

## **Oskarshamn and Forsmark site investigation**

### **Chemical composition of suspended material, sediment and pore water in lakes and sea bays**

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November 2008

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This report concerns a study which was conducted for SKB. The conclusions and viewpoints presented in the report are those of the authors and do not necessarily coincide with those of the client.

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# Abstract

In order to provide site-specific distribution coefficients and element ratios between suspended material and the water phase, six sites at each place at Forsmark and Oskarshamn were selected, sampled and analysed for about 75 elements. The sampling sites comprised both lakes and sea bays in the site investigation areas. The field work was performed in April 2008.

Water was sampled with acid-rinsed and metal-free equipment, and the samples were distributed proportionally in the water column. The water was collected in 25 L high density polyethylene (HDPE) drums that had been acid-washed and quality controlled by ALS Scandinavia AB in Luleå prior to the sampling campaign. Immediately after sampling, the water was sent to ALS. In the laboratory, the water was filtrated through 0.22 µm membrane filters to collect the suspended material. For macro elements as C and N, 0.7 µm glass fiber filters were used. The filters and the filtrated water were then analysed by ICP-SFMS for about 75 elements.

Parts of the suspended material in the lake- and sea basins will eventually accumulate more or less permanently. To investigate the distribution of different elements between sediment and sediment pore water, corresponding samples were collected from four sites each at Forsmark and Oskarshamn, and analysed for about 75 elements. The sampled sites comprised both lakes and sea basins. At the same time as the collection of these samples, water for analyses of suspended material was collected. The field work was performed in April 2008.

At each site where sediment was sampled, sediment samples from two different layers were collected; one surface layer (0–5 cm) and one layer below the redox-front (at approximately 20–30 cm sediment depth). At least five samples from each layer were collected. The sediment samples were quickly transferred to separate id-marked diffusion-proof plastic bags. The plastic bags containing the samples were immediately put into a 3-litre id-marked plastic bottle. The bottle was then filled with argon gas. This procedure was repeated for each sediment sample. The sediment samples were then transported to ALS Scandinavia AB. In the laboratory, all samples from each layer within the same sampling site were mixed together to get a pooled sample, representative for the layer.

On arrival at ALS Scandinavia AB, sediment samples were immediately transferred to Luleå University of Technology for the extraction of pore water by sediment pressing. Bottles with sediment-filled bags were opened in an argon-filled glove box. The contents, both sediment and pore water, were transferred to acid-washed plastic containers. One or two spoonfuls of homogenized sediment at a time were then transferred to the sample reservoir of the filtration equipment contained in the same, argon-filled glove box. For pore water extraction, 0.22 µm cellulose filters were used. The sediment and pore water samples were then analysed by ICP-SFMS for about 75 elements.

In this report the sampling and analysis procedures are described, and all data are listed in the appencices, but no further conclusions or interpretations are made.

# Sammanfattning

I syfte att ta fram platsspecifika fördelningskoefficienter för element i suspenderat material och vatten valdes sex olika vattenområden ut i Oskarshamn respektive i Forsmark. Vatten provtogs i både sjöar och havsområden och skickades till laboratorium för provhantering och analys av ungefär 75 olika element. Provtagningen genomfördes i april 2008.

Vattnet togs upp med syradiskad och metallfri utrustning. Provuttagen var fördelade proportionellt vertikalt för att resultera i en så representativ bild av vattenpelaren som möjligt. Vattnet tömdes i en 25 liters plastdunk (HDPE) som tidigare syradiskats och kvalitetskontrollerats av ALS Scandinavia AB i Luleå. Efter provtagning skickades provet omedelbart till ALS för filtrering och analys. Vattnet filtrerades genom ett membranfilter med 0,22 µm porstorlek för att samla upp det suspenderade materialet och analyserades sedan med ICP-SFMS. Ungefär 75 olika element analyserades.

Delar av det suspenderade materialet i sjö- och havsbassängerna kommer slutligen att ackumuleras mer eller mindre permanent i sedimenten. För att kunna jämföra den kemiska sammansättningen av sediment med sammansättningen i det ingående porvatten, provtogs sediment vid fyra av de sex vattenområden där suspenderat material undersökts, både sjöar och havsområden. Analysomfattningen var också den samma som för suspenderat material. Provtagningen genomfördes i april 2008.

Två sedimentskikt togs ut och analyserades; ett yttligare skikt (0–5 cm) och ett skikt under en eventuell redoxzon (ca 20–30 cm). Minst fem delprover från respektive nivå togs ut. Proverna placerades omedelbart i separata id-märkta diffusionstäta plastpåsar och lades sedan ner i en 3-liters id-märkt plastburk med skruvlock. Flaskan fylldes med argongas efter att varje delprov lagts ner. Proverna skickades samma dag till ALS Scandinavia AB. Senare på laboratoriet slogs proverna på varje station för respektive nivå ihop till ett representativt samlingsprov.

Vid ankomsten till ALS överfördes proverna omedelbart till Luleå Tekniska Universitet för extraktion av porvatten genom att filtrera sedimenten. Burkarna med prover öppnades och hanterades i argonmiljö. Både sediment och porvatten samlades upp i syradiskade plastbehållare. Homogeniserat sediment filtrerades sedan, ett par skedar i taget, genom 0,22 µm cellulosafilter i argonmiljö, varpå proverna analyserades med ICP-SFMS.

Denna rapport beskriver provtagnings- och analysförfarande. Alla data finns i appendix. Inga ytterligare bearbetningar eller tolkningar av data redovisas här.

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# 1 Introduction

This document reports the results gained by sampling and chemical analysis of suspended material, filtered water, sediment and pore water, which is one of the activities performed within the site investigation at Forsmark and Oskarshamn. The work was carried out in accordance with Activity plans AP PF 400-08-002 and AP PS 400-08-011. In Table 1-1, controlling documents for performing this activity are listed. Activity plans are SKB's internal controlling documents. All original data from the investigations have been stored in the database Sicada and are traceable by the activity plan numbers.

In this study, water and sediment were sampled at 6 sampling points in lakes and sea bays, in both the site investigation areas at Forsmark and Oskarshamn (Table 1-2 and Figures 1-1 and 1-2). Sampling was performed in April–May 2008. The samples were sent for chemical analysis of suspended material, filtered water, sediment and pore water.

**Table 1-1. Controlling documents for performance of the activity.**

Activity plan	Number	Version
Kemisk sammansättning av suspenderat material, sediment och porvatten – Forsmark.	AP PF 400-08-002	1.0
Kemisk sammansättning av suspenderat material, sediment och porvatten – Oskarshamn.	AP PS 400-08-011	1.0

**Table 1-2. Sampling sites for water and sediment.**

Sampling site	Id-code	Water type	Sampling date	Water depth (m)	Water sampling	Sediment sampling
<b>Forsmark</b>						
Bolundsfjärden	PFM000107	lake	2008-04-08/9	2	x	x
Eckarfjärden	PFM000117	lake	2008-04-08	2	x	x
Labboträsket	PFM000074	lake	2008-04-08/9	0.9	x	x
Asphällsfjärden	PFM000062	sea	2008-04-07	4.5	x	–
Tixlan	PFM000063	sea	2008-04-10	5.4	–	x
Outside Tixlorna	PFM007401	sea	2008-04-07	7.2	x	–
Marträäd	PFM007402	sea	2008-04-07	7	x	–
<b>Oskarshamn</b>						
Jämsen	PSM002067	lake	2008-04-15	11	x	x
Frisksjön	PSM002065	lake	2008-04-15/16	3	x	x
Götemar	PSM002066	lake	2008-04-15	17	x	–
Kråkelund	PSM007090	sea	2008-04-15	21	x	x
Granholmsfjärden	PSM002064	sea	2008-04-15/16	18	x	x
Borholmsfjärden	PSM007097	sea	2008-04-16	7	x	–



Figure 1-1. General overview over the sampling sites at Forsmark.

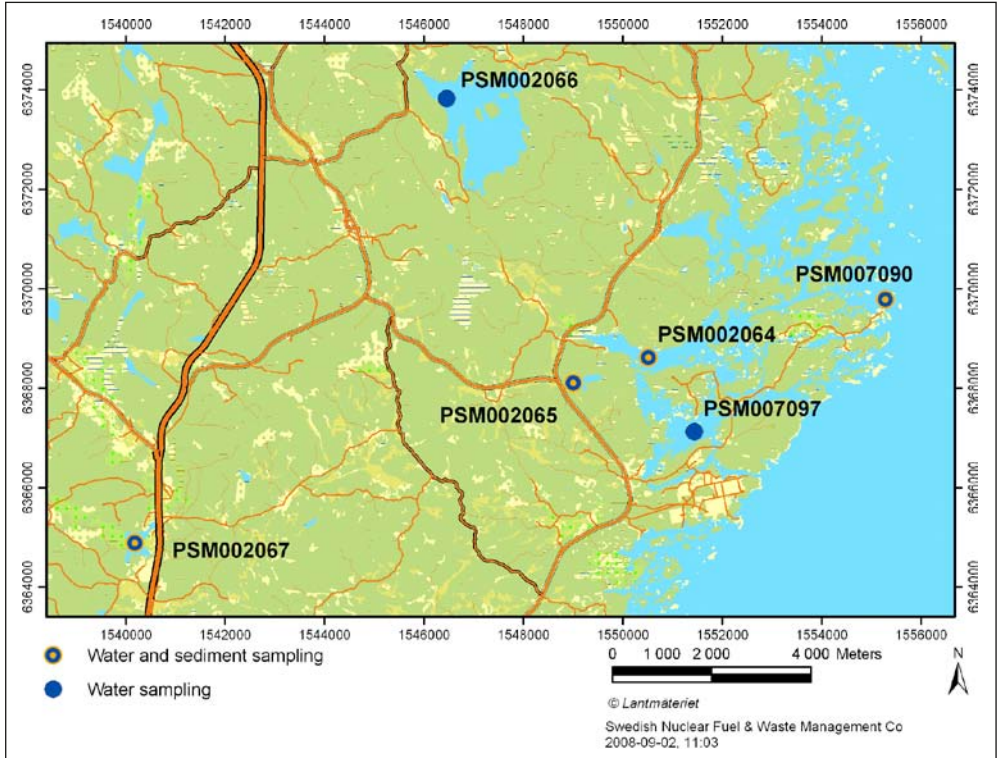


Figure 1-2. General overview over the sampling sites at Oskarshamn.



## 2 Objective and scope

The Swedish Nuclear Fuel and Waste Management Company (SKB) has since 2002 been undertaking site investigations at two different locations on the east coast of Sweden (Forsmark and Oskarshamn), with the objective of generating site-specific models of the current state of the geosphere, the biosphere and human land use. The site models are the foundation for the safety assessment that SKB is performing to identify a possible location for a geological repository for spent nuclear fuel. An important component of the safety assessment is a radionuclide dispersal model, which estimates the environmental transport and distribution of radionuclides that could potentially be released from the repository to the biosphere in the future.

In order to provide site-specific distribution coefficients and element ratios between suspended material and the water phase, six sites at each place (Forsmark and Oskarshamn), were selected, sampled and analysed for about 75 elements.

Parts of the suspended material in the lake- and sea basins will eventually accumulate more or less permanently. To investigate the chemical composition of corresponding sediment and pore water samples at some of the same sites and sampling occasions as for suspended material and water provides important information. In order to provide site-specific distribution coefficients and element ratios between sediment and pore water, four sites at each place (Forsmark and Oskarshamn) were sampled and analysed for about 75 elements.

## 3 Execution

### 3.1 General

All sampling, preparation and analyses were carried out during April–June 2008. The different parts performed in this activity are listed in Table 3-1.

**Table 3-1. List of the different parts and performers in this study.**

Sampling	Performer	No of sites	No of samples	Comment
Water sampling (Forsmark)	Sveriges Vattenekologer AB	6	6	25 litres acid rinsed jar
Sediment sampling (Forsmark)	Sveriges Vattenekologer AB	4	8	0–5 cm and ca 25–30 cm
Water sampling (Oskarshamn)	Medins Biologi AB	6	6	25 litres acid rinsed jar
Sediment sampling (Oskarshamn)	Medins Biologi AB	4	8	0–5 cm and ca 25–30 cm
Sediment sampling (Oskarshamn)	Medins Biologi AB	1	10	0–5 cm. Comparison of two sediment samplers*
Preparation/analysis				
Sediment filtering	Luleå University of Technology	8	16	0.22 µm filter
Water filtering	ALS Scandinavia AB	12	12	0.22 µm filter (for elements) and 0,7µm filter (for C and N)
Chemical analysis of suspendate (suspended phase)	ALS Scandinavia AB	12	12	74 elements
Chemical analysis of refiltered water (suspended phase) (blank)	ALS Scandinavia AB	12	12	72 elements
Chemical analysis of filtered water (water phase)	ALS Scandinavia AB	12	12	76 elements, TOC, NH <sub>4</sub> , NO <sub>2</sub> , NO <sub>3</sub>
Chemical analysis of filtered sediment	ALS Scandinavia AB	8	16	74 elements
Chemical analysis of unfiltered sediment	ALS Scandinavia AB	8	16	C, TOC, N, N-organic
Chemical analysis of pore water	ALS Scandinavia AB	8	16	76 elements, TOC, NH <sub>4</sub> , NO <sub>2</sub> , NO <sub>3</sub>
Chemical analyses of pore water	Chalmers Technical University	4	8	5 elements; Se, Sr, Sn, U, Pu (control laboratory)
Chemical analysis of unfiltered sediment	ALS Scandinavia AB	1	10	72 elements. Comparison of two sediment samplers*

\*See Section 3.6 “Nonconformities”.

## 3.2 Sampling Forsmark

### 3.2.1 General

The methods for sampling and analyses of surface sediment is described in “Metodik för provtagning av ekologiska parametrar i hav” /1/, “Metodik för provtagning av ekologiska parametrar i sjöar och vattendrag” /2/ and in one document written by the Swedish Environmental Protection Agency (Naturvårdsverket) /3/. The activity was performed according to Activity plan SKB AP PF 400-08-002, version 1.0 (SKB internal controlling document).

Data from the field measurements and descriptions of the sediment cores were incorporated in Sicada after termination of the activity. All surface sediment cores were photographed, these photos are also available, stored in the Sicada database. A few photos are presented in this report.

### 3.2.2 Description of equipment

Water samples were collected using an electrical peristaltic pump and a metal-free Ruttner sampler. The peristaltic pump (ASF Thomas SR 10/100, powered by 12 VDC, 7 Ah cells) was connected to a 4–8 m long teflon-tube (FEP 140) of 5 mm inner diameter. A cone was attached to the in-flow end of the teflon tube in order to create a wider opening (20 mm). A manually operated regulator (ELFA, DCM 24-40 pwm) used to adjust the water flow was set to maximum pumping capacity, which was approximately 0.6 litres/minute, somewhat varying depending on the tube length, tube diameter and pumping level. The peristaltic pump system is presented in Figure 3-1. Both the pump system and the Ruttner sampler were acid-washed before sampling.

The water was collected in id-marked, acid-washed 25-litres plastic tanks and kept dark (in double non-transparent plastic bags) during transport.

Sediment samples were collected with 50–90 cm long metal-free polycarbonate tubes using a modified stainless steel “Kajak sampler” in the lakes (Figure 3-2) and by diver in the sea. A graded sediment slicer was used to collect specific sediment levels with high accuracy. For description in field of the sediment core, photos of each sediment core were taken with a digital camera. The sampler, sediment slicer, and tubes were washed in common detergent and rinsed before use.

Each sample of the sediment layers was transferred to a separate id-marked diffusion-proof plastic bag. The plastic bags were then placed in 3-litres id-marked plastic bottles filled with argon gas for transport, one plastic bottle per layer and site, i.e. two bottles per site.

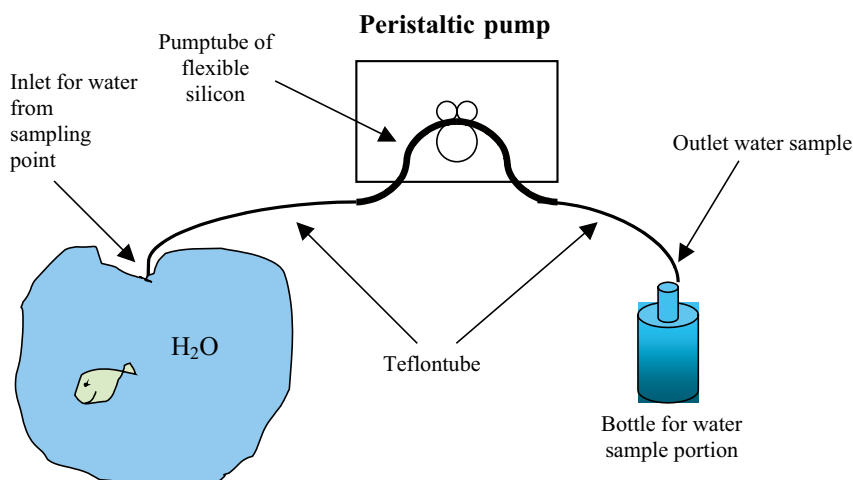


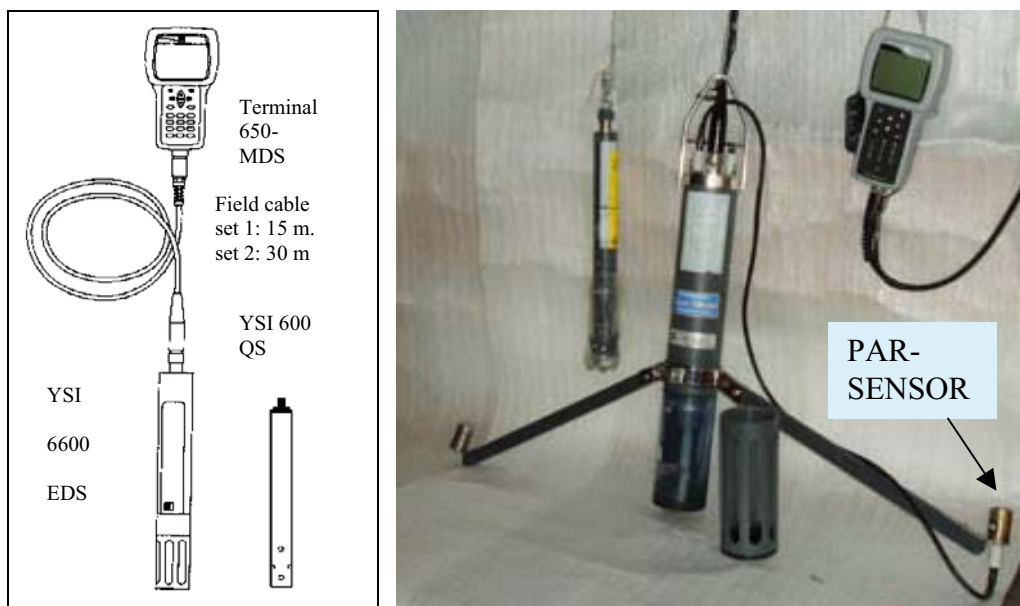
Figure 3-1. Schematic presentation of the peristaltic pump system.



