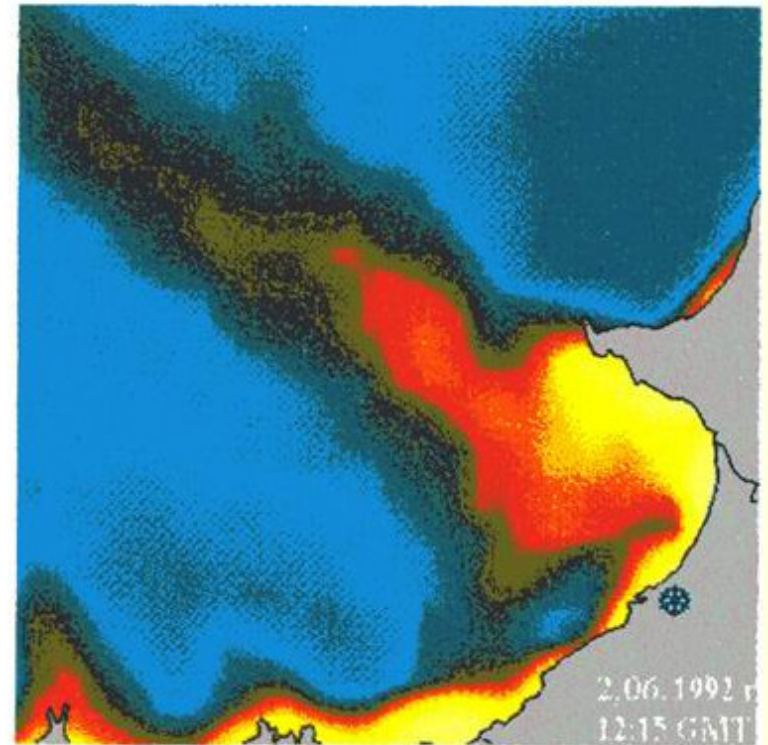
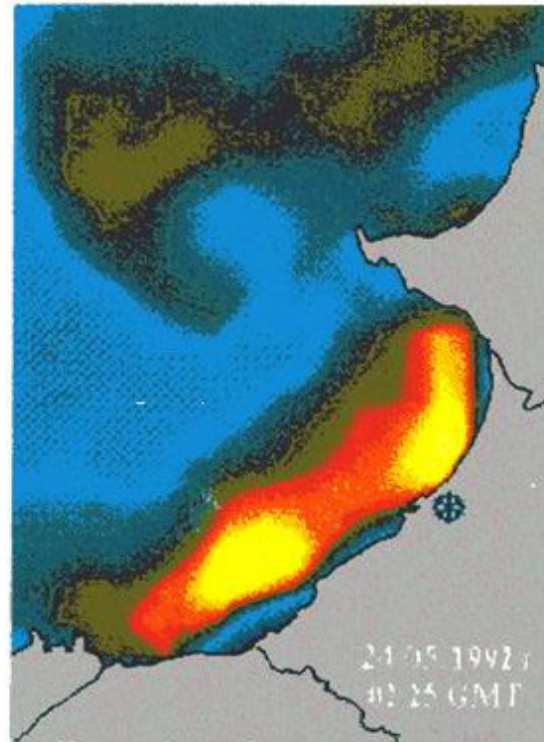
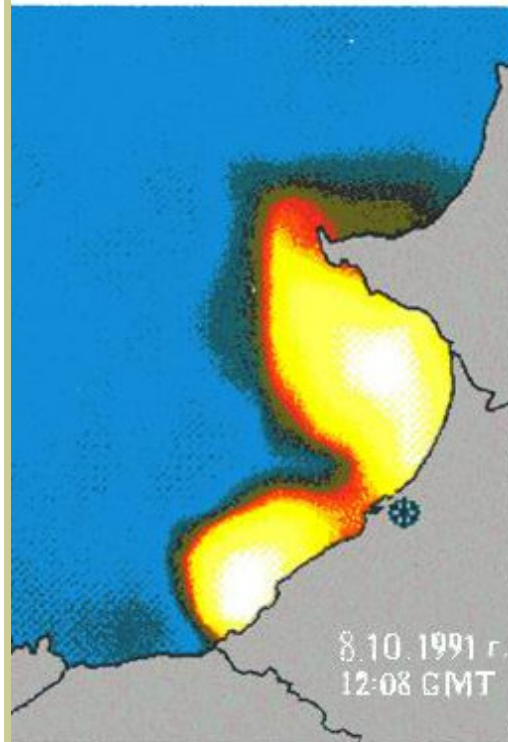


Thermal pollution stimulates eutrophication of the Baltic Sea, increases the toxic impact of pollutants present in the seawater;



«Зеленый Мир»

# THERMAL POLLUTION OF LNPP AT DIFFERENT WIND CHARACTERISTICS



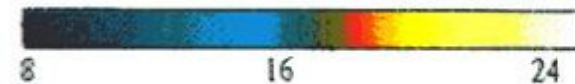
температура поверхности воды, °C



Температура поверхности воды, °C



Температура поверхности воды, C



**Dramatic change in the thermal regime of spawning places  
undermines fish reproduction**



«Зеленый Мир»



# NPP's – the death of billions of fish!

- According to reports in Times newspaper, scientists and World Wildlife Fund informs us, that the intake of the npp coolingwater literally kills billions of fish!
- According to the experts for some fish species, the loss is equal to half of all the commercial landings of fish (everybody blames the fishermen, which provide us good food – how come nobody blames nuclear power, that kills fish on a large scale - for no use?)



**We demand a moratorium, a stop  
for any new nuclear establishments  
at the Baltic Sea!**