Water Resource Associates

A network of consultants in hydraulics, hydrology, groundwater & environmental issues

Project title: Assessment and Modelling of Mercury in British Rivers and Lakes.

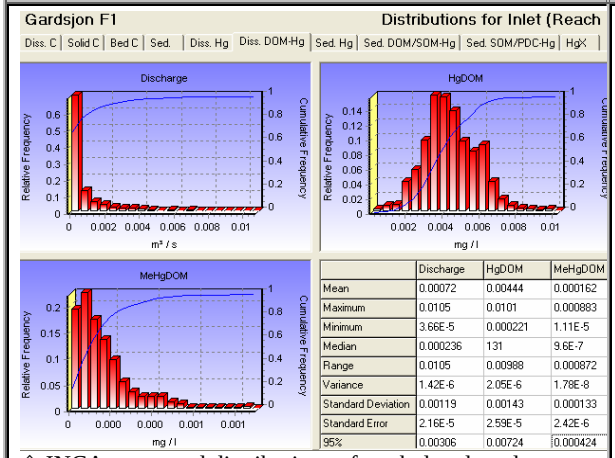
Summary: A new version of INCA for Mercury has been developed and applied to the Gardsjon catchment in Sweden and Lock Nagar in Scotland.

Client: WS Atkins	**Financed by:** Environment Agency/DEFRA
Period of assignment: 2006-7	**Location**: UK and Sweden
Project Value: £25000	**WRA services**: £9000

⇪ Loch Nagar in Scotland

Background

A new version of INCA has been developed to assess the build up of mercury in catchments from atmospheric mercury deposition and also from terrestrial sources of mercury. The major issue is the release of methyl mercury into upland streams and lakes and the high concentrations of mercury in fish in northern European lakes. This is a serious problem in Sweden where many lakes have high mercury levels in fish and these are so high that the fish are toxic to humans if eaten. The new version of INCA has been developed to simulate the build up of mercury on soils and the leaching of mercury into rivers and lakes. The model has been applied to the Gardsjon catchment in Sweden and Loch Nagar in Scotland.



	Discharge	HgDOM	MeHgDOM
Mean	0.00072	0.00444	0.000162
Maximum	0.0105	0.0101	0.000883
Minimum	3.66E-5	0.000221	1.11E-5
Median	0.000236	131	9.6E-7
Range	0.0105	0.00988	0.000872
Variance	1.42E-6	2.05E-6	1.78E-8
Standard Deviation	0.00119	0.00143	0.000133
Standard Error	2.16E-5	2.59E-5	2.42E-6
95%	0.00306	0.00724	0.000424

⇪ INCA-generated distributions of methyl and total mercury in the Gardsjon Catchment, Sweden.

Scope of work by Water Resource Associates Ltd

Development of new INCA-Mercury model for catchments and application to catchments in Sweden and Scotland.

Results

Report to EA and DEFRA.
Methyl Mercury Modelling and Analysis in Catchments: Impacts on Biota.
S Comber, PG Whitehead and MR Futter.

Project Number 000186

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