**Figure 3-2.** Compact, modified stainless steel “Kajak sampler” with 50–90 cm long metal-free polycarbonate tubes used for collecting sediment cores. Photo from Labboträsket, April 2008.

Field measurements of temperature and oxygen were performed using either of two multiparameter sondes (YSI 6600 EDS and YSI 600 QS). A terminal (YSI 650 MDS) is connected to each sonde through a cable for logging data (Figure 3-3). The sondes were calibrated before starting measurements in the field.

Sampling point positions were given from GPS with an average accuracy of  $\pm 0.5$ – $1.0$  metre. Water depth was measured using echo sounder with an accuracy of  $\pm 0.05$  metre.



**Figure 3-3.** Measurement sondes used in the field investigations.

### 3.2.3 Sampling points and number of samples

Water samples were collected in three lakes and in three sea sites in the Forsmark area. Sediment samples were collected on the same sites, but only from one of the sea sites. On each site, 25 litres of water were collected and five sediment cores were taken. The sediment cores were sliced and two layers, the surface layer 0–5 cm and a layer below the redox-front (at approximately 25–30 cm depth), were selected for future analysis (see Table 3-2).

### 3.2.4 Water sampling

The water sampling aimed at obtaining an integrated sample of the water column. Water was sampled using either the pump system (Figure 3-1) or a Ruttner sampler from every metre of the water column, starting from approximately one metre above the bottom and finishing at 0.5 m depth. Approximately equal volumes were collected from each depth. The number of samples collected with the Ruttner sampler was depending on water depth, which varied between 0.9–2.0 m at the lake sites and between 4.0–7.0 m at sites in the sea (see Appendix 17 for details). Field measurements of temperature and oxygen were made simultaneously with the water sampling and on the same depths.

The water samples were collected in acid-washed 25 litres plastic tanks and transported under dark conditions (in two non-transparent plastic bags) to ALS Scandinavia AB, a commercial laboratory in Luleå, on the day of sampling.

### 3.2.5 Sediment sampling

The sediment sampling aimed at getting intact sediment cores of at least 30 centimetres length, and to extract specified sediment layers for analyses. The specified layers were the surface layer between 0–5 cm and a layer below the redox-front, or if that could not be identified, 25–30 cm depth. Before slicing, the sediment core was documented by one or two photos.

On each site, five sediment cores were taken. From each core the specific layers were sampled. Each sampled layer was transferred to a separate id-marked diffusion proof plastic bag, from which the air was squeezed. The bags were then stored in argon gas filled plastic bottles, one for each layer and site. Thus, from each site five samples of each layer were collected, in total 10 samples per site. If a sediment core was too short or not intact, the whole core was rejected and a new core was collected.

The sediment samples were transported in plastic bottles filled with argon gas to the analysis laboratory at the Luleå University of Technology. In the laboratory, the samples within one level (0–5 cm and 25–30 cm) from the same basin (lake or sea) were mixed together to get a representative sample from each level.

**Table 3-2. Preliminary sampling schedule for the Forsmark area including planned sampling sites, id-codes, positions and which samples that were collected.**

Site Lake/Sea	ID-code	Position RT90 (Y, X)	Water sampling	No of sediment samples	
				0–5 cm layer	25–30 cm layer
<b>Lake</b>					
Bolundsfjärden	PFM000107	1632065, 6699031	X	5	5
Eckarfjärden	PFM000117	1631946, 6697118	X	5	5
Labboträsket	PFM000074	1629854, 6699393	X	5	5
<b>Sea</b>					
Asphällsfjärden	PFM000062	1631921, 6700605	X	–	–
Outside Tixlorna	PFM007401	1634623, 6699843	X	5	5
Grepen	PFM007402	1635327, 6701624	X	–	–

### 3.2.6 Deviations from sampling plan

Due to the high water content in sediments from the lakes Eckarfjärden, Labboträsket and Bolundsfjärden, extra sediment samples of the surface layer were taken from these lakes to get enough amount of sediment for analysis.

The sea floor on the planned sampling site PFM007401 in the Baltic Sea consisted mainly of hard or sandy substrates which made sediment sampling difficult. After consultation with the Activity leader, the sediment sampling was therefore performed at another sea site, PFM000063. This site was situated on the other side of the island Tixlan, approximately 500 m from the planned site where the water sample was taken. The presence of a *Vaucheria*-layer in the sediment made it difficult to obtain long cores, and a decision was made to take samples of the shallower layer 20–25 cm instead of the planned 25–30 cm layer. In order to ensure enough sediment for the analysis, extra samples were collected from both layers. In Table 3-3 the changes in sampling schedule compared to the preliminary sampling schedule presented in Table 3-2, and the actual number of sediment samples are presented.

## 3.3 Sampling Oskarshamn

### 3.3.1 General

Concerning methods for sampling and analyses, see Section 3.2.1. The activity was performed in compliance with Activity plan AP PS 400-08-011.

### 3.3.2 Description of equipment

The water was sampled with a metal free Ruttner sampler. The sampled water was kept in 25-litres acid rinsed plastic cans. During transport the cans were covered in non-transparent plastic bags to keep the samples dark.

For sediment sampling, a Limnos corer was used. This is a plastic sampler with details in stainless steel. This specific model of sampler has a built-in function for slicing the sediment. The sediments were handled exclusively with clean plastic tools. The sediment samples were transferred to separate id-marked diffusion-proof plastic bags. The plastic bags containing the samples were put into a 3-litres id-marked plastic bottle. The bottle was then filled with argon gas. This procedure was carried out to ensure that the samples were kept and transported in an oxygen free environment.

**Table 3-3. Actual sampling schedule for the Forsmark area and the number of sediment samples collected in order to get enough amount of sediment for analysis.**

Site Lake/Sea	ID-code	Position RT90 (Y, X)	Water sampling	No of sediment samples	
				0–5 cm layer	25–30 cm layer
<b>Lake</b>					
Bolundsfjärden	PFM000107	1632065, 6699031	X	7	5
Eckarfjärden	PFM000117	1631946, 6697118	X	7	5
Labboträsket	PFM000074	1629854, 6699393	X	7	5
<b>Sea</b>					
Asphällsfjärden	PFM000062	1631921, 6700605	X	–	–
Outside Tixlorna	PFM007401	1634623, 6699843	X	0	0
Grepen	PFM007402	1635327, 7701624	X	–	–
Tixlan	PFM000063	1634833, 6699014	–	7	7*

\*Sampled depth: 20–25 cm.

Field measurements of temperature and oxygen were performed using a multiparameter sonde (YSI 6600 EDS). A terminal (YSI 650 MDS) is connected to the probe through a cable for logging data. Calibration of the sonde was carried out according to the standard procedure used during the monthly monitoring of surface water monitoring /4/.

Positions and water depth at the sampling sites were given from a Lowrance LMS-522ciGPS. This is a unit with combined GPS navigation and echo sounder functions. The unit has an average positioning accuracy of  $\pm 2$  to 5 metres. The echo sounder measures the depth with an accuracy of  $\pm 0.1$  metre.

### 3.3.3 Water and sediment sampling sites

The sampling sites (Table 3-4) have, with one exception (PSM007090) been sampled before as a part of the ongoing surface water monitoring. At the site PSM007090 Kråkelund, the bottom substrate had to be examined to find a suitable site, i.e. a site with an accumulation bottom. This examination was conducted by taking up several test cores of sediment in the pre-designated area. Based on the results from this examination, the site for sampling was moved a few hundred metres from the proposed site.

**Table 3-4. Water and sediment sampling sites in the Laxemar-Simpevarp area in Oskarshamn.**

<b>Water sampling sites</b>				
<b>Lake</b>	<b>ID-code</b>	<b>Sampling date</b>	<b>Sample number</b>	<b>Coordinates (Y, X) RT90</b>
Frisksjön	PSM002065	2008-04-16	15501	1549010, 6368100
Götemar	PSM002066	2008-04-15	15497	1546460, 6373820
Jämsen	PSM002067	2008-04-15	15496	1540190, 6364900
<b>Sea</b>				
Borholmsfjärden	PSM007097	2008-04-16	15499	1551440, 6367120
Granholmsfjärden	PSM002064	2008-04-16	15500	1550520, 6368620
Kråkelund	PSM007090	2008-04-15	15498	1555285, 6369787
<b>Sediment sampling sites</b>				
<b>Lake/layer</b>	<b>ID-code</b>	<b>Sampling date</b>	<b>Sample number</b>	<b>Co-ordinates (Y, X) RT90</b>
Frisksjön (0–5 cm)	PSM002065	2008-04-15	15508	1549010, 6368100
Frisksjön (20–25 cm)	PSM002065	2008-04-15	15509	1549010, 6368100
Jämsen (0–5 cm)	PSM002067	2008-04-15	15502	1540190, 6364900
Jämsen (15–20 cm)	PSM002067	2008-04-15	15503	1540190, 6364900
<b>Sea/layer</b>				
Granholmsfjärden (0–5 cm)	PSM002064	2008-04-15	15506	1550520, 6368620
Granholmsfjärden (25–30 cm)	PSM002064	2008-04-15	15507	1550520, 6368620
Kråkelund (0–5 cm)	PSM007090	2008-04-15	15504	1555285, 6369787
Kråkelund (25–30 cm)	PSM007090	2008-04-15	15505	1555285, 6369787

### 3.3.4 Water sampling

The water was sampled with a metal-free Ruttner sampler. Before use, the sampler was washed in a slightly acidic water/detergent solution containing a detergent specifically formulated to safely clean plastic laboratory products (Nalgene L 900) and rinsed several times with distilled water.

The sampling of water was conducted in such a way that the collected water as far as possible reflected the complete water column at the site, i.e. the samples were distributed proportionally in the water column. Accordingly, the actual number of samples depended on the water depth at the site (Table 3-5).

The collected water was kept in 25-litres, acid-washed plastic cans. During transport the cans were kept in non-transparent plastic bags to keep the samples dark.

### 3.3.5 Sediment sampling

Before use, the Limnos corer and the plastic tools were washed in a slightly acidic water/detergent solution containing a detergent specifically formulated to safely clean plastic laboratory products (Nalgene L 900) and rinsed several times with distilled water.

At each site where sediment was sampled, two different layers were extracted; one surface layer (0–5 cm) and one layer below the redox-front (approx 20–30 cm). At least five samples from each layer were collected. If the sediment contained a lot of water, extra samples were taken to ensure that enough material was collected (Table 3-6). If a sediment core was too short or not intact, the whole core was rejected and a new core was collected.

The sediment samples were quickly transferred to separate id-marked diffusion-proof plastic bags, from which the air was squeezed. Each bag was individually marked. The plastic bags containing the samples were immediately put into a 3-litres id-marked plastic bottle. The bottle was then filled with argon gas. This procedure was repeated for each sediment sample. The argon gas was added to ensure that the samples were kept and transported in an oxygen-free environment. One 3-litres plastic bottle was used for each layer and site, i.e. two bottles per site. Thus, from each site at least five samples from each layer were collected.

**Table 3-5. Field data for water samples collected in the Laxemar-Simpevarp area in Oskarshamn.**

Sea	ID-code	Sampling date	Water depth (m)	Sampling depth (m)	Secchi depth (m)
Borholmsfjärden	PSM007097	2008-04-16	7	0–6	2.9
Granholmsfjärden	PSM002064	2008-04-16	17	0–16	3.0
Kråkelund	PSM007090	2008-04-15	21	0–20	6.5
<b>Lake</b>					
Frisksjön	PSM002065	2008-04-16	3	0–2	1.8
Götemar	PSM002066	2008-04-15	16	0–15,5	4.5
Jämsen	PSM002067	2008-04-15	10.5	0–10	1.5



**Table 3-6. Field data for sediment samples collected in the Laxemar-Simpevarp area in Oskarshamn.**

Lake	ID-code	Sampling date	Water depth (m)	Sampling depth (cm)	Sampled cores	Description of sediment
Frisksjön	PSM002065	2008-04-15	3	0–5	6	soft, dark brown
Frisksjön	PSM002065	2008-04-15	3	20–25	6	quite firm, dark brown
Jämsen	PSM002067	2008-04-15	11	0–5	6	dark brown
Jämsen	PSM002067	2008-04-15	11	15–20	5	black with lighter bands, darkening with depth
<b>Sea</b>						
Granholmsfjärden	PSM002064	2008-04-15	18	0–5	6	soft, green-black
Granholmsfjärden	PSM002064	2008-04-15	18	25–30	6	fairly firm, green-black
Kråkelund	PSM007090	2008-04-15	21	0–5	5	first a few mm beige, followed by green-black, prominent smell of hydrogen sulphide
Kråkelund	PSM007090	2008-04-15	21	25–30	5	green-black, prominent smell of hydrogen sulphide

### 3.3.6 Complementary sampling of sediment

To prove that no contamination occurred when the Limnos corer was used (see Section 3.7.2 Nonconformities) a second round of sampling was undertaken six weeks later (27 May 2008). Five samples (0–5 cm) were collected with a plastic Kajak corer sediment sampler (Figure 3-4). This is a sampler that has no metal parts in contact with the sampled sediment. In addition to this, five duplicates were collected with the Limnos corer used in the original survey.

Collected samples were handled in the same way as in the original survey, with the exception that no argon gas was added to the plastic bottles used for transporting the samples. The samples were sent the same day to the laboratory and analysed for the same elements as in the original survey.

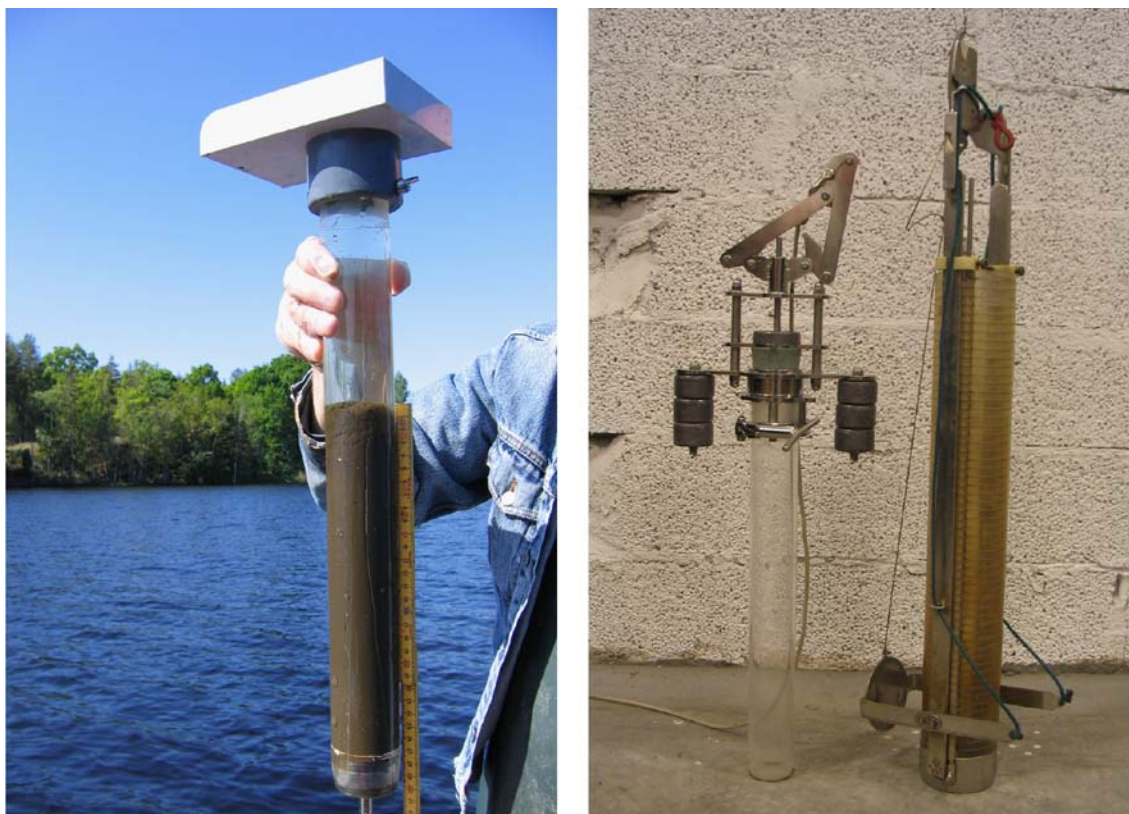
## 3.4 Sample preparations and chemical analysis of water

### 3.4.1 General

At the laboratory (ALS Scandinavia AB in Luleå), both the solid (suspended) and dissolved (after filtration) phases of the sampled water, the sediment samples, and the sediment pore water samples were analysed for trace elements, macro components and complex ions. Sample preparation and analysis methods are described below.

### 3.4.2 Filtering

For the determination of elemental concentrations in suspended material, 142 mm diameter, cellulose membrane filters with 0.22 µm pore size (Millipore) were used. Filters were cleaned by 72 h leaching in a 5% (v/v) solution of acetic acid (0.85 M) followed by rinsing repeatedly with Milli-Q water. The filters were then equilibrated with Milli-Q water for 24 h and stored in distilled Milli-Q water. Blank filters were prepared for analysis each day that samples were filtered, in order to determine their content of trace elements. Filters were mounted in a dedicated, 142 mm diameter, acrylic filter holder and held in place with swing-away bolts. The filter and holder, purchased from Geotech Environmental Equipment, Inc, USA, in 2008, were fed with sample using a peristaltic pump. Filtration equipment, pump tubing and gaskets were acid leached and thoroughly rinsed with Milli-Q water before use.



**Figure 3-4.** Kajak corer with a sediment sample from site PSM002065 Lake Frisksjön (left). The two sediment samplers used in the complementary sampling (right), Kajak sampler to the left and Limnos sampler to the right.

Samples were stored cold (5–8 degrees C) until filtration started. Filtering commenced on the same day as the samples were registered. Before removing aliquots from the bulk sample, the drums were shaken vigorously to ensure that representative sub-samples would be taken.

In order to collect as much suspended material as possible, filtration was terminated just before clogging occurred or until 10 L of sample had passed through the filter (suspended material in the offer). The filtrate was continuously collected in an acid-washed drum (10 L).

To quantify any contribution of dissolved elements in the water to the material collected on the filters, 2 L filtrate were re-filtered through a fresh filter after washing the filtration equipment (blank filter according to analytical package 2 in the offer). This procedure was carried out for all samples in order to allow blank subtraction of concentrations found on suspended material filters if required.

After filtration, filters were transferred directly into the closed Teflon vessels to be used for microwave digestion (see Section 1.2). This avoided the need for intermediate storage of the filters and thus eliminated a potential source of contamination. 10 ml of sub-boiling distilled nitric acid, prepared in house, were immediately added to the filters in the Teflon vessels for preservation of the samples that were stored at room temperature.

