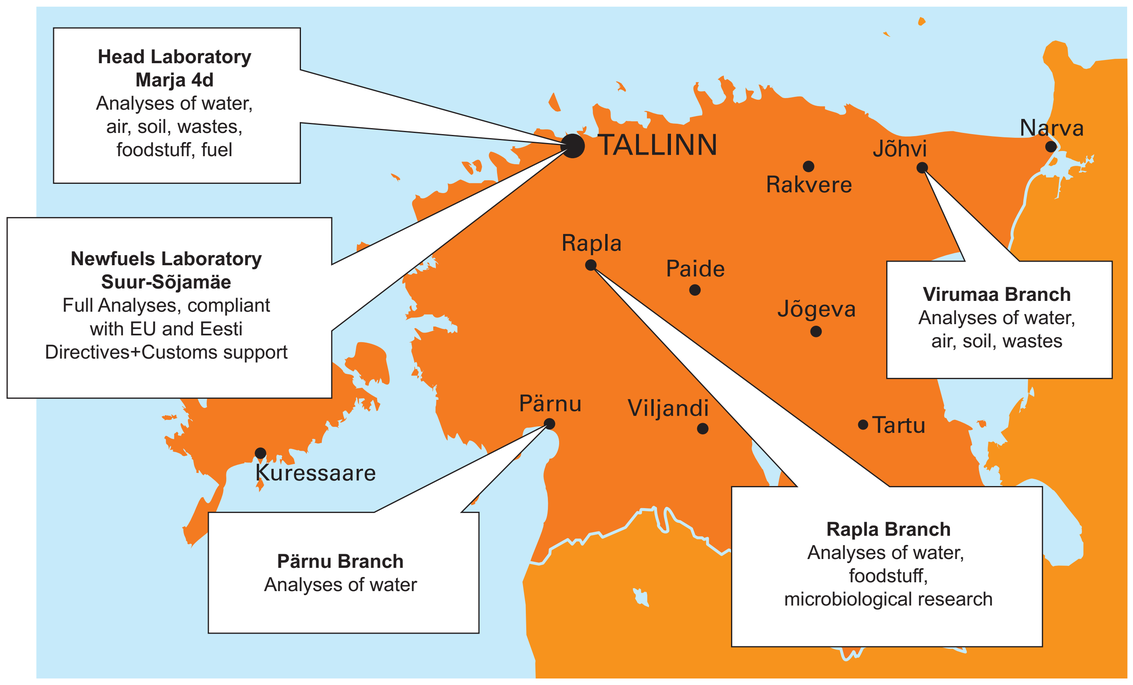
Estonian biological and chemical monitoring of priority and sea / river basic-specific substances

Kört M., Roots O., Kuningas K., Liitmaa M.
Estonian Environmental Research Centre

Kesklabor
Central Lab

The building of EERC

The Estonian Environmental Research Centre (EERC) is state company specialised in chemical analyses in the field of environment protection. The EERC provides a comprehensive range of analyses for air, water, soil, food, fuel, etc. EERC facilities are well-equipped, enabling precise determination of environmentally dangerous substances in different sample types. The Centre is accredited by the German accreditation bureau Deutsches Akkreditierunssystem Prüfwesen GmbH (DAP) (Reg no DAP-PL-3131.99) and the Estonian Accreditation Centre (EAK) (Reg no L008).



Location of branch laboratories

The Estonian National Environmental Monitoring Programme (NEMP)

The objective of Directive 2000/60/EC of the European Parliament and of the Council – Water Framework Directive – is to establish the framework for the protection of inland surface water, transitional waters, coastal waters and groundwater.

In order to fulfill the requirements arising from Directive 2000/60/EC and Council Directive 76/464/EEC all member states shall specify priority hazardous substances for surface water bodies at the national level.

The Estonian National Environmental Monitoring Programme (NEMP) was initiated in 1994 (Roots, Saare, 1996). At present, there are altogether around 1,800 monitoring stations in the monitoring set of 68 sub-programmes of 11 monitoring themes, the number of measured parameters reaching 250 (Roose, Roots, 2005).

The implemented Estonian national environmental monitoring programme of hazardous substances, which follows EU and Helsinki Commission recommendations, covers all major problem areas, sites and aspects on a national scale. Operational monitoring by companies, required by the environmental permit system, complements the national network and gives the opportunity for detailed assessment of trends in waterbodies (Roose, Roots, 2005).