### **3.4.3 Digestion and analysis of suspended material filters**

The filters were digested in a microwave oven following addition of 0.05 ml suprapure quality hydrofluoric acid to the 10 ml nitric acid that had already been added (Section 3.4.2). After appropriate dilution, aliquots of the digested suspended material were analyzed by ICP-SFMS.

### 3.4.4 Determination of the mass of suspended material and other analyses of the suspended phase

The mass of suspended material collected by filtration was determined gravimetrically using three different approaches:

- 1) According to the accredited method SS EN 872, 2nd edition (glass fiber filters with 1.6  $\mu\text{m}$  pore size), which is performed every month on surface water samples from Forsmark and Oskarshamn.
- 2) After collection on 47 mm diameter cellulose filters with 0.22  $\mu\text{m}$  pore size. The volume of water filtered was restricted to prevent clogging in the same way as for samples filtered on 142 mm diameter filters (see Section 1.1). The analysis was performed in order to relate the results of element analysis to a corresponding concentration of suspended material. The results are reported together with those of the analyses by ICP-SFMS.
- 3) After collection on 55 mm diameter glass fiber filters with 0.7  $\mu\text{m}$  pore size. These filters were then used to determine the concentrations of C-tot and N-tot in suspended material. On the advice of SKB the glass fiber filters were ashed at 400°C and washed (except blank filter U10391117 that was only ashed) with Milli-Q water before use. Measurements of C-tot and N-tot collected on filters were performed by a sub-contractor, Belab (organization number 556608-0783), using a Leco CHN 600 elemental analyzer.

Note that these three different methods displayed surprisingly good agreement, considering that three different filter qualities were employed. However, the mass of suspended material was below the current limit of quantification for the accredited method (approach number 1) for a number of samples.

### 3.4.5 Comments

In the SKB samples no. 12998 (PFM000117, Eckarfjärden) and 15497 (PSM002066, Götemar) a large number of living organisms was observed.

During filtration of the SKB samples no. 15499 (PSM007097, Borholmsfjärden) and 15500 (PSM002064, Granholmsfjärden) the filters became strongly red or cerise-colored around the edges.

### 3.4.6 Analysis of 0.22 $\mu\text{m}$ filtrate (dissolved phase)

All filtrate from any given sample was collected in an acid-washed plastic drum. Aliquots were conserved by adding a volume of nitric acid (sub-boiling distilled) equivalent to 1% of the volume of filtrate (nitric acid concentration approximately 0.14 M) before analysis by ICP-SFMS.

Non-conserved aliquots were sent to a sub-contractor, GBA (Gesellschaft für Bioanalytik Hamburg mbH) for the determination of Cl, F, N-tot,  $\text{NH}_4\text{-N}$ ,  $\text{NO}_2\text{-N}$ ,  $\text{NO}_3\text{-N}$ , C-tot and TOC. The relevant methods are listed in Table 3-7.

**Table 3-7. Methods for determination of parameters in filtrate (dissolved phase) at GBA.**

Analyte(s)	Method	Analyte(s)	Method
Cl, F	DIN EN ISO 10304-1	$\text{NH}_4\text{-N}$	DIN EN ISO 11732-E23
C-tot, TOC	DIN EN 1484 H3	$\text{NO}_2\text{-N}$	DIN EN ISO 13395-D28
N-tot	DIN EN ISO 11905-1 (H36)	$\text{NO}_3\text{-N}$	DIN EN ISO 10304-1/-2 D19

### **3.5 Analysis of sediment and pore water after pressing/filtering of sediment samples**

Sediment sampling was performed by SKB, according to instructions provided by Luleå University of Technology, as described below.

- 1) Sub-samples were extracted from the collected sample cores directly in the field to minimize oxidation of sediment and pore water.
- 2) Sub-sampled material was placed in clean plastic bags (air tight to prevent leakage) with sample numbers written directly in indelible ink. Before sealing, as much air as possible was squeezed out of the bag. Plastic bags were then placed in air tight, 2 L HDPE bottles with screw caps that had been pre-filled with argon gas in the laboratory. Each bottle was large enough to accommodate all sub-samples from a single sampling station or sediment core.
- 3) The argon was topped up now and then as new sample bags were placed in the bottle.
- 4) The bottles were finally filled with argon after the last sample had been placed inside, closed tightly, and kept chilled or cooled until transport to ALS Scandinavia AB or Luleå University of Technology.

On arrival at ALS Scandinavia AB, sediment samples were immediately transferred to Luleå University of Technology for the extraction of pore water by sediment pressing.

Bottles with sediment-filled bags were opened in an argon-filled glove box. The contents, both sediment and pore water, were transferred to acid-washed plastic containers, after which the contents were homogenized with disposable, plastic spoons.

One or two spoonfuls of homogenized sediment at a time were then transferred to the sample reservoir of the filtration equipment contained in the same, argon-filled glove box. For pore water extraction, 0.22 µm cellulose filters were used. The vacuum pump was then started and the pore water pressed from the sediment, being collected in pre-weighed, acid-washed, 60 ml plastic flasks.

When the sediment in the reservoir looked dry (as indicated by the appearance of cracks), and no more pore water dropped into the collection flask, the reservoir was emptied into another pre-weighed plastic container. More wet sediment was then spooned into the reservoir and the procedure repeated until about 60 ml of pore water was collected. For volume (pore water) and mass (sediment) determination, the plastic containers were weighed after completed filtration.

The plastic containers were stored in a refrigerator until being returned to ALS Scandinavia AB for analysis.

#### **3.5.1 Analysis of pore water**

After conservation by adding 1% (v/v) nitric acid (0.14 M), pore water was analyzed with respect to trace elements using AFS (Hg, Se), ICP-AES and ICP-SFMS. The actual technique used to determine any particular element is specified on each individual analysis report, delivered to SKB.

Acid-conserved aliquots of eight different samples were sent to Chalmers University of Technology for duplicate analysis (see Section 3.6).

Non-conserved aliquots were sent to a sub-contractor, GBA (Gesellschaft für Bioanalytik Hamburg mbH) for the determination of Cl, F, N-tot, NH<sub>4</sub>-N, NO<sub>2</sub>-N, NO<sub>3</sub>-N, C-tot and TOC. The relevant methods are tabulated in Table 3-8.

**Table 3-8. Methods for determination of analytes in pore water at GBA.**

Analyte(s)	Method	Analyte(s)	Method
Cl, F	DIN EN ISO 10304-1	NH <sub>4</sub> -N	DIN EN ISO 11732-E23
C-tot, TOC	DIN EN 1484 H3	NO <sub>2</sub> -N	DIN EN ISO 13395-D28
N-tot	DIN EN ISO 11905-1 (H36)	NO <sub>3</sub> -N	DIN EN ISO 10304-1/-2 D19

### 3.5.2 Analysis of the sediment phase

On arrival at ALS Scandinavia AB each sediment sub-sample was dried at 50°C and the dry weight was determined. Dried samples were homogenized by grinding in an agate mortar. The dry weight after drying at 105°C and the loss on ignition at 550°C were then determined according to SS 02 81 13-1.

For analyses by AFS, ICP-AES and ICP-SFMS three separate sediment digestion methods were required to facilitate the determination of the total concentrations of all elements. The following suite of elements was determined after microwave-assisted digestion in closed Teflon vessels using a nitric/hydrochloric/hydrofluoric acid mixture: Ag, As, B, Ba, Be, Cd, Co, Cs, Cu, Hg, I, Li, Mo, Ni, Pb, S, Sb, Se, Sn, Tl and Zn.

To complement these results, analysis after LiBO<sub>2</sub> fusion was employed. After drying at 105°C, a mixture of sediment and LiBO<sub>2</sub> in a carbon crucible was fused at 1,000°C. The pearl formed on cooling was then dissolved in dilute acid and analyzed with respect to the elements: Al, Ca, Fe, K, Mg, Mn, Na, P, Si, Ti, Cr, Ga, Ge, Hf, Nb, Rb, Sc, Sr, Ta, Th, U, V, W, Y, Zr, Ce, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

Separate sample preparation was applied for the determination of the halogens. This involved sintering a mixture of Na<sub>2</sub>CO<sub>3</sub> and ZnO with dried sediment at 550°C. The sodium halide salts formed were extracted in hot Milli-Q water, and the extract batch-cleaned overnight on a cation exchange resin. ICP-SFMS was then used to determine Br, Cl and I, whereas F was measured by ion chromatography (DIN EN ISO 10304-1) on a separate aliquot of cleaned extract sent to a sub-contractor (GBA). Recalculation of the results from F concentration in solution to F mass fraction in the solid was performed by ALS Scandinavia AB.

Critical evaluation of the analyses showed that acid digestion gave more reliable and consistent results than sintering for the determination of I in sediments. Therefore, we strongly recommend that results from the former method are used for data interpretation of I.

The analytical technique and method of sample preparation is identified on each analysis report provided by ALS Scandinavia AB.

The determination of major components C-tot, TOC, N-tot and N-org, was performed on wet sediments after drying at 50°C and homogenization by grinding in an agate mortar. Insufficient sediment from which the pore water had already been extracted was available to perform these analyses. The analyses were carried out by a sub-contractor (GBA) using the indicated methods: C-tot and TOC (DIN ISO 10694); N-tot (DIN ISO 11261); N-org (Kjeldahl after stripping of NH<sub>4</sub><sup>+</sup>).

### 3.6 Duplicate analysis of five elements in pore water

Eight samples of pore water were sent from ALS Scandinavia AB to Chalmers University of Technology for analysis (Table 3-9). The reason for this was that it would be interesting to compare results with a non commercial laboratory. Five elements were analysed; Se, Sr, Sn, U, Pu (Pu was not analysed at ALS). All dilutions were made with 1M HNO<sub>3</sub> (supra pure) spiked with 10 ppb Y, In and Th as internal standards.

**Table 3-9. Pore water samples that were sent to Chalmers University of Technology for analysis**

ID-code	Name	Water type	Layer (cm)	SKB-no
PFM000117	Eckarfjärden	lake	0–5	16000
PFM000117	Eckarfjärden	lake	25–30	16001
PFM000063	Tixelfjärden	sea	0–5	16006
PFM000063	Tixelfjärden	sea	20–25	16007
PSM002065	Frisksjön	lake	0–5	15508
PSM002065	Frisksjön	lake	25–30	15509
PSM007090	Kråkelund	sea	0–5	15504
PSM007090	Kråkelund	sea	25–30	15505

### **Matrix interferences**

The sea samples consist of waters with high ionic strength. To check for interferences from the matrix, a test solution containing NaCl and MgSO<sub>4</sub> to mimic the sea samples was prepared. This test solution was diluted with 1M HNO<sub>3</sub> and spiked with 10 ppb of the measured metals. The dilutions were 10, 100 and 10,000 and the relative standard deviations (RSD) for the measurements are shown below. Any dilution smaller than 10 will increase the uncertainties in the measurements (according to Arvid Ödegaard-Jensen, Chalmers University of Technology).

Nuclide	Se-82	Sr-86	Sr-87	Sn-117	Sn-118	U-238
RSD %	4.2	0.4	0.6	2.1	1.6	0.6

From above it is seen that the effect of the matrix, using these dilutions, is relatively small except for Se. Se also behaved differently from the other elements. An increase in the ionic strength should decrease the metal signal, as long as the metal is not the cause of the ionic strength. However, the Se signal increased as the ionic strength increased in this “matrix-test”. Pu is assumed to behave as U.

Since the matrix effects described above are small, the following measurements were made; first the calibration samples blank, 0.1 ppb, 1 ppb, and 10 ppb. The R values for the different calibration curves were all larger than 0.9999.

The samples were analysed using a 10 times dilution for the elements Se, Sn, U and Pu, and a 100 times dilution for Sr.

## **3.7 Nonconformities**

### **3.7.1 Sampling Forsmark**

In the lakes Eckarfjärden, Labboträsket and Bolundsfjärden extra sediment samples from the surface layer were taken to obtain enough amount of sediment for analysis.

The sea floor on the planned sampling site PFM007401 in the Baltic Sea consisted mainly of hard or sandy substrates which made sediment sampling difficult. After consultation with the Activity leader, the sediment sampling was therefore conducted at another sea site, PFM000063. This site was situated on the other side of the island Tixlan, approximately 500 m from the planned site where the water sample was taken. The presence of a Vaucheria-layer in the sediment made it difficult to obtain long cores, and a decision was made to take samples of the shallower layer 20–25 cm instead of the planned 25–30 cm layer. In order to ensure enough sediment for the analysis extra samples were taken from both layers. In Table 3-3 the changes in sampling schedule and the actual number of sediment samples are presented.

### **3.7.2 Sampling Oskarshamn**

The plastic sediment corer that was planned to be used for sediment sampling malfunctioned and could therefore not be used. Instead the sediment was sampled with a Limnos sediment corer that has a small part made in stainless steel in contact with the sediment. This deviation from the planned method was made in agreement with the Activity leader on site. To investigate whether this caused any contamination of the sediment, a complementary sampling was later performed on site PSM002065 (see Section 3.3.5).

### **3.7.3 Preparation and analysis**

In the SKB samples no. 12998 (PFM000117, Eckarfjärden) and 15497 (PSM002066, Götömar) a large number of living organisms was observed.

During filtration of SKB samples no. 15499 (PSM007097, Borholmsfjärden) and 15500 (PSM002064, Granholmsfjärden) the filters became strongly red or cerise-colored around the edges.

## 4 Results

### 4.1 General

All original data from the investigations have been stored in the database Sicada and are traceable by the activity plan numbers. Only data in databases are accepted for future interpretation and modelling. The data presented in this report are regarded as copies of the original data. Data in the databases may be revised, if needed. Such revision will not necessarily result in a revision of the P-report, although the normal procedure is that major revisions entail a revision of the P-report. Minor revisions are normally presented as supplements, available at [www.skb.se](http://www.skb.se).

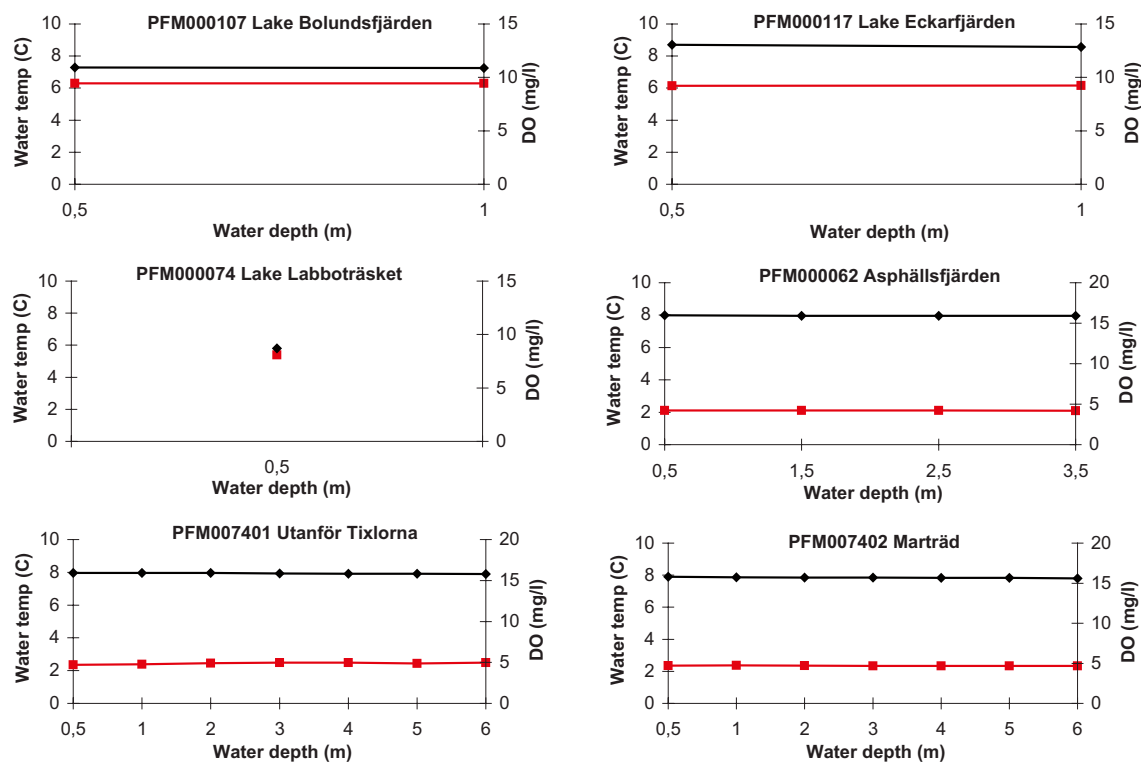
All raw data can be viewed in appendices, including complementary sampling of sediment in Lake Frisksjön (see Section 3.3.5, Section 4.3 and Appendix 16), analysis of five elements in pore water at Chalmers Technical University (control laboratory, see Section 3.6 and Appendix 15) and suspended material/water data from October 2007, performed as a pilot study at one sampling site in Oskarshamn (Appendix 19).

In this chapter only a part of the field data (Section 4.2) and results from the complementary sampling of sediment in Lake Frisksjön (Section 4.3) are presented. No other conclusions or interpretations of data are made in this report.

### 4.2 Field measurements

Temperature- and dissolved oxygen profiles were measured when sampling water in the field (Figures 4-1 and 4-2). In Appendix 17 and 18 more field data are listed.

#### 4.2.1 Forsmark



**Figure 4-1.** Field measurements of water temperature (red) and dissolved oxygen (black) at the water sampling sites at Forsmark.



## 4.2.2 Oskarshamn

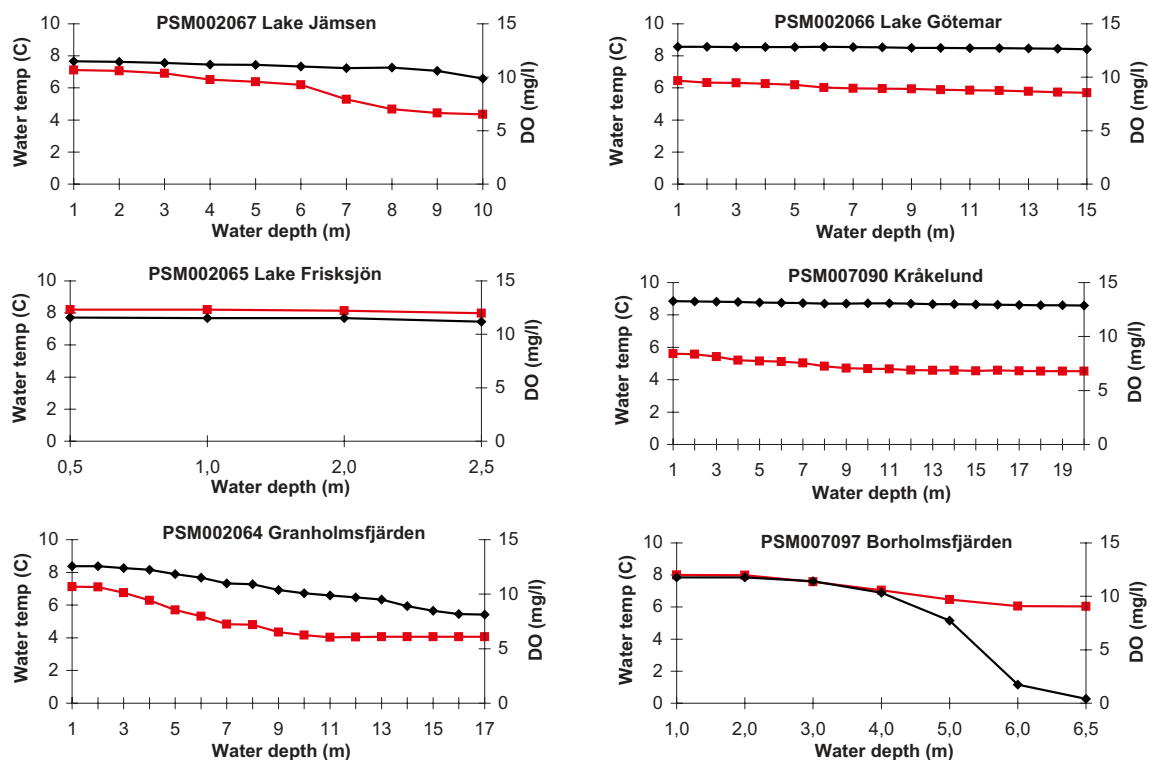


Figure 4-2. Field measurements of water temperature (red) and dissolved oxygen (black) at the water sampling sites at Oskarshamn.

## 4.3 Complementary sampling of sediment in Lake Frisksjön

The sediment was sampled with two different sediment samplers (Limnos and Kajak) in Lake Frisksjön in order to detect possible contamination from the stainless steel edge of the Limnos sampler that was used in the survey in Oskarshamn. All data from this study are listed in Appendix 16.

Contamination from the Limnos sampler could not be shown using two-tailed students t-test (Table 4-1). In all cases where significant differences occurred ( $p < 0.05$ ) the results showed lower values with the Limnos sampler.

Table 4-1. Calculated average, standard deviation, maximum- and minimum values and t-test (two-tailed) of data from element analysis of unfiltered sediment (0–5 cm level) in Lake Frisksjön with two different sediment samplers (n=5 for each catcher). P-values <0.05 are yellow-marked. All concentrations in mg/kg dw.

Sampler: Element	Limnos average	Limnos stdev	Limnos max	Limnos min	Kajak average	Kajak stdev	Kajak max	Kajak min	T-test p
Ag	0.89	0.07	1	0.83	0.93	0.04	1	0.9	0.362
Al	39,200	1,643	41,000	38,000	39,800	1,643	41,000	38,000	0.580
As	5.48	0.53	5.9	4.6	5.72	0.22	6	5.5	0.387
B	62	4.47	70	60	60	0	60	60	0.374
Ba	228	11.0	240	220	232	4.5	240	230	0.482
Be	9.62	0.36	10	9.3	10	0.00	10	10	0.076
Bi	0.37	0.014	0.38	0.35	0.37	0.018	0.39	0.35	0.708

Sampler: Element	Limnos average	Limnos stdev	Limnos max	Limnos min	Kajak average	Kajak stdev	Kajak max	Kajak min	T-test p
Br	320	21.2	350	300	318	8.4	330	310	0.852
Ca	8,800	510	9,500	8,200	9,120	259	9,400	8,800	0.258
Cd	3.54	0.13	3.7	3.4	3.6	0.13	3.7	3.4	0.820
Ce	262	8.37	270	250	268	8.4	280	260	0.290
Co	25.2	0.84	26	24	25.6	0.89	27	25	0.486
Cr	45	1.58	47	43	46.6	1.1	48	45	0.107
Cs	2.7	0.10	2.8	2.6	2.8	0.07	2.9	2.7	0.109
Cu	90	4.30	94	84	92.6	1.9	95	90	0.268
Dy	9.2	0.36	9.7	8.7	9.44	0.18	9.6	9.2	0.233
Er	5.18	0.24	5.5	4.9	5.38	0.08	5.5	5.3	0.138
Eu	3.5	0.21	3.8	3.3	3.64	0.11	3.8	3.5	0.240
Fe	36,400	2,302	38,000	33,000	37,000	1,581	39,000	35,000	0.645
Ga	6.18	0.40	6.6	5.6	6.24	0.17	6.4	6	0.770
Gd	11.8	0.84	13	11	12	0.00	12	12	0.621
Ge	0.82	0.08	0.9	0.7	0.80	0.07	0.9	0.7	0.694
Hf	2.52	0.16	2.7	2.3	2.66	0.05	2.7	2.6	0.132
Hg	0.136	0.04	0.21	0.11	0.12	0.02	0.15	0.11	0.579
Ho	1.8	0.10	1.9	1.7	1.86	0.05	1.9	1.8	0.282
I	30	0.00	30	30	30	0.00	30	30	–
K	7,260	305	7,600	6,900	7,740	329	8,300	7,500	0.044
La	130	7.07	140	120	130	0.00	130	130	1.000
Li	20.8	0.84	22	20	21.4	0.55	22	21	0.222
Lu	1.06	0.05	1.1	1	1.12	0.045	1.2	1.1	0.096
Mg	3,740	114	3,900	3,600	3,800	122	3,900	3,600	0.446
Mn	324	19.5	350	310	324	8.9	330	310	1.000
Mo	3.46	0.19	3.7	3.2	3.6	0.14	3.8	3.4	0.233
Na	2,720	83.7	2,800	2,600	2,880	44.7	2,900	2,800	0.009
Nb	5.2	0.28	5.5	4.9	5.88	1.2	8.1	5.1	0.295
Nd	140	7.07	150	130	146	5.5	150	140	0.174
Ni	71.2	2.77	74	67	73.2	1.8	75	71	0.219
P	2,260	89.4	2,400	2,200	2,280	45	2,300	2,200	0.671
Pb	55	2.74	58	51	57.2	1.3	58	55	0.158
Pr	37.2	1.79	39	35	38	1.6	40	36	0.475
Rb	39	3.00	43	36	40.2	1.1	42	39	0.439
S	18,600	894	20,000	18,000	19,600	548	20,000	19,000	0.073
Sb	0.374	0.03	0.42	0.34	0.38	0.016	0.4	0.36	0.800
Sc	11.8	0.45	12	11	12	0.00	12	12	0.374
Se	1.56	0.24	1.9	1.3	1.72	0.22	2.1	1.6	0.302
Si	294,000	15,166	310,000	280,000	304,000	8,944	310,000	290,000	0.248
Sm	22.4	1.14	24	21	23	0.00	23	23	0.305
Sn	3.4	0.16	3.6	3.2	3.44	0.11	3.6	3.3	0.660
Sr	73	3.00	78	70	74.8	1.9	77	72	0.297
Ta	0.628	0.031	0.68	0.6	0.63	0.013	0.65	0.62	0.801
Tb	1.68	0.13	1.8	1.5	1.76	0.089	1.9	1.7	0.295
Te	0.088	0.008	0.098	0.079	0.097	0.008	0.11	0.088	0.133
Th	11.6	0.55	12	11	11.8	0.45	12	11	0.545
Ti	1,360	54.8	1,400	1,300	1,380	84	1,500	1,300	0.668
Tl	0.67	0.07	0.78	0.61	0.65	0.048	0.73	0.6	0.564
Tm	0.74	0.02	0.76	0.7	0.76	0.029	0.8	0.73	0.261
U	15.8	0.84	17	15	16.4	0.5	17	16	0.222
V	52.4	3.05	56	49	54	2.2	57	51	0.374
W	1.58	0.08	1.7	1.5	1.68	0.084	1.8	1.6	0.095
Y	94.6	3.91	100	90	96.2	3.6	100	93	0.518
Yb	4.94	0.15	5.1	4.7	5.02	0.20	5.2	4.7	0.504
Zn	276	5.48	280	270	286	5.5	290	280	0.020
Zr	57.2	1.30	59	56	59.8	2.5	63	58	0.084

## 5 References

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## Analysis of filter (suspendate) after filtering water – Forsmark

Sample date:	2008-04-07	2008-04-07	2008-04-07	2008-04-08	2008-04-08	2008-04-08	
SKB-no:	12994	12995	12996	12997	12998	12999	
Name:	Asphällsfjärden	Utanför Tixlorna	Marträäd	Bolundsfjärden	Eckarfjärden	Labboträsket	
ID-code:	PFM62	PFM7401	PFM7402	PFM107	PFM117	PFM74	
Element	Unit						
Ag	ng tot	2.8	3.4	3.5	1.3	1.3	2.3
Al	ng tot	1,000,000	1,100,000	1,400,000	27,000	19,000	46,000
As	ng tot	540	600	770	31.2	31	35
Au	ng tot	<1	<1	<1	<1	<1	<1
B	ng tot	2,500	2,600	2,700	210	110	760
Ba	ng tot	9,400	11,000	14,000	530	640	760
Be	ng tot	51	56	77	1.4	0.96	1.9
Bi	ng tot	11	12	15	2.5	1.4	2.1
Br	ng tot	80,000	110,000	130,000	8,400	5,600	6,000
Ca	ng tot	360,000	380,000	470,000	240,000	480,000	240,000
Cd	ng tot	30	33	39	6.1	9.8	11
Ce	ng tot	2,100	2,300	3,400	140	83	93
Co	ng tot	280	290	420	14	12	18
Cr	ng tot	1,800	1,900	2,300	630	680	710
Cs	ng tot	120	130	180	4.7	2.3	5.9
Cu	ng tot	840	900	1,100	330	240	580
Dy	ng tot	110	120	170	7.7	4.6	5.2
Er	ng tot	66	75	100	4.6	3.1	3.3
Eu	ng tot	20	22	31	1.1	0.66	0.78
Fe	ng tot	730,000	760,000	1,000,000	66,000	23,000	43,000
Ga	ng tot	300	310	430	8.1	4.8	15
Gd	ng tot	71	86	120	4.6	3.2	3.6
Ge	ng tot	38	38	48	3.1	3.9	1
Hf	ng tot	75	81	110	3.7	2.8	5.6
Hg	ng tot	7.2	6.1	6.9	2.8	2.3	5.4
Ho	ng tot	23	25	36	1.6	1.1	1.2
I	ng tot	2,500	3,500	5,200	450	1,300	540
In	ng tot	<1	<1	<1	<1	<1	<1
Ir	ng tot	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
K	ng tot	690,000	750,000	940,000	42,000	70,000	630,000
La	ng tot	1,300	1,400	2,000	100	53	80
Li	ng tot	770	830	1,200	22	36	33
Lu	ng tot	7.4	8.2	12	0.53	0.4	0.39
Mg	ng tot	610,000	660,000	770,000	39,000	34,000	27,000
Mn	ng tot	28,000	30,000	41,000	5,400	28,000	2,300
Mo	ng tot	36	40	51	25	21	43
Na	ng tot	3300,000	3,800,000	3,800,000	160,000	63,000	40,000
Nb	ng tot	180	190	260	7	5.5	11
Nd	ng tot	820	910	1,300	54	31	37
Ni	ng tot	1,200	1,300	1,600	430	400	410

Sample date:	2008-04-07	2008-04-07	2008-04-07	2008-04-08	2008-04-08	2008-04-08	
SKB-no:	12994	12995	12996	12997	12998	12999	
Name:	Asphällsfjärden	Utanför Tixlorna	Marträäd	Bolundsfjärden	Eckarfjärden	Labboträsket	
ID-code:	PFM62	PFM7401	PFM7402	PFM107	PFM117	PFM74	
Element	Unit						
Os	ng tot	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
P	ng tot	100,000	110,000	130,000	34,000	33,000	38,000
Pb	ng tot	950	1,100	1,300	310	350	250
Pd	ng tot	<20	<20	<20	<20	<20	<20
Pr	ng tot	230	260	360	16	8.6	10
Pt	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Rb	ng tot	2,300	2,500	3,300	85	130	150
Re	ng tot	0.031	0.039	0.055	0.003	0.014	0.005
Rh	ng tot	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ru	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S	ng tot	430,000	470,000	490,000	120,000	150,000	99,000
Sb	ng tot	15	16	19	7.8	15	31
Sc	ng tot	180	190	260	9.3	8.7	13
Se	ng tot	25	34	38	7.6	7.9	8.1
Si	ng tot	5,600,000	5,400,000	5,300,000	220,000	200,000	280,000
Sm	ng tot	150	170	240	10	6.2	6.9
Sn	ng tot	85	85	110	15	11	38
Sr	ng tot	6,100	7,400	7,500	650	530	400
Ta	ng tot	100	110	61	110	110	110
Tb	ng tot	17	19	27	1.2	0.76	0.81
Te	ng tot	1.9	2	2.4	0.61	0.39	0.38
Th	ng tot	310	340	470	21	13	18
Ti	ng tot	34,000	36,000	50,000	1,000	1,000	1,800
Tl	ng tot	16	17	23	1.6	1.2	1.7
Tm	ng tot	9.1	10	14	0.64	0.44	0.44
U	ng tot	55	63	83	18	14	36
V	ng tot	1,500	1,600	2,200	64	33	82
W	ng tot	29	36	52	7.4	7.1	12
Y	ng tot	620	690	970	44	30	32
Yb	ng tot	46	51	72	3.2	2.3	2.3
Zn	ng tot	8,400	9,000	11,000	2,200	2,200	2,200
Zr	ng tot	2,500	2,700	3,700	95	89	150
C-tot*	% DW	4.08	3.69	3.87	7.68	12.13	8.89
N-tot*	% DW	0.32	0.72	0.43	2.19	3.47	5.71

\* From 0,7 µm glassfibre filter. See Appendix 4.

Blanks, 0.7 µm glassfibre filter	Blank 1	Blank 2	Blank 3
Filtered volume (ml)	1,000	1,000	1,000
C-tot	0.14	0.26	0.20
N-tot	0.18	0.28	0.23

## Analysis of filter (suspendate) after refiltering water – Forsmark

Sample date:	2008-04-07	2008-04-07	2008-04-07	2008-04-08	2008-04-08	2008-04-08	
SKB-no:	12994	12995	12996	12997	12998	12999	
Name:	Asphällsfjärden	Utanför Tixlorna	Marträäd	Bolundsfjärden	Eckarfjärden	Labboträsket	
ID-code:	PFM62	PFM7401	PFM7402	PFM107	PFM117	PFM74	
Element	Unit						
Ag	ng tot	0.2	0.2	0.1	0.2	0.05	0.07
Al	ng tot	3,800	1,300	7,700	890	610	790
As	ng tot	6.9	8	9.2	6.3	8.2	7.4
Au	ng tot	<1	<1	<1	<1	<1	<1
B	ng tot	1,100	1,400	1,000	190	160	140
Ba	ng tot	130	110	150	110	86	110
Be	ng tot	0.3	0.2	0.4	0.1	0.02	0.05
Bi	ng tot	0.02	0.2	0.09	<0.01	<0.01	0.05
Br	ng tot	30,000	18,000	36,000	6,000	3,800	2,700
Ca	ng tot	130,000	130,000	140,000	110,000	97,000	120,000
Cd	ng tot	1.4	1.6	0.4	1.3	0.9	1.4
Ce	ng tot	8.2	2.6	15	2	1.3	1.5
Co	ng tot	4	4.3	4.9	3.4	3.2	3.5
Cr	ng tot	630	740	530	650	620	630
Cs	ng tot	0.6	0.2	0.9	0.7	0.2	0.1
Cu	ng tot	85	92	76	87	68	75
Dy	ng tot	0.4	0.2	0.9	0.3	0.1	0.1
Er	ng tot	0.3	0.1	0.6	0.1	0.08	0.1
Eu	ng tot	0.04	0.01	0.1	0.02	0.02	0.02
Fe	ng tot	3,400	1,700	7,100	2,000	1,300	1,500
Ga	ng tot	0.9	0.09	2	0.2	0.2	0.08
Gd	ng tot	0.4	0.1	0.6	0.1	0.09	0.09
Ge	ng tot	2	1.9	1.1	2.4	2	1.9
Hf	ng tot	3.5	2.6	3	1.7	1.6	1.7
Hg	ng tot	2.8	2.6	2.7	1.4	1.6	1.4
Ho	ng tot	0.1	0.04	0.2	0.06	0.03	0.03
I	ng tot	1,800	150	3,000	500	280	220
In	ng tot	<1	<1	<1	<1	<1	<1
Ir	ng tot	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
K	ng tot	100,000	100,000	110,000	17,000	20,000	20,000
La	ng tot	5.2	1.7	8.9	1.6	1	1.2
Li	ng tot	50	48	53	7.1	2.7	3.3
Lu	ng tot	0.03	0.02	0.07	0.02	0.01	0.02
Mg	ng tot	300,000	310,000	310,000	24,000	10,000	11,000
Mn	ng tot	160	94	290	110	120	86
Mo	ng tot	7	7.8	6.5	4.8	5.9	5.6
Na	ng tot	2,600,000	2,600,000	2,700,000	130,000	20,000	22,000
Nb	ng tot	1.7	1.4	2.1	1.1	0.9	1
Nd	ng tot	3.3	1.1	5.7	1.1	0.6	0.8
Ni	ng tot	330	390	300	330	320	300

Sample date:	2008-04-07	2008-04-07	2008-04-07	2008-04-08	2008-04-08	2008-04-08	
SKB-no:	12994	12995	12996	12997	12998	12999	
Name:	Asphällsfjärden	Utanför Tixlorna	Marträäd	Bolundsfjärden	Eckarfjärden	Labboträsket	
ID-code:	PFM62	PFM7401	PFM7402	PFM107	PFM117	PFM74	
Element	Unit						
Os	ng tot	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
P	ng tot	770	830	1,000	700	400	460
Pb	ng tot	19	17	21	21	19	19
Pd	ng tot	<20	<20	<20	<20	<20	<20
Pr	ng tot	0.9	0.3	1.5	0.3	0.2	0.1
Pt	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Rb	ng tot	43	36	50	20	30	23
Re	ng tot	0.01	0.01	0.013	0.002	0.002	0.001
Rh	ng tot	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ru	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S	ng tot	260,000	260,000	250,000	60,000	39,000	43,000
Sb	ng tot	2.1	1.7	2.3	2	2	1.9
Sc	ng tot	1.1	0.3	2	0.5	0.4	0.3
Se	ng tot	6	<5	<5	<5	<5	5
Si	ng tot	29,000	10,000	48,000	16,000	15,000	18,000
Sm	ng tot	0.6	0.2	1.1	0.2	0.1	0.1
Sn	ng tot	7.1	10	7.4	17	7.3	7.2
Sr	ng tot	2,000	2,000	2,000	350	140	170
Ta	ng tot	120	105	110	120	110	110
Tb	ng tot	0.06	0.03	0.15	0.03	0.02	0.02
Te	ng tot	0.09	0.1	0.07	0.03	0.02	0.03
Th	ng tot	2.9	1.2	3.8	0.8	0.5	0.8
Ti	ng tot	150	48	300	37	23	31
Tl	ng tot	0.14	0.07	0.19	0.15	0.16	0.17
Tm	ng tot	0.04	0.02	0.08	0.02	0.01	0.02
U	ng tot	1.4	1.3	1.9	7.1	2.6	5.1
V	ng tot	5.7	2.2	11	1.6	1.1	1.3
W	ng tot	1.6	2.1	1.6	1.6	1.4	1.3
Y	ng tot	2.7	1	5.1	1.4	0.9	0.9
Yb	ng tot	0.2	0.09	0.4	0.1	0.09	0.08
Zn	ng tot	1,900	2,100	1,500	1,800	1,500	1,600
Zr	ng tot	27	31	40	11	9	10