Monitoring of hazardous substances.
Location of sampling points in North-East Estonia (2002–2003)

Hazardous substances are divided into two lists on the basis of hazardousness

- **List 1** substances, which release or disposal into water shall be prevented and
- **List 2** substances, which release or disposal into water shall be limited.

Compared to old member states not much attention has been paid to the monitoring of such substances in Estonia, but it is still possible to draw the first conclusions for priority substances.

Surface water monitoring

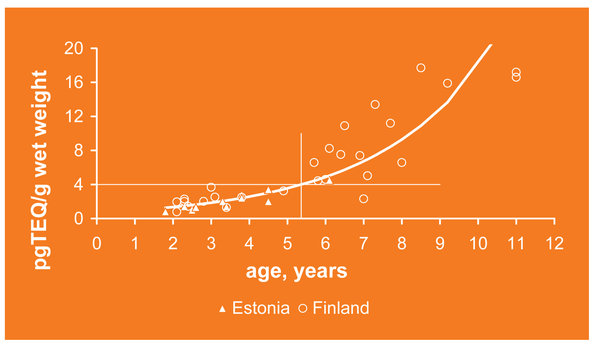
The list of priority hazardous substances for Estonian surface water bodies should include six hazardous priority compounds (Determination of priority hazardous substances for Estonian surface water bodies and formation of monitoring network (Comp. O. Roots). 2005. Estonian Environmental Research Centre (Agreement no. 2005/K-11-1-2005/52), Report, 84p +Annexes).

The mentioned list is not final, because upon receipt of new information hazardous substances should be added into the list, or, if no hazard exists, removed from the list.

Food and fish monitoring

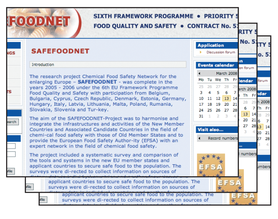
PCDD/Fs and DL-PCBs concentrations of were determined in food and fish samples until 2002. Baltic herring and sprat were selected for the study as the most important commercial fish species in Estonia. The sampled fish were subjected to biological analyses to measuret their lengthand weight and determine sex and age.

All monitoring on internet: http://www.agri.ee/?id=10724.



Dioxin concentration (pgTEQ/g wet weight) in Estonian and Finnish (Hallikainen, Kiviranta, 2002) Baltic Sea herring muscle tissue.

Projects

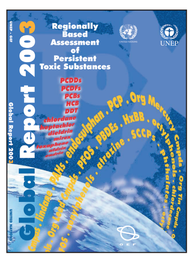


Sixth Framework Programme. Priority 5. Food Quality and Safety. "SAFEFOODNET PROJECT"

Contract no.: 513988
http://www.safefoodnet.net

Regionally Based Assessment of Persistent Toxic Substances. Europe Regional Report

UNEP Chemicals, UNEP/CHEMICALS/2003/3,
Printed at UN Geneva, 141p
http://www.chem.unep.ch/pts – European Report



Regionally Based Assessment of Persistent Toxic Substances. GLOBAL Report 2003

UNEP Chemicals, UNEP/CHEMICALS/2003/11,
Printed at UN Geneva, 207p
http://www.chem.unep.ch/pts – Global Report

References

- Roots O., Saare L.
  Structure and objectives of the Estonian Environmental Monitoring Program.
  Environmental Monitoring and Assessment, 1996, 40:289-301;
- Roose A., Roots O.
  Monitoring of Priority hazardous Substances in Estonian water bodies and in the coastal Baltic Sea,
  BOREAL ENVIRONMENT RESEARCH.
  2005, 10:89-102;
- Roots O., Simm M.
  Polychlorinated dibenzo-p-dioxin, dibenzofuran and biphenyl content in selected groups of Baltic herring and sprat from Estonian coastal waters in 2006.
  OCEANOLOGIA, 2007, 249 (3):293-303
  (http://www.iopan.gda.pl/oceanologia) .
- Roots, O., Lahne, R., Simm, M., Schramm, K-W. Organohalogen Compounds,
  v. 62, p. 201-203.Dioxin 2003, Boston, USA.

Estonian Enviromental Research Centre
Marja 4d, 10617 Tallinn, Estonia
t: +372 611 2900
f: +372 611 2901
info@klab.ee

www.klab.ee