## Analysis of filtered water – Forsmark

Sample date:	2008-04-07	2008-04-07	2008-04-07	2008-04-08	2008-04-08	2008-04-08	
SKB-no:	12994	12995	12996	12997	12998	12999	
Name:	Asphällsfjärden	Utanför Tixlorna	Marträäd	Bolundsfjärden	Eckarfjärden	Labboträsket	
ID-code:	PFM62	PFM7401	PFM7402	PFM107	PFM117	PFM74	
Element	Unit						
Ag	µg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Al	µg/l	3.6	3.9	5.6	7.7	8.5	8.1
As	µg/l	0.87	1	0.87	0.38	0.36	0.3
Au	µg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B	µg/l	760	750	790	32	10	8
Ba	µg/l	17	17	17	20	16	23
Be	µg/l	0.004	0.004	0.006	0.009	0.005	0.004
Bi	µg/l	0.004	0.004	0.003	0.001	<0.001	<0.001
Br	µg/l	9,000	9,000	9,000	400	50	40
Ca	µg/l	77,000	75,000	75,000	49,000	47,000	57,000
Cd	µg/l	0.016	0.021	0.028	0.007	0.004	0.005
Ce	µg/l	0.015	0.015	0.021	0.11	0.063	0.06
Cl	mg/l	2,770	2,760	2,730	108	6.5	12
Co	µg/l	0.021	0.028	0.034	0.037	0.037	0.039
Cr	µg/l	0.11	0.13	0.13	0.12	0.11	0.12
Cs	µg/l	0.04	0.041	0.038	0.068	0.008	0.003
Cu	µg/l	3.7	3.5	3.7	0.87	0.88	1.4
Dy	µg/l	0.006	0.004	0.005	0.048	0.022	0.021
Er	µg/l	0.004	0.004	0.007	0.021	0.015	0.018
Eu	µg/l	0.002	0.001	0.003	0.004	0.003	0.004
F	mg/l	<1.5	<1.5	<1.5	0.19	0.17	0.19
Fe	µg/l	2.3	2.7	2.5	60	25	28
Ga	µg/l	0.004	0.006	0.011	0.005	0.004	0.003
Gd	µg/l	0.004	0.005	0.004	0.027	0.019	0.024
Ge	µg/l	0.16	0.11	0.12	0.07	0.04	0.04
Hf	µg/l	0.002	0.001	0.003	0.014	0.013	0.011
Hg	µg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ho	µg/l	0.003	0.002	0.003	0.007	0.005	0.005
I	µg/l	10	10	10	4	4	3
In	µg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ir	µg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
K	µg/l	56,000	55,000	54,000	3,300	1,900	2,100
La	µg/l	0.019	0.021	0.028	0.1	0.064	0.074
Li	µg/l	30	30	30	3	1.3	1.5
Lu	µg/l	0.001	0.001	0.001	0.003	0.003	0.003
Mg	µg/l	160,000	160,000	160,000	8,300	2,700	2,900
Mn	µg/l	1.3	1.4	1.6	3.9	9.9	5.6
Mo	µg/l	1.7	1.6	1.6	0.62	0.25	0.65
Na	µg/l	1,500,000	1,500,000	1,500,000	50,000	6,300	6,900
Nb	µg/l	0.004	0.004	0.004	0.01	0.009	0.009



Sample date:	2008-04-07	2008-04-07	2008-04-07	2008-04-08	2008-04-08	2008-04-08	
SKB-no:	12994	12995	12996	12997	12998	12999	
Name:	Asphällsfjärden	Utanför Tixlorna	Marträäd	Bolundsfjärden	Eckarfjärden	Labboträsket	
ID-code:	PFM62	PFM7401	PFM7402	PFM107	PFM117	PFM74	
Element	Unit						
Nd	µg/l	0.016	0.017	0.024	0.11	0.083	0.085
Ni	µg/l	1.1	1	1.1	0.51	0.5	0.62
Os	µg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
P	µg/l	5.5	6.9	6.6	4.1	3.5	4
Pb	µg/l	0.035	0.1	0.027	0.094	0.12	0.1
Pd	µg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pr	µg/l	0.004	0.004	0.006	0.027	0.02	0.02
Pt	µg/l	0.003	0.001	0.001	<0.001	<0.001	<0.001
Rb	µg/l	17	18	18	3.1	2	2
Re	µg/l	0.006	0.007	0.006	0.002	0.001	0.001
Rh	µg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ru	µg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
S	µg/l	140,000	140,000	140,000	8,400	3,500	4,400
Sb	µg/l	0.066	0.069	0.076	0.071	0.07	0.06
Sc	µg/l	0.017	0.025	0.01	0.03	0.027	0.02
Se	µg/l	0.12	0.11	0.11	0.12	0.12	0.12
Si	µg/l	70	83	97	1,200	2,200	3,400
Sm	µg/l	0.004	0.005	0.005	0.025	0.02	0.022
Sn	µg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sr	µg/l	1,200	1,200	1,200	140	52	70
Ta	µg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Tb	µg/l	0.001	0.001	0.001	0.007	0.004	0.004
Te	µg/l	0.015	0.011	0.018	0.002	<0.002	<0.002
Th	µg/l	0.002	0.003	0.003	0.031	0.026	0.022
Ti	µg/l	0.06	0.09	0.09	0.32	0.31	0.41
Tl	µg/l	0.011	0.011	0.01	0.006	0.004	0.005
Tm	µg/l	0.001	0.001	0.001	0.003	0.002	0.002
U	µg/l	0.75	0.75	0.81	3.7	1.4	2.8
V	µg/l	0.12	0.12	0.12	0.17	0.17	0.15
W	µg/l	0.019	0.017	0.02	0.022	0.003	0.003
Y	µg/l	0.057	0.058	0.069	0.2	0.17	0.16
Yb	µg/l	0.007	0.004	0.005	0.02	0.018	0.018
Zn	µg/l	2	1.5	1.3	0.92	1.3	1.9
Zr	µg/l	0.056	0.058	0.062	0.39	0.38	0.39
N-tot (CFA)	mg/l	0.14	0.2	0.14	0.66	0.96	0.57
NH <sub>4</sub> -N	mg/l	<0.020	<0.020	<0.020	<0.020	0.23	<0.020
NO <sub>2</sub> -N	mg/l	<0.0030	<0.0030	<0.0030	<0.0030	0.003	<0.0030
NO <sub>3</sub> -N	mg/l	<0.34	<0.34	<0.34	<0.11	<0.11	<0.11
TOC	mg/l	3.8	3.8	4.2	19	21	18
C-tot	mg/l	19	19	20	45	51	54

## Analysis of suspended material – Forsmark

Sample date	SKB-no	Name	ID-code	Unit	Standard suspended material analysis (1,6 µm glassfibre filter)	Suspended material analysis (0,22 µm membrane filter) (for elements)	Suspended material analysis (0,7 µm glassfibre filter) (for C and N)
2008-04-07	12994	Asphällsfjärden	PFM62	mg/l (dw)	5	5.0	6.4
				filtr. volume (ml)	1,048	870	2,101
2008-04-07	12995	Utanför Tixlorna	PFM7401	mg/l (dw)	3.7	4.5	6.2
				filtr. volume (ml)	1,002	710	1,975
2008-04-07	12996	Marträäd	PFM7402	mg/l (dw)	5.6	5.4	7.4
				filtr. volume (ml)	1,006	650	2,104
2008-04-08	12997	Bolundsfjärden	PFM107	mg/l (dw)	<2	0.3	1.1
				filtr. volume (ml)	1,011	300	1,847
2008-04-08	12998	Eckarfjärden	PFM117	mg/l (dw)	<2	1.0	1.6
				filtr. volume (ml)	942	100	1,074
2008-04-08	12999	Labboträsket	PFM74	mg/l (dw)	<2	0.7	0.5
				filtr. volume (ml)	1,023	420	2,144

## Appendix 5

### Analysis of filter (suspendate) after filtering water – Oskarshamn

Sample date:	2008-04-15	2008-04-15	2008-04-15	2008-04-16	2008-04-16	2008-04-16	
SKB-no:	15496	15497	15498	15499	15500	15501	
Name:	Jämsen	Götemar	Kräkelund	Borholms-fjärden	Granholms-fjärden	Frisksjön	
ID-code:	PSM2067	PSM2066	PSM7090	PSM7097	PSM2064	PSM2065	
Element	Unit						
Ag	ng tot	1.5	2	2.3	3.9	3.9	2.2
Al	ng tot	220,000	660,000	89,000	250,000	250,000	320,000
As	ng tot	110	140	160	211	360	140
Au	ng tot	<1	<1	<1	<1	<1	<1
B	ng tot	96	430	6,500	2,000	2,700	130
Ba	ng tot	2,500	5,600	1,700	1,700	1,400	1,700
Be	ng tot	34	120	5.3	41	64	120
Bi	ng tot	5.2	7.9	2.2	4.8	4.2	6.2
Br	ng tot	4,600	10,000	66,000	64,000	99,000	5,900
Ca	ng tot	170,000	170,000	280,000	290,000	360,000	110,000
Cd	ng tot	50	31	19	41	47	11
Ce	ng tot	3,500	5,500	300	3,900	3,700	2,900
Co	ng tot	120	420	35	140	120	79
Cr	ng tot	520	850	740	620	640	660
Cs	ng tot	11	50	8.4	16	14	17
Cu	ng tot	270	670	370	650	670	510
Dy	ng tot	200	190	15	170	150	120
Er	ng tot	140	140	9.3	110	110	79
Eu	ng tot	46	34	2.8	41	38	32
Fe	ng tot	1.400,000	610,000	74,000	530,000	550,000	700,000
Ga	ng tot	42	140	24	46	40	44
Gd	ng tot	150	120	11	130	120	88
Ge	ng tot	7	15	4.6	6	9.3	6.2
Hf	ng tot	17	42	7.9	22	23	24
Hg	ng tot	3.1	3.5	3.4	3.2	3.7	2.8
Ho	ng tot	46	43	3.2	38	36	27
I	ng tot	1,000	2,600	6,000	9,100	9,100	3,700
In	ng tot	<1	<1	<1	<1	<1	<1
Ir	ng tot	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
K	ng tot	62,000	220,000	230,000	270,000	320,000	75,000
La	ng tot	2,000	2,100	180	2,300	2,000	1,500
Li	ng tot	69	470	130	200	220	94
Lu	ng tot	17	21	1.1	14	14	9.8
Mg	ng tot	39,000	85,000	520,000	520,000	650,000	37,000
Mn	ng tot	30,000	110,000	9,700	26,000	20,000	11,000
Mo	ng tot	24	70	19	40	47	74
Na	ng tot	67,000	150,000	4,000,000	3,900,000	5,000,000	93,000
Nb	ng tot	82	130	18	49	52	61
Nd	ng tot	1,700	1,400	120	1,600	1,400	1,200

Sample date:	2008-04-15	2008-04-15	2008-04-15	2008-04-16	2008-04-16	2008-04-16	
SKB-no:	15496	15497	15498	15499	15500	15501	
Name:	Jämsen	Götemar	Kräkelund	Borholms- fjärden	Granholms- fjärden	Frisksjön	
ID-code:	PSM2067	PSM2066	PSM7090	PSM7097	PSM2064	PSM2065	
Element	Unit						
Ni	ng tot	230	570	530	500	560	350
Os	ng tot	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
P	ng tot	23,000	50,000	92,000	96,000	140,000	25,000
Pb	ng tot	870	1,200	640	770	670	930
Pd	ng tot	<20	<20	<20	<20	<20	<20
Pr	ng tot	450	390	34	440	390	320
Pt	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Rb	ng tot	250	1,100	240	360	360	340
Re	ng tot	0.006	0.01	0.07	0.03	0.04	0.006
Rh	ng tot	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ru	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S	ng tot	120,000	170,000	510,000	550,000	680,000	140,000
Sb	ng tot	12	16	10	13	9.6	10
Sc	ng tot	52	110	15	66	61	71
Se	ng tot	11	35	28	23	32	17
Si	ng tot	590,000	2,200,000	610,000	1,600,000	1,900,000	990,000
Sm	ng tot	310	250	22	270	250	200
Sn	ng tot	30	45	26	25	23	24
Sr	ng tot	1,100	1,600	12,000	5,500	6,200	740
Ta	ng tot	63	68	120	66	64	64
Tb	ng tot	32	29	2.4	27	23	19
Te	ng tot	0.89	1.7	0.43	1.1	1.5	1.3
Th	ng tot	140	280	34	140	170	170
Ti	ng tot	9,300	15,000	2,800	6,100	5,600	6,700
Tl	ng tot	2.9	8.5	9.4	2.8	2.9	3.2
Tm	ng tot	19	21	1.2	15	15	11
U	ng tot	71	360	13	37	44	130
V	ng tot	1,400	980	130	750	690	1,200
W	ng tot	11	21	25	17	15	14
Y	ng tot	1,300	1,300	86	1,100	1,100	740
Yb	ng tot	100	150	6.4	80	82	59
Zn	ng tot	3,800	5,900	3,000	5,400	5,400	3,300
Zr	ng tot	490	1,300	240	720	790	740
C-tot*	% DW	4.95	2.90	3.29	3.78	4.10	5.03
N-tot*	% DW	2.16	0.26	-0.24	0.59	0.26	0.20

\* From 0,7 µm glassfibre filter. See Appendix 8.

Blanks, 0.7 µm glassfibre filter	Blank 1	Blank 2	Blank 3
Filtered volume (ml)	1,000	1,000	1,000
C-tot	0.14	0.26	0.20
N-tot	0.18	0.28	0.23

## Analysis of filter (suspendate) after refiltering water – Oskarshamn

Sample date:	2008-04-15	2008-04-15	2008-04-15	2008-04-16	2008-04-16	2008-04-16	
SKB-no:	15496	15497	15498	15499	15500	15501	
Name:	Jämsen	Götemar	Kräkelund	Borholms- fjärden	Granholms- fjärden	Frisksjön	
ID-code:	PSM2067	PSM2066	PSM7090	PSM7097	PSM2064	PSM2065	
Element	Unit						
Ag	ng tot	0.05	0.05	0.04	0.07	0.08	0.09
Al	ng tot	1,800	2,300	830	1,100	930	2,600
As	ng tot	3.7	5.8	6.5	4	5.2	4.4
Au	ng tot	<1	<1	<1	<1	<1	<1
B	ng tot	53	120	1,400	1,100	1,100	48
Ba	ng tot	120	100	92	100	95	120
Be	ng tot	0.2	0.4	0.07	0.2	0.2	1.1
Bi	ng tot	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Br	ng tot	2,600	4,500	52,000	43,000	49,000	5,600
Ca	ng tot	31,000	36,000	190,000	170,000	170,000	34,000
Cd	ng tot	6.1	110	7.5	5.3	1.7	0.6
Ce	ng tot	20	10	3.8	14	12	29
Co	ng tot	2.5	2.3	1.4	2.3	1.7	2.9
Cr	ng tot	340	330	350	330	360	340
Cs	ng tot	0.8	0.4	0.2	0.2	0.2	0.7
Cu	ng tot	31	37	32	41	39	37
Dy	ng tot	1.4	0.7	0.2	0.8	0.5	1.3
Er	ng tot	1	0.5	0.2	0.5	0.4	0.9
Eu	ng tot	0.2	0.1	0.02	0.1	0.1	0.3
Fe	ng tot	9,100	3,800	2,500	4,100	3,700	6,400
Ga	ng tot	0.4	0.6	0.08	0.3	0.3	0.5
Gd	ng tot	1.1	0.5	0.2	0.6	0.3	1.1
Ge	ng tot	2	0.9	3	1.2	1.6	2.1
Hf	ng tot	1.3	1.3	1.4	1.1	1.8	1.2
Hg	ng tot	1.1	1.3	1.4	1.9	2.6	1.7
Ho	ng tot	0.3	0.2	0.04	0.2	0.1	0.3
I	ng tot	220	1,100	4,400	6,100	6,700	1,700
In	ng tot	<1	<1	<1	<1	<1	<1
Ir	ng tot	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
K	ng tot	26,000	32,000	160,000	130,000	140,000	28,000
La	ng tot	12	7.7	2.5	8.8	8.1	16
Li	ng tot	8	12	110	55	63	9.7
Lu	ng tot	0.14	0.09	0.02	0.06	0.05	0.12
Mg	ng tot	9,900	12,000	440,000	380,000	380,000	12,000
Mn	ng tot	330	250	83	110	81	200
Mo	ng tot	3.1	4	6.4	7	6	5.6
Na	ng tot	50,000	60,000	3,900,000	3,300,000	3,400,000	61,000
Nb	ng tot	1	1.2	0.9	1.1	0.9	1.5

Sample date:	2008-04-15	2008-04-15	2008-04-15	2008-04-16	2008-04-16	2008-04-16	
SKB-no:	15496	15497	15498	15499	15500	15501	
Name:	Jämsen	Götemar	Kråkelund	Borholms- fjärden	Granholms- fjärden	Frisksjön	
ID-code:	PSM2067	PSM2066	PSM7090	PSM7097	PSM2064	PSM2065	
Element	Unit						
Nd	ng tot	9.9	4.8	1.5	6.3	4.7	12
Ni	ng tot	96	99	100	100	96	110
Os	ng tot	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
P	ng tot	250	390	410	610	640	310
Pb	ng tot	20	18	24	19	17	22
Pd	ng tot	<20	<20	<20	<20	<20	<20
Pr	ng tot	2.7	1.4	0.4	1.6	1.4	3.3
Pt	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Rb	ng tot	82	92	52	48	47	82
Re	ng tot	0.001	0.006	0.02	0.02	0.02	0.01
Rh	ng tot	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ru	ng tot	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S	ng tot	77,000	89,000	400,000	360,000	360,000	84,000
Sb	ng tot	0.9	0.9	1.6	0.9	0.8	1
Sc	ng tot	0.7	0.7	0.3	0.6	0.4	1.1
Se	ng tot	<5	<5	<5	<5	<5	5
Si	ng tot	17,000	16,000	11,000	14,000	14,000	35,000
Sm	ng tot	2	0.9	0.3	1.2	0.8	2.1
Sn	ng tot	3.6	4.3	5	3.7	2.6	2.2
Sr	ng tot	160	200	2,900	2,500	2,500	180
Ta	ng tot	61	63	63	67	63	63
Tb	ng tot	0.22	0.13	0.03	0.1	0.07	0.2
Te	ng tot	<0.02	<0.02	0.11	0.09	0.1	0.04
Th	ng tot	1.4	1.8	0.7	1.3	1.2	2.1
Ti	ng tot	60	94	35	35	29	55
Tl	ng tot	0.63	0.51	0.05	0.05	0.05	0.76
Tm	ng tot	0.13	0.08	0.02	0.07	0.06	0.1
U	ng tot	0.9	2.2	1.5	1.7	1.6	1.7
V	ng tot	7.2	3.4	1.6	3.1	2.2	6.7
W	ng tot	0.42	0.5	0.5	0.8	0.5	0.6
Y	ng tot	9.5	5.4	1.4	6.1	3.7	8.3
Yb	ng tot	0.7	0.5	0.1	0.4	0.3	0.7
Zn	ng tot	2,200	2,300	2,400	2,300	2,200	2,100
Zr	ng tot	11	13	8.3	11	49	14

## Analysis of filtered water – Oskarshamn

Sample date:	2008-04-15	2008-04-15	2008-04-15	2008-04-16	2008-04-16	2008-04-16	
SKB-no:	15496	15497	15498	15499	15500	15501	
Name:	Jämsen	Götemar	Kräkelund	Borholms- fjärden	Granholms- fjärden	Frisksjön	
ID-code:	PSM2067	PSM2066	PSM7090	PSM7097	PSM2064	PSM2065	
Element	Unit						
Ag	µg/l	0.006	<0.002	<0.002	<0.002	<0.002	0.006
Al	µg/l	200	52	1.4	27	29	234
As	µg/l	0.27	0.43	1.1	0.71	0.96	0.37
Au	µg/l	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
B	µg/l	12	33	1,200	870	940	22
Ba	µg/l	17	11	20	21	20	14
Be	µg/l	0.077	0.074	0.003	0.022	0.026	0.26
Bi	µg/l	0.004	<0.001	0.006	0.005	0.005	0.004
Br	µg/l	120	200	15,000	11,000	12,000	250
Ca	µg/l	8,000	10,000	110,000	85,000	87,000	7,800
Cd	µg/l	0.013	0.011	0.007	0.025	0.017	0.023
Ce	µg/l	3.9	0.47	0.009	0.22	0.21	3.4
Cl	mg/l	15	17	4,110	3,250	3,490	20
Co	µg/l	0.31	0.027	0.019	0.24	0.12	0.37
Cr	µg/l	0.38	0.072	0.055	0.15	0.13	0.57
Cs	µg/l	0.018	0.009	0.055	0.047	0.052	0.017
Cu	µg/l	1.4	1.1	4	4	3.7	2.6
Dy	µg/l	0.32	0.054	0.002	0.021	0.02	0.19
Er	µg/l	0.24	0.049	0.003	0.018	0.016	0.13
Eu	µg/l	0.075	0.012	<0.001	0.006	0.006	0.052
F	mg/l	0.5	1.1	0.31	0.33	0.35	0.69
Fe	µg/l	740	34	1.5	21	27	480
Ga	µg/l	0.005	0.007	0.005	0.006	0.005	0.005
Gd	µg/l	0.54	0.084	0.002	0.031	0.028	0.32
Ge	µg/l	0.08	0.05	0.12	0.08	0.1	0.07
Hf	µg/l	0.04	0.011	0.001	0.01	0.008	0.042
Hg	µg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ho	µg/l	0.073	0.015	0.003	0.006	0.006	0.042
I	µg/l	4	17	15	12	15	25
In	µg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ir	µg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
K	µg/l	1,300	1,500	85,000	64,000	66,000	1,500
La	µg/l	2.3	0.52	0.011	0.17	0.15	1.8
Li	µg/l	2.1	3	45	34	36	2.5
Lu	µg/l	0.047	0.012	0.001	0.004	0.003	0.024
Mg	µg/l	2,200	3,000	240,000	190,000	200,000	2,700
Mn	µg/l	76	2.9	4.9	15	8	44
Mo	µg/l	0.11	0.5	2.1	2	1.9	0.92
Na	µg/l	8,300	11,000	2,200,000	1,700,000	1,800,000	12,000

		2008-04-15	2008-04-15	2008-04-15	2008-04-16	2008-04-16	2008-04-16
Sample date:		2008-04-15	2008-04-15	2008-04-15	2008-04-16	2008-04-16	2008-04-16
SKB-no:		15496	15497	15498	15499	15500	15501
Name:		Jämsen	Götemar	Kråkelund	Borholms-fjärden	Granholms-fjärden	Frisksjön
ID-code:		PSM2067	PSM2066	PSM7090	PSM7097	PSM2064	PSM2065
Element	Unit						
Nb	µg/l	0.03	0.008	0.004	0.006	0.009	0.031
Nd	µg/l	2.6	0.46	0.01	0.15	0.13	1.9
Ni	µg/l	1	1.2	0.9	1.6	1.2	2.2
Os	µg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
P	µg/l	8.9	5.2	23	8.1	8.6	9.4
Pb	µg/l	0.37	0.052	0.055	0.059	0.056	0.58
Pd	µg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pr	µg/l	0.65	0.12	0.003	0.037	0.034	0.49
Pt	µg/l	0.001	0.001	0.003	0.003	0.003	0.002
Rb	µg/l	2.7	3.1	25	20	21	3.2
Re	µg/l	0.001	0.003	0.007	0.005	0.006	0.002
Rh	µg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ru	µg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
S	µg/l	3,400	8,000	210,000	160,000	170,000	5,500
Sb	µg/l	0.069	0.095	0.071	0.079	0.079	0.13
Sc	µg/l	0.13	0.032	0.024	0.021	0.023	0.12
Se	µg/l	0.11	0.11	0.064	0.066	0.064	0.14
Si	µg/l	4,100	1,500	380	1,300	930	6,000
Sm	µg/l	0.5	0.084	0.002	0.029	0.026	0.34
Sn	µg/l	<0.005	<0.005	0.016	0.015	0.011	<0.005
Sr	µg/l	47	67	1,800	1,400	1,500	44
Ta	µg/l	0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.001
Tb	µg/l	0.065	0.011	0.001	0.005	0.004	0.041
Te	µg/l	<0.002	<0.002	0.011	0.013	0.016	<0.002
Th	µg/l	0.084	0.052	0.004	0.011	0.014	0.12
Ti	µg/l	2	0.4	0.094	0.26	0.17	1.9
Tl	µg/l	0.008	0.008	0.007	0.009	0.008	0.01
Tm	µg/l	0.032	0.008	0.001	0.002	0.003	0.017
U	µg/l	0.25	0.38	0.89	0.86	0.91	0.37
V	µg/l	0.63	0.13	0.19	0.22	0.18	0.9
W	µg/l	0.006	0.005	0.016	0.019	0.022	0.014
Y	µg/l	2.7	0.53	0.034	0.2	0.18	1.4
Yb	µg/l	0.25	0.057	0.003	0.02	0.019	0.13
Zn	µg/l	4.4	1.3	1.2	2.7	2.8	4.6
Zr	µg/l	0.93	0.28	0.026	0.17	0.19	1.1
N-tot (CFA)	mg/l	0.87	0.61	0.15	0.22	0.48	0.92
NH <sub>4</sub> -N	mg/l	0.035	0.027	<0.020	<0.020	<0.020	0.041
NO <sub>2</sub> -N	mg/l	0.0033	<0.0030	<0.0030	<0.0030	<0.0030	0.004
NO <sub>3</sub> -N	mg/l	0.29	0.25	<0.11	<0.11	0.17	0.47
TOC	mg/l	18	8.3	3.6	6.3	6.1	15
C-tot	mg/l	19	10	20	19	19	16



## Analysis of suspended material – Oskarshamn

Sample date	SKB-no	Name	ID-code	Unit	Standard analysis of suspended material (1,6 µm glassfibre filter)	Analysis of suspended material (0,22 µm membrane filter) for elements	Analysis of suspended material (0,7 µm glassfibre filter) for C and N
2008-04-15	15496	Jämsen	PSM2067	mg/l (dw)	2	4.8	3.1
				filtr. volume (ml)	1,027	130	708
2008-04-15	15497	Götemar	PSM2066	mg/l (dw)	<2	1.3	2.1
				filtr. volume (ml)	1,067	220	1,125
2008-04-15	15498	Kråkelund	PSM7090	mg/l (dw)	<2	3.2	2.8
				filtr. volume (ml)	1,130	410	1,862
2008-04-16	15499	Borholmsfjärden	PSM7097	mg/l (dw)	3.4	4.1	6.5
				filtr. volume (ml)	920	340	925
2008-04-16	15500	Granholmsfjärden	PSM2064	mg/l (dw)	3.1	4.3	4.2
				filtr. volume (ml)	1,014	320	1,435
2008-04-16	15501	Frisksjön	PSM2065	mg/l (dw)	3	3.2	3.4
				filtr. volume (ml)	1,015	100	730

## Analysis of filtered sediment – Forsmark

Sampling date:		2008-04-08	2008-04-08	2008-04-09	2008-04-09
SKB-no:		16000	16001	16002	16003
Name:		Eckarfjärden	Eckarfjärden	Labboträsket	Labboträsket
ID-code:		PFM117	PFM117	PFM74	PFM74
Level (cm):		0–5	25–30	0–5	25–30
Element	Unit				
Ag	mg/kg DW	0.14	0.13	0.13	0.09
Al	mg/kg DW	2,400	4,600	4,500	3,500
As	mg/kg DW	3.1	4.7	3.7	3.7
Au	mg/kg DW	<0.05	<0.05	<0.05	<0.05
B	mg/kg DW	45	36	45	45
Ba	mg/kg DW	40	46	59	59
Be	mg/kg DW	0.14	0.26	0.23	0.19
Bi	mg/kg DW	0.17	0.22	0.13	0.09
Br	mg/kg DW	90	120	150	130
Ca	mg/kg DW	22,000	28,000	23,000	95,000
Cd	mg/kg DW	0.54	0.59	0.52	0.29
Ce	mg/kg DW	7.6	14	9.5	8.5
Cl	mg/kg DW	792	965	1,610	1,270
Co	mg/kg DW	1.7	2.4	2.6	2
Cr	mg/kg DW	6.6	7.9	7.9	6.3
Cs	mg/kg DW	0.24	0.39	0.4	0.32
Cu	mg/kg DW	35	55	48	44
Dy	mg/kg DW	0.87	1.5	1	1
Er	mg/kg DW	0.62	1.1	0.64	0.69
Eu	mg/kg DW	0.15	0.25	0.18	0.18
F	mg/kg DW	<70	<70	<70	<70
Fe	mg/kg DW	3,200	6,000	8,500	6,800
Ga	mg/kg DW	0.77	1.3	1.4	1
Gd	mg/kg DW	1.1	1.9	1.1	1.1
Ge	mg/kg DW	0.15	0.2	0.19	0.14
Hf	mg/kg DW	0.59	0.9	0.82	0.65
Hg	mg/kg DW	0.18	0.15	0.18	0.14
Ho	mg/kg DW	0.21	0.35	0.23	0.23
I	mg/kg DW	15	17	17	14
In	mg/kg DW	<0.05	<0.05	<0.05	<0.05
Ir	mg/kg DW	<0.02	<0.02	<0.02	<0.02
K	mg/kg DW	1,400	1,500	2,000	1,500
La	mg/kg DW	6.5	12	6.6	6.9
Li	mg/kg DW	1.3	2.5	2.1	1.9
Lu	mg/kg DW	0.094	0.16	0.11	0.11
Mg	mg/kg DW	1,100	1,300	1,300	1,500
Mn	mg/kg DW	71	78	70	120
Mo	mg/kg DW	5.5	8.6	3.9	5.4
Na	mg/kg DW	710	1,000	1,500	1,500

<b>Sampling date:</b>		<b>2008-04-08</b>	<b>2008-04-08</b>	<b>2008-04-09</b>	<b>2008-04-09</b>
<b>SKB-no:</b>		<b>16000</b>	<b>16001</b>	<b>16002</b>	<b>16003</b>
<b>Name:</b>		<b>Eckarfjärden</b>	<b>Eckarfjärden</b>	<b>Labboträsket</b>	<b>Labboträsket</b>
<b>ID-code:</b>		<b>PFM117</b>	<b>PFM117</b>	<b>PFM74</b>	<b>PFM74</b>
<b>Level (cm):</b>		<b>0-5</b>	<b>25-30</b>	<b>0-5</b>	<b>25-30</b>
<b>Element</b>	<b>Unit</b>				
Nb	mg/kg DW	0.81	1.3	1.2	1.1
Nd	mg/kg DW	5.6	9.5	6.2	5.9
Ni	mg/kg DW	12	15	19	19
Os	mg/kg DW	<0.02	<0.02	<0.02	<0.02
P	mg/kg DW	1,100	550	1,200	750
Pb	mg/kg DW	29	38	24	18
Pd	mg/kg DW	<1	<1	<1	<1
Pr	mg/kg DW	1.4	2.5	1.6	1.5
Pt	mg/kg DW	0.006	<0.005	<0.005	<0.005
Rb	mg/kg DW	4.6	7.5	8.1	6.4
Re	mg/kg DW	<0.01	<0.01	<0.01	<0.01
Rh	mg/kg DW	<0.02	<0.02	<0.02	<0.02
Ru	mg/kg DW	<0.01	<0.01	<0.01	<0.01
S	mg/kg DW	14,000	18,000	22,000	21,000
Sb	mg/kg DW	0.61	0.7	0.37	0.26
Sc	mg/kg DW	1	1.8	1.4	1.3
Se	mg/kg DW	0.92	1.2	1	0.85
Si	mg/kg DW	42,000	41,000	60,000	55,000
Sm	mg/kg DW	1.2	2	1.3	1.2
Sn	mg/kg DW	1.1	0.9	0.95	0.49
Sr	mg/kg DW	27	31	35	74
Ta	mg/kg DW	0.08	0.12	0.11	0.09
Tb	mg/kg DW	0.17	0.31	0.17	0.18
Te	mg/kg DW	0.032	0.019	0.033	0.02
Th	mg/kg DW	1.6	2.6	1.6	1.5
Ti	mg/kg DW	120	210	190	170
Tl	mg/kg DW	0.2	0.3	0.16	0.17
Tm	mg/kg DW	0.081	0.15	0.09	0.09
U	mg/kg DW	21	33	13	16
V	mg/kg DW	7.2	11	6.5	6.3
W	mg/kg DW	0.43	0.36	0.5	0.35
Y	mg/kg DW	7.6	13	8.2	8.5
Yb	mg/kg DW	0.56	1	0.62	0.64
Zn	mg/kg DW	58	67	78	60
Zr	mg/kg DW	21	32	31	26
Sample weight	g	93	109	30.5	55.8
DW	%	2.2	3.2	2.6	5.2
LOI	% of DW	82.9	78.1	77.1	64.1

<b>Sampling date:</b>		<b>2008-04-09</b>	<b>2008-04-09</b>	<b>2008-04-10</b>	<b>2008-04-10</b>
<b>SKB-no:</b>		<b>16004</b>	<b>16005</b>	<b>16006</b>	<b>16007</b>
<b>Name:</b>		<b>Bolundsfjärden</b>	<b>Bolundsfjärden</b>	<b>Tixelfjärden</b>	<b>Tixelfjärden</b>
<b>ID-code:</b>		<b>PFM107</b>	<b>PFM107</b>	<b>PFM63</b>	<b>PFM63</b>
<b>Level (cm):</b>		<b>0-5</b>	<b>25-30</b>	<b>0-5</b>	<b>20-25</b>
<b>Element</b>	<b>Unit</b>				
Ag	mg/kg DW	0.35	0.44	0.74	0.75
Al	mg/kg DW	26,000	33,000	52,000	46,000
As	mg/kg DW	3.6	4	13	15
Au	mg/kg DW	<0.05	<0.05	<0.05	<0.05
B	mg/kg DW	44	50	64	60
Ba	mg/kg DW	220	280	370	350
Be	mg/kg DW	1.1	1.5	2.5	2.3
Bi	mg/kg DW	0.22	0.18	0.57	0.62
Br	mg/kg DW	190	260	170	170
Ca	mg/kg DW	10,000	7,000	7,400	5,400
Cd	mg/kg DW	1.5	1.1	3.1	3.2
Ce	mg/kg DW	33	49	81	68
Cl	mg/kg DW	2,790	3,090	6,780	6,560
Co	mg/kg DW	4.8	6.3	11	12
Cr	mg/kg DW	25	39	72	73
Cs	mg/kg DW	2.4	3.4	6	5.6
Cu	mg/kg DW	38	51	55	51
Dy	mg/kg DW	2	2.6	4.4	2.8
Er	mg/kg DW	1.3	1.6	2.8	1.7
Eu	mg/kg DW	0.46	0.55	1	0.67
F	mg/kg DW	<70	<60	<70	<70
Fe	mg/kg DW	17,000	21,000	37,000	37,000
Ga	mg/kg DW	8.5	11	17	17
Gd	mg/kg DW	2.7	3.7	6.5	4
Ge	mg/kg DW	0.9	0.9	1.5	1.7
Hf	mg/kg DW	3.6	3.3	7.2	6.3
Hg	mg/kg DW	0.16	0.06	0.4	0.39
Ho	mg/kg DW	0.45	0.57	0.95	0.62
I	mg/kg DW	13	8.4	17	14
In	mg/kg DW	<0.05	<0.05	<0.05	<0.05
Ir	mg/kg DW	<0.02	<0.02	<0.02	<0.02
K	mg/kg DW	11,000	13,000	22,000	21,000
La	mg/kg DW	20	29	47	39
Li	mg/kg DW	13	21	39	35
Lu	mg/kg DW	0.2	0.24	0.4	0.25
Mg	mg/kg DW	4,300	7,100	11,000	11,000
Mn	mg/kg DW	210	210	380	400
Mo	mg/kg DW	6	14	2.4	5.4
Na	mg/kg DW	7,600	7,800	14,000	14,000
Nb	mg/kg DW	5.9	7.9	15	14
Nd	mg/kg DW	15	21	34	27
Ni	mg/kg DW	23	30	33	35
Os	mg/kg DW	<0.02	<0.02	<0.02	<0.02
P	mg/kg DW	720	400	1,100	730

		2008-04-09	2008-04-09	2008-04-10	2008-04-10
<b>Sampling date:</b>		<b>2008-04-09</b>	<b>2008-04-09</b>	<b>2008-04-10</b>	<b>2008-04-10</b>
<b>SKB-no:</b>		<b>16004</b>	<b>16005</b>	<b>16006</b>	<b>16007</b>
<b>Name:</b>		<b>Bolundsfjärden</b>	<b>Bolundsfjärden</b>	<b>Tixelfjärden</b>	<b>Tixelfjärden</b>
<b>ID-code:</b>		<b>PFM107</b>	<b>PFM107</b>	<b>PFM63</b>	<b>PFM63</b>
<b>Level (cm):</b>		<b>0-5</b>	<b>25-30</b>	<b>0-5</b>	<b>20-25</b>
<b>Element</b>	<b>Unit</b>				
Pb	mg/kg DW	29	21	63	74
Pd	mg/kg DW	<1	<1	<1	<1
Pr	mg/kg DW	4.1	5.7	9.3	7.6
Pt	mg/kg DW	0.011	0.008	0.023	0.018
Rb	mg/kg DW	51	67	120	110
Re	mg/kg DW	<0.01	<0.01	<0.01	<0.01
Rh	mg/kg DW	<0.02	<0.02	<0.02	<0.02
Ru	mg/kg DW	<0.01	<0.01	<0.01	<0.01
S	mg/kg DW	15,000	15,000	16,000	18,000
Sb	mg/kg DW	0.33	0.26	0.39	0.45
Sc	mg/kg DW	3.8	5.9	9.1	7.6
Se	mg/kg DW	0.84	0.71	0.83	0.81
Si	mg/kg DW	210,000	270,000	250,000	250,000
Sm	mg/kg DW	3	3.9	6.7	4.9
Sn	mg/kg DW	2	1.7	7.5	7.7
Sr	mg/kg DW	81	77	120	100
Ta	mg/kg DW	0.42	0.56	1.1	1
Tb	mg/kg DW	0.38	0.54	0.88	0.57
Te	mg/kg DW	0.02	0.01	0.042	0.034
Th	mg/kg DW	4.8	6.5	11	8.8
Ti	mg/kg DW	1,200	1,600	2,900	2,800
Tl	mg/kg DW	0.58	0.61	1.1	1
Tm	mg/kg DW	0.19	0.22	0.39	0.23
U	mg/kg DW	9.3	11	4.2	5
V	mg/kg DW	29	45	70	72
W	mg/kg DW	0.72	0.8	1.6	1.6
Y	mg/kg DW	14	18	30	19
Yb	mg/kg DW	1.2	1.6	2.5	1.7
Zn	mg/kg DW	130	120	290	360
Zr	mg/kg DW	120	110	230	200
Sample weight	g	65.5	132	18.2	21.3
DW	%	10.2	11.4	28.9	30.4
LOI	% of DW	36.9	28.1	17.5	14.8

## Analysis of unfiltered sediment – Forsmark

<b>Sampling date:</b>		<b>2008-04-08</b>	<b>2008-04-08</b>	<b>2008-04-09</b>	<b>2008-04-09</b>
<b>SKB-no:</b>		<b>16000</b>	<b>16001</b>	<b>16002</b>	<b>16003</b>
<b>Name:</b>		<b>Eckarfjärden</b>	<b>Eckarfjärden</b>	<b>Labboträsket</b>	<b>Labboträsket</b>
<b>ID-code:</b>		<b>PFM117</b>	<b>PFM117</b>	<b>PFM74</b>	<b>PFM74</b>
<b>Level (cm):</b>		<b>0–5</b>	<b>25–30</b>	<b>0–5</b>	<b>25–30</b>
<b>Analysis</b>	<b>Unit</b>				
DW 50°C	%	1.3	2.7	1.6	3.1
TOC	mg/kg DW	350,000	360,000	360,000	300,000
C-tot	mg/kg DW	380,000	380,000	370,000	320,000
N-tot	mg/kg DW	38,200	35,550	36,470	28,780
N-org	mg/kg DW	33,000	32,000	32,000	25,000

<b>Sampling date:</b>		<b>2008-04-09</b>	<b>2008-04-09</b>	<b>2008-04-10</b>	<b>2008-04-10</b>
<b>SKB-no:</b>		<b>16004</b>	<b>16005</b>	<b>16006</b>	<b>16007</b>
<b>Name:</b>		<b>Bolundsfjärden</b>	<b>Bolundsfjärden</b>	<b>Tixelfjärden</b>	<b>Tixelfjärden</b>
<b>ID-code:</b>		<b>PFM107</b>	<b>PFM107</b>	<b>PFM63</b>	<b>PFM63</b>
<b>Level (cm):</b>		<b>0–5</b>	<b>25–30</b>	<b>0–5</b>	<b>20–25</b>
<b>Analysis</b>	<b>Unit</b>				
DW 50°C	%	5.4	9.9	7.5	9.1
TOC	mg/kg DW	170,000	120,000	69,000	62,000
C-tot	mg/kg DW	180,000	120,000	70,000	63,000
N-tot	mg/kg DW	17,710	10,710	8,060	5,760
N-org	mg/kg DW	15,000	9,600	6,900	4,800

## Analysis of pore water – Forsmark

		2008-04-08	2008-04-08	2008-04-09	2008-04-09
Sampling date:		2008-04-08	2008-04-08	2008-04-09	2008-04-09
SKB-no:		16000	16001	16002	16003
Name:		Eckarfjärden	Eckarfjärden	Labboträsket	Labboträsket
ID-code:		PFM117	PFM117	PFM74	PFM74
Level (cm):		0–5	25–30	0–5	25–30
Element	Unit				
Ag	µg/l	0.007	0.006	0.003	0.009
Al	µg/l	7	7.2	6.3	5.1
As	µg/l	1.1	6.2	1.2	1
Au	µg/l	<0.001	<0.001	<0.001	<0.001
B	µg/l	25	75	33	91
Ba	µg/l	33	60	56	75
Be	µg/l	0.1	0.023	0.025	0.022
Bi	µg/l	0.003	0.004	0.004	0.004
Br	µg/l	34.2	64.2	86	265
Ca	µg/l	59,000	78,000	89,000	110,000
Cd	µg/l	0.066	0.027	0.022	0.013
Ce	µg/l	0.13	0.15	0.078	0.069
Cl	mg/l	8.5	16	48	45
Co	µg/l	0.061	0.27	0.11	0.12
Cr	µg/l	0.26	0.64	0.32	0.34
Cs	µg/l	0.018	0.024	0.029	0.034
Cu	µg/l	0.32	0.81	0.31	0.19
Dy	µg/l	0.021	0.021	0.016	0.013
Er	µg/l	0.02	0.018	0.015	0.009
Eu	µg/l	0.003	0.004	0.006	0.004
F	mg/l	0.17	0.16	0.28	0.29
Fe	µg/l	21	3.1	23	5.6
Ga	µg/l	0.009	0.009	0.005	0.005
Gd	µg/l	0.027	0.029	0.021	0.015
Ge	µg/l	0.035	0.02	0.03	0.05
Hf	µg/l	0.007	0.009	0.008	0.01
Hg	µg/l	0.011	<0.002	<0.002	0.006
Ho	µg/l	0.006	0.005	0.005	0.004
I	µg/l	6.07	15	9.38	36.5
In	µg/l	<0.05	<0.05	<0.05	<0.05
Ir	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
K	µg/l	1,300	3,900	2,500	5,000
La	µg/l	0.12	0.13	0.072	0.057
Li	µg/l	1.5	3.2	2.6	4.7
Lu	µg/l	0.003	0.003	0.003	0.002
Mg	µg/l	3,500	6,200	4,600	9,500
Mn	µg/l	150	71	110	170
Mo	µg/l	6.2	18	1.6	1.8
Na	µg/l	7,200	15,000	25,000	37,000

Sampling date:	2008-04-08	2008-04-08	2008-04-09	2008-04-09	
SKB-no:	16000	16001	16002	16003	
Name:	Eckarfjärden	Eckarfjärden	Labboträsket	Labboträsket	
ID-code:	PFM117	PFM117	PFM74	PFM74	
Level (cm):	0-5	25-30	0-5	25-30	
Element	Unit				
Nb	µg/l	0.01	0.018	0.009	0.012
Nd	µg/l	0.11	0.12	0.077	0.065
Ni	µg/l	0.68	0.95	0.62	0.83
Os	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
P	µg/l	6.1	8.5	6.5	6.4
Pb	µg/l	0.27	0.18	0.22	0.3
Pd	µg/l	<0.01	<0.01	<0.01	<0.01
Pr	µg/l	0.027	0.027	0.017	0.015
Pt	µg/l	0.003	0.003	0.001	0.002
Rb	µg/l	2	3.3	2.6	3.7
Re	µg/l	0.001	0.001	0.001	0.001
Rh	µg/l	<0.1	<0.1	<0.1	<0.1
Ru	µg/l	<0.005	<0.005	<0.005	<0.005
S	µg/l	2,900	2,000	1,800	1,000
Sb	µg/l	0.41	1.1	0.11	0.059
Sc	µg/l	0.018	0.014	0.018	0.019
Se	µg/l	0.057	0.081	0.062	0.085
Si	µg/l	4,800	13,000	7,600	18,000
Sm	µg/l	0.021	0.025	0.015	0.014
Sn	µg/l	0.43	0.36	0.32	0.31
Sr	µg/l	76	110	130	190
Ta	µg/l	0.001	0.002	0.004	0.001
Tb	µg/l	0.004	0.004	0.003	0.003
Te	µg/l	0.005	0.002	0.003	0.007
Th	µg/l	0.012	0.009	0.01	0.006
Ti	µg/l	0.32	0.46	0.26	0.36
Tl	µg/l	0.002	0.002	0.005	0.001
Tm	µg/l	0.003	0.003	0.002	0.002
U	µg/l	8.2	23	2.5	4.9
V	µg/l	0.22	0.52	0.09	0.17
W	µg/l	0.003	0.009	0.005	0.005
Y	µg/l	0.21	0.2	0.15	0.13
Yb	µg/l	0.018	0.016	0.014	0.011
Zn	µg/l	3	2.5	1.5	2.3
Zr	µg/l	0.3	0.28	0.28	0.28
N-tot (CFA)	mg/l	3.2	10	2.7	13
NH <sub>4</sub> -N	mg/l	2.1	8.6	2	11
NO <sub>2</sub> -N	mg/l	0.0073	<0.0030	0.007	0.0043
NO <sub>3</sub> -N	mg/l	0.25	0.17	0.18	<0.11
TOC	mg/l	19	19	20	22
C-tot	mg/l	59	83	74	120
Volume pore water	ml	51.8	51	57.1	52.6



Sampling date:	2008-04-09	2008-04-09	2008-04-10	2008-04-10	
SKB-no:	16004	16005	16006	16007	
Name:	Bolundsfjärden	Bolundsfjärden	Tixelfjärden	Tixelfjärden	
ID-code:	PFM107	PFM107	PFM63	PFM63	
Level (cm):	0-5	25-30	0-5	20-25	
Element	Unit				
Ag	µg/l	0.009	0.006	<0.002	0.003
Al	µg/l	14	17	30	36
As	µg/l	1.5	4.3	6	16
Au	µg/l	<0.001	<0.001	<0.001	<0.001
B	µg/l	130	220	990	960
Ba	µg/l	40	170	31	31
Be	µg/l	0.026	0.029	0.023	0.019
Bi	µg/l	0.005	0.006	0.011	0.008
Br	µg/l	934	1,590	9,110	9,460
Ca	µg/l	65,000	52,000	78,000	77,000
Cd	µg/l	0.004	0.006	0.015	0.012
Ce	µg/l	0.46	0.51	0.54	0.4
Cl	mg/l	244	426	2,630	2,660
Co	µg/l	0.059	0.077	0.071	0.12
Cr	µg/l	0.4	0.65	0.83	1.2
Cs	µg/l	0.35	0.03	0.053	0.073
Cu	µg/l	0.32	0.95	4.4	4
Dy	µg/l	0.085	0.052	0.041	0.05
Er	µg/l	0.029	0.036	0.028	0.038
Eu	µg/l	0.009	0.01	0.008	0.008
F	mg/l	0.33	0.31	0.34	0.34
Fe	µg/l	330	9.2	1,200	33
Ga	µg/l	0.004	0.003	0.007	0.014
Gd	µg/l	0.06	0.064	0.047	0.057
Ge	µg/l	0.03	0.08	0.16	0.15
Hf	µg/l	0.011	0.012	0.018	0.019
Hg	µg/l	0.016	0.012	0.07	0.084
Ho	µg/l	0.013	0.012	0.011	0.013
I	µg/l	11.4	27.8	58.6	76.6
In	µg/l	<0.05	<0.05	<0.05	<0.05
Ir	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
K	µg/l	5,900	12,000	65,000	64,000
La	µg/l	0.32	0.31	0.23	0.26
Li	µg/l	6.1	10	34	33
Lu	µg/l	0.007	0.006	0.006	0.006
Mg	µg/l	16,000	32,000	160,000	150,000
Mn	µg/l	200	32	250	23
Mo	µg/l	2.6	17	6.2	11
Na	µg/l	120,000	210,000	1,500,000	1,500,000
Nb	µg/l	0.026	0.029	0.048	0.051
Nd	µg/l	0.26	0.29	0.22	0.24
Ni	µg/l	0.74	3.2	1	1.5
Os	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
P	µg/l	7.7	45	610	1,300

Sampling date:	2008-04-09	2008-04-09	2008-04-10	2008-04-10	
SKB-no:	16004	16005	16006	16007	
Name:	Bolundsfjärden	Bolundsfjärden	Tixelfjärden	Tixelfjärden	
ID-code:	PFM107	PFM107	PFM63	PFM63	
Level (cm):	0-5	25-30	0-5	20-25	
Element	Unit				
Pb	µg/l	0.1	0.41	0.27	0.34
Pd	µg/l	<0.01	<0.01	<0.01	<0.01
Pr	µg/l	0.067	0.072	0.052	0.063
Pt	µg/l	0.002	0.002	0.004	0.002
Rb	µg/l	5.7	7.5	25	24
Re	µg/l	0.003	0.001	0.005	0.002
Rh	µg/l	<0.1	<0.1	<0.1	<0.1
Ru	µg/l	<0.005	<0.005	<0.005	<0.005
S	µg/l	4,400	3,000	120,000	72,000
Sb	µg/l	0.15	0.055	0.099	0.18
Sc	µg/l	0.017	0.015	0.018	0.019
Se	µg/l	0.088	0.073	0.15	0.17
Si	µg/l	4,800	19,000	12,000	20,000
Sm	µg/l	0.051	0.061	0.05	0.05
Sn	µg/l	0.59	0.27	0.28	0.2
Sr	µg/l	330	360	1,300	1,300
Ta	µg/l	0.002	0.003	0.002	0.004
Tb	µg/l	0.014	0.01	0.009	0.009
Te	µg/l	0.01	<0.002	0.015	0.032
Th	µg/l	0.022	0.035	0.032	0.032
Ti	µg/l	0.6	1.6	2.1	2.8
Tl	µg/l	0.011	0.001	0.003	0.007
Tm	µg/l	0.004	0.005	0.004	0.005
U	µg/l	3.3	4.1	0.69	2.4
V	µg/l	0.46	0.71	0.8	1.7
W	µg/l	0.32	0.3	0.18	0.37
Y	µg/l	0.34	0.35	0.29	0.36
Yb	µg/l	0.027	0.038	0.028	0.038
Zn	µg/l	2.1	11	4.2	4.9
Zr	µg/l	0.49	0.56	0.77	0.82
N-tot (CFA)	mg/l	1.2	6.9	1.9	6.9
NH <sub>4</sub> -N	mg/l	0.51	4.8	1.5	6.1
NO <sub>2</sub> -N	mg/l	<0.0030	0.0046	0.003	0.0097
NO <sub>3</sub> -N	mg/l	<0.11	0.68	<0.11	<0.11
TOC	mg/l	20	23	8.2	10
C-tot	mg/l	57	66	42	65
Volume pore water	ml	54	51.1	60.2	56.3

## Analysis of filtered sediment – Oskarshamn

		2008-04-15	2008-04-15	2008-04-15	2008-04-15
<b>Sampling date:</b>		2008-04-15	2008-04-15	2008-04-15	2008-04-15
<b>SKB-no:</b>		15502	15503	15504	15505
<b>Name:</b>		Jämsen	Jämsen	Kräkelund	Kräkelund
<b>ID-code:</b>		PSM2067	PSM2067	PSM7090	PSM7090
<b>Level (cm):</b>		0–5	15–20	0–5	25–30
<b>Element</b>	<b>Unit</b>				
Ag	mg/kg DW	0.74	0.86	0.45	0.7
Al	mg/kg DW	30,000	29,000	29,000	32,000
As	mg/kg DW	5.2	7.2	15	17
Au	mg/kg DW	<0.05	<0.05	<0.05	<0.05
B	mg/kg DW	10	11	80	85
Ba	mg/kg DW	280	290	210	230
Be	mg/kg DW	3	3.2	1.4	1.7
Bi	mg/kg DW	0.38	0.48	0.26	0.46
Br	mg/kg DW	80	76	2,800	1,500
Ca	mg/kg DW	7,300	6,700	8,000	7,500
Cd	mg/kg DW	1.3	1.6	3.5	8.1
Ce	mg/kg DW	220	210	64	78
Cl	mg/kg DW	<500	<500	14,900	13,200
Co	mg/kg DW	22	23	8	9.6
Cr	mg/kg DW	26	27	32	36
Cs	mg/kg DW	2.1	2.3	2.7	3.2
Cu	mg/kg DW	33	35	53	77
Dy	mg/kg DW	14	14	3.2	3.7
Er	mg/kg DW	9.6	9.2	1.9	2.3
Eu	mg/kg DW	3.5	3.4	0.76	0.9
F	mg/kg DW	<100	220	<100	<100
Fe	mg/kg DW	42,000	40,000	20,000	21,000
Ga	mg/kg DW	9.5	9.4	10	11
Gd	mg/kg DW	18	19	4.4	5
Ge	mg/kg DW	1.2	1.3	1.6	2
Hf	mg/kg DW	3.8	4.4	3.4	3.7
Hg	mg/kg DW	0.31	0.34	0.13	0.23
Ho	mg/kg DW	3.2	3.3	0.69	0.82
I	mg/kg DW	8.4	7	56	68
In	mg/kg DW	<0.05	<0.05	<0.05	<0.05
Ir	mg/kg DW	<0.02	<0.02	<0.02	<0.02
K	mg/kg DW	6,700	7,000	12,000	13,000
La	mg/kg DW	120	120	35	42
Li	mg/kg DW	17	17	16	20
Lu	mg/kg DW	1.4	1.4	0.29	0.33
Mg	mg/kg DW	2,800	2,700	8,400	9,100
Mn	mg/kg DW	730	700	250	240
Mo	mg/kg DW	1.3	1.5	5.7	5.9
Na	mg/kg DW	2,900	2,900	15,000	15,000

Sampling date:	2008-04-15	2008-04-15	2008-04-15	2008-04-15	
SKB-no:	15502	15503	15504	15505	
Name:	Jämsen	Jämsen	Kråkelund	Kråkelund	
ID-code:	PSM2067	PSM2067	PSM7090	PSM7090	
Level (cm):	0-5	15-20	0-5	25-30	
Element	Unit				
Nb	mg/kg DW	12	14	7.4	8.2
Nd	mg/kg DW	110	110	27	31
Ni	mg/kg DW	18	19	37	43
Os	mg/kg DW	<0.02	<0.02	<0.02	<0.02
P	mg/kg DW	1,900	1,900	1,500	1,200
Pb	mg/kg DW	74	93	36	83
Pd	mg/kg DW	<1	<1	<1	<1
Pr	mg/kg DW	31	31	7.2	8.7
Pt	mg/kg DW	0.026	0.014	0.021	0.014
Rb	mg/kg DW	25	26	61	70
Re	mg/kg DW	<0.01	<0.01	<0.01	<0.01
Rh	mg/kg DW	<0.02	<0.02	<0.02	<0.02
Ru	mg/kg DW	<0.01	<0.01	<0.01	<0.01
S	mg/kg DW	6,100	6,600	15,000	16,000
Sb	mg/kg DW	0.97	1.1	0.46	0.73
Sc	mg/kg DW	6.7	6.7	5.2	6
Se	mg/kg DW	1.2	1.3	1.9	2.3
Si	mg/kg DW	180,000	180,000	190,000	200,000
Sm	mg/kg DW	23	23	5.1	5.6
Sn	mg/kg DW	4.1	4.6	2.6	4.2
Sr	mg/kg DW	71	66	130	130
Ta	mg/kg DW	0.68	0.78	0.56	0.61
Tb	mg/kg DW	2.8	3	0.59	0.74
Te	mg/kg DW	0.058	0.076	0.038	0.047
Th	mg/kg DW	11	11	7	8
Ti	mg/kg DW	1,800	2,000	1,400	1,500
Tl	mg/kg DW	0.78	0.96	0.59	0.79
Tm	mg/kg DW	1.3	1.3	0.26	0.32
U	mg/kg DW	6.1	6.7	5.7	6.9
V	mg/kg DW	78	81	40	44
W	mg/kg DW	0.86	1	1.1	1.2
Y	mg/kg DW	110	110	22	27
Yb	mg/kg DW	8.7	8.8	1.8	2.1
Zn	mg/kg DW	210	230	180	330
Zr	mg/kg DW	110	120	120	120
Sample weight	g	29.1	59	25.9	55.2
DW	%	21.7	20.1	19.4	20.6
LOI	% of DW	35.5	33.9	36	31.4

Sampling date:	2008-04-15	2008-04-15	2008-04-15	2008-04-15	
SKB-no:	15506	15507	15508	15509	
Name:	Gränholmsfjärden	Gränholmsfjärden	Frisksjön	Frisksjön	
ID-code:	PSM2064	PSM2064	PSM2065	PSM2065	
Level (cm):	0-5	25-30	0-5	20-25	
Element	Unit				
Ag	mg/kg DW	0.37	0.36	0.62	0.44
Al	mg/kg DW	26,000	25,000	27,000	30,000
As	mg/kg DW	19	18	4.3	5.8
Au	mg/kg DW	<0.05	<0.05	<0.05	<0.05
B	mg/kg DW	67	50	13	13
Ba	mg/kg DW	130	110	190	180
Be	mg/kg DW	4.1	4.3	7.5	7.4
Bi	mg/kg DW	0.21	0.25	0.32	0.33
Br	mg/kg DW	750	530	150	170
Ca	mg/kg DW	7,800	5,100	6,100	6,000
Cd	mg/kg DW	1.9	2.1	3.1	3.2
Ce	mg/kg DW	170	160	250	240
Cl	mg/kg DW	10,900	10,600	<500	<500
Co	mg/kg DW	7.3	10	19	20
Cr	mg/kg DW	28	27	33	35
Cs	mg/kg DW	1.8	1.6	2.1	2.3
Cu	mg/kg DW	48	50	65	65
Dy	mg/kg DW	7.1	6.3	11	10
Er	mg/kg DW	5	4.3	7.2	6.8
Eu	mg/kg DW	1.7	1.6	3.2	3.1
F	mg/kg DW	<100	<100	370	400
Fe	mg/kg DW	39,000	39,000	25,000	30,000
Ga	mg/kg DW	5.7	5.3	6	6.9
Gd	mg/kg DW	11	9.1	19	17
Ge	mg/kg DW	0.66	0.73	1	1.1
Hf	mg/kg DW	2.4	2.2	3.3	3.2
Hg	mg/kg DW	0.17	0.16	0.26	0.23
Ho	mg/kg DW	1.6	1.4	2.4	2.2
I	mg/kg DW	50	35	26	22
In	mg/kg DW	<0.05	<0.05	<0.05	<0.05
Ir	mg/kg DW	<0.02	<0.02	<0.02	<0.02
K	mg/kg DW	7,600	7,100	5,300	5,600
La	mg/kg DW	90	84	130	130
Li	mg/kg DW	18	18	15	15
Lu	mg/kg DW	0.76	0.69	1.1	1
Mg	mg/kg DW	7,000	6,000	2,400	2,700
Mn	mg/kg DW	140	200	240	220
Mo	mg/kg DW	2.1	4.2	2.7	3.6
Na	mg/kg DW	12,000	11,000	1,800	2,200
Nb	mg/kg DW	5.2	4.7	6.3	6.6
Nd	mg/kg DW	71	63	110	110
Ni	mg/kg DW	25	27	51	57
Os	mg/kg DW	<0.02	<0.02	<0.02	<0.02
P	mg/kg DW	2,600	1,500	1,300	1,400

		2008-04-15	2008-04-15	2008-04-15	2008-04-15
<b>Sampling date:</b>		<b>2008-04-15</b>	<b>2008-04-15</b>	<b>2008-04-15</b>	<b>2008-04-15</b>
<b>SKB-no:</b>		<b>15506</b>	<b>15507</b>	<b>15508</b>	<b>15509</b>
<b>Name:</b>		<b>Granholmsfjärden</b>	<b>Granholmsfjärden</b>	<b>Frisksjön</b>	<b>Frisksjön</b>
<b>ID-code:</b>		<b>PSM2064</b>	<b>PSM2064</b>	<b>PSM2065</b>	<b>PSM2065</b>
<b>Level (cm):</b>		<b>0-5</b>	<b>25-30</b>	<b>0-5</b>	<b>20-25</b>
<b>Element</b>	<b>Unit</b>				
Pb	mg/kg DW	30	41	48	50
Pd	mg/kg DW	<1	<1	<1	<1
Pr	mg/kg DW	19	18	30	29
Pt	mg/kg DW	<0.01	<0.01	0.016	0.013
Rb	mg/kg DW	37	32	32	32
Re	mg/kg DW	<0.01	<0.01	<0.01	<0.01
Rh	mg/kg DW	<0.02	<0.02	<0.02	<0.02
Ru	mg/kg DW	<0.01	<0.01	<0.01	<0.01
S	mg/kg DW	28,000	43,000	13,000	21,000
Sb	mg/kg DW	0.33	0.47	0.45	0.68
Sc	mg/kg DW	5.2	4.5	6.1	6.5
Se	mg/kg DW	1.2	1.2	1.3	1.2
Si	mg/kg DW	190,000	190,000	190,000	200,000
Sm	mg/kg DW	12	11	20	18
Sn	mg/kg DW	1.5	2	2.5	2.7
Sr	mg/kg DW	150	110	64	57
Ta	mg/kg DW	0.37	0.34	0.42	0.48
Tb	mg/kg DW	1.5	1.3	2.4	2.2
Te	mg/kg DW	0.056	0.051	0.064	0.063
Th	mg/kg DW	8.4	7.1	10	9.8
Ti	mg/kg DW	820	760	870	1,000
Tl	mg/kg DW	0.55	0.46	0.73	0.8
Tm	mg/kg DW	0.69	0.6	1	0.9
U	mg/kg DW	3.6	3.8	13	12
V	mg/kg DW	43	43	40	42
W	mg/kg DW	0.7	0.71	1.5	1
Y	mg/kg DW	59	53	85	78
Yb	mg/kg DW	4.7	4.2	6.7	5.9
Zn	mg/kg DW	150	200	200	190
Zr	mg/kg DW	79	69	97	96
Sample weight	g	24.3	40.9	25.4	63.1
DW	%	22.4	21	22.8	18.4
LOI	% of DW	27.7	24.6	34.4	32

## Analysis of unfiltered sediment – Oskarshamn

<b>Sampling date:</b>		<b>2008-04-15</b>	<b>2008-04-15</b>	<b>2008-04-15</b>	<b>2008-04-15</b>
<b>SKB-no:</b>		<b>15502</b>	<b>15503</b>	<b>15504</b>	<b>15505</b>
<b>Name:</b>		<b>Jämsen</b>	<b>Jämsen</b>	<b>Kråkelund</b>	<b>Kråkelund</b>
<b>ID-code:</b>		<b>PSM2067</b>	<b>PSM2067</b>	<b>PSM7090</b>	<b>PSM7090</b>
<b>Level (cm):</b>		<b>0–5</b>	<b>15–20</b>	<b>0–5</b>	<b>25–30</b>
<b>Analysis</b>	<b>Unit</b>				
DW 50°C	%	7,2	10,3	6,3	11,1
TOC	mg/kg DW	170,000	160,000	140,000	110,000
C-tot	mg/kg DW	180,000	170,000	150,000	140,000
N-tot	mg/kg DW	12,020	11,800	19,490	16,020
N-org	mg/kg DW	9,900	9,900	17,000	14,000

<b>Sampling date:</b>		<b>2008-04-15</b>	<b>2008-04-15</b>	<b>2008-04-15</b>	<b>2008-04-15</b>
<b>SKB-no:</b>		<b>15506</b>	<b>15507</b>	<b>15508</b>	<b>15509</b>
<b>Name:</b>		<b>Granholmsfjärden</b>	<b>Granholmsfjärden</b>	<b>Frisksjön</b>	<b>Frisksjön</b>
<b>ID-code:</b>		<b>PSM2064</b>	<b>PSM2064</b>	<b>PSM2065</b>	<b>PSM2065</b>
<b>Level (cm):</b>		<b>0–5</b>	<b>25–30</b>	<b>0–5</b>	<b>20–25</b>
<b>Analysis</b>	<b>Unit</b>				
DW 50°C	%	6,6	9,1	6,8	10
TOC	mg/kg DW	110,000	110,000	160,000	150,000
C-tot	mg/kg DW	120,000	110,000	170,000	160,000
N-tot	mg/kg DW	13,050	11,750	15,380	13,950
N-org	mg/kg DW	11,000	10,000	13,000	12,000

## Analysis of pore water – Oskarshamn

Sampling date:	2008-04-15	2008-04-15	2008-04-15	2008-04-15	
SKB-no:	15502	15503	15504	15505	
Name:	Jämsen	Jämsen	Kräkelund	Kräkelund	
ID-code:	PSM2067	PSM2067	PSM7090	PSM7090	
Level (cm):	0–5	15–20	0–5	25–30	
Element	Unit				
Ag	µg/l	0.01	0.006	0.004	<0.002
Al	µg/l	350	350	20	11
As	µg/l	2.9	4.7	11	30
Au	µg/l	<0.001	<0.001	<0.001	<0.001
B	µg/l	80	75	840	1,000
Ba	µg/l	86	90	63	89
Be	µg/l	0.25	0.24	0.022	0.043
Bi	µg/l	0.007	0.006	0.014	0.013
Br	µg/l	57	81.5	15,700	17,900
Ca	µg/l	18,000	19,000	120,000	110,000
Cd	µg/l	0.006	0.003	0.009	0.005
Ce	µg/l	9.7	9.1	0.65	1.4
Cl	mg/l	17	17	3,870	3,910
Co	µg/l	2.6	0.94	0.27	1.3
Cr	µg/l	1.1	1.2	0.37	1.1
Cs	µg/l	0.11	0.18	0.091	0.13
Cu	µg/l	0.9	0.56	3.3	2.8
Dy	µg/l	0.67	0.59	0.041	0.1
Er	µg/l	0.42	0.38	0.031	0.079
Eu	µg/l	0.23	0.2	0.008	0.025
F	mg/l	0.92	0.78	0.59	0.58
Fe	µg/l	28,000	31,000	570	31
Ga	µg/l	0.02	0.02	0.018	0.012
Gd	µg/l	1	1	0.031	0.075
Ge	µg/l	0.03	0.1	<0.02	<0.02
Hf	µg/l	0.066	0.056	0.008	0.023
Hg	µg/l	<0.002	<0.002	0.21	0.25
Ho	µg/l	0.14	0.12	0.01	0.024
I	µg/l	15.7	22.8	214	737
In	µg/l	<0.05	<0.05	<0.05	<0.05
Ir	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
K	µg/l	2,000	2,200	84,000	88,000
La	µg/l	4.9	4.7	0.37	0.85
Li	µg/l	11	12	38	39
Lu	µg/l	0.1	0.09	0.004	0.009
Mg	µg/l	3,500	3,700	220,000	220,000
Mn	µg/l	1,600	2,000	770	59
Mo	µg/l	1.1	0.69	0.9	4.5
Na	µg/l	9,400	9,700	2,100,000	2,100,000



Sampling date:	2008-04-15	2008-04-15	2008-04-15	2008-04-15	
SKB-no:	15502	15503	15504	15505	
Name:	Jämsen	Jämsen	Kråkelund	Kråkelund	
ID-code:	PSM2067	PSM2067	PSM7090	PSM7090	
Level (cm):	0-5	15-20	0-5	25-30	
Element	Unit				
Nb	µg/l	0.083	0.1	0.027	0.071
Nd	µg/l	7.8	7.4	0.29	0.66
Ni	µg/l	2.6	1.5	3.1	8.1
Os	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
P	µg/l	45	90	3,400	6,400
Pb	µg/l	0.45	0.32	0.15	0.24
Pd	µg/l	<0.01	<0.01	<0.01	<0.01
Pr	µg/l	1.9	1.7	0.074	0.17
Pt	µg/l	0.002	0.001	<0.001	<0.001
Rb	µg/l	7.8	9.2	29	32
Re	µg/l	0.002	0.001	0.008	0.001
Rh	µg/l	<0.1	<0.1	<0.1	<0.1
Ru	µg/l	<0.005	<0.005	<0.005	<0.005
S	µg/l	4,900	1,400	110,000	8,700
Sb	µg/l	0.071	0.051	0.19	0.23
Sc	µg/l	0.34	0.35	0.015	0.014
Se	µg/l	0.34	0.32	0.45	0.93
Si	µg/l	4,500	6,700	14,000	27,000
Sm	µg/l	1.4	1.3	0.058	0.13
Sn	µg/l	0.15	0.035	0.33	0.27
Sr	µg/l	110	110	1,900	1,900
Ta	µg/l	0.004	0.005	0.001	0.002
Tb	µg/l	0.16	0.14	0.007	0.017
Te	µg/l	0.045	0.014	0.027	0.079
Th	µg/l	0.14	0.14	0.024	0.052
Ti	µg/l	8.6	9.2	0.86	2
Tl	µg/l	0.004	0.002	<0.001	<0.001
Tm	µg/l	0.059	0.052	0.003	0.009
U	µg/l	0.74	0.58	0.44	6
V	µg/l	8.6	6.4	0.21	0.91
W	µg/l	0.07	0.072	0.053	0.36
Y	µg/l	7.5	7	0.27	0.68
Yb	µg/l	0.47	0.37	0.02	0.055
Zn	µg/l	3.9	3.9	13	3.5
Zr	µg/l	1.1	1	0.33	1
N-tot (CFA)	mg/l	5.5	9.7	8.6	33
NH <sub>4</sub> -N	mg/l	3.9	7.8	7.2	28
NO <sub>2</sub> -N	mg/l	0.019	0.016	0.0064	0.017
NO <sub>3</sub> -N	mg/l	<0.11	<0.11	<0.11	<0.11
TOC	mg/l	59	55	12	45
C-tot	mg/l	62	64	55	160
Volume pore water	ml	57.8	57.7	57.2	56.2

Sampling date:	2008-04-15	2008-04-15	2008-04-15	2008-04-15	
SKB-no:	15506	15507	15508	15509	
Name:	Gränholmsfjärden	Gränholmsfjärden	Frisksjön	Frisksjön	
ID-code:	PSM2064	PSM2064	PSM2065	PSM2065	
Level (cm):	0-5	25-30	0-5	20-25	
Element	Unit				
Ag	µg/l	<0.002	<0.002	0.002	<0.002
Al	µg/l	140	67	210	140
As	µg/l	14	11	2.4	4.5
Au	µg/l	<0.001	<0.001	<0.001	<0.001
B	µg/l	650	862	30	54
Ba	µg/l	23	31	37	31
Be	µg/l	0.43	0.36	0.39	0.27
Bi	µg/l	0.011	0.011	0.015	0.008
Br	µg/l	13,300	16,300	345	1,010
Ca	µg/l	95,000	110,000	15,000	11,000
Cd	µg/l	0.007	0.008	0.005	0.007
Ce	µg/l	5.4	2.6	6.9	2.2
Cl	mg/l	3,540	3,630	30	56
Co	µg/l	0.42	0.48	2.5	0.23
Cr	µg/l	2.2	2.6	0.79	0.32
Cs	µg/l	0.094	0.11	0.1	0.22
Cu	µg/l	3	5.3	0.91	0.92
Dy	µg/l	0.53	0.31	0.3	0.1
Er	µg/l	0.44	0.27	0.23	0.074
Eu	µg/l	0.1	0.055	0.067	0.015
F	mg/l	0.59	0.62	0.77	0.8
Fe	µg/l	9,100	430	6,800	1,800
Ga	µg/l	0.014	0.012	0.013	0.014
Gd	µg/l	0.61	0.22	0.24	0.075
Ge	µg/l	0.14	0.06	<0.02	<0.02
Hf	µg/l	0.18	0.14	0.053	0.015
Hg	µg/l	0.32	0.43	0.073	0.095
Ho	µg/l	0.14	0.08	0.072	0.024
I	µg/l	399	1,320	73.3	195
In	µg/l	<0.05	<0.05	<0.05	<0.05
Ir	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
K	µg/l	74,000	81,000	2,600	3,400
La	µg/l	2.7	1.3	4.1	1.2
Li	µg/l	48	70	8	6.2
Lu	µg/l	0.073	0.047	0.032	0.011
Mg	µg/l	210,000	210,000	4,100	3,500
Mn	µg/l	180	27	410	240
Mo	µg/l	2.6	6.2	2.1	2.6
Na	µg/l	1,800,000	1,900,000	16,000	33,000
Nb	µg/l	0.55	0.68	0.06	0.039
Nd	µg/l	3.1	1.6	2.7	0.85
Ni	µg/l	1.5	0.87	4.9	0.82
Os	µg/l	<0.0002	<0.0002	<0.0002	<0.0002
P	µg/l	5,800	2,900	20	35

Sampling date:	2008-04-15	2008-04-15	2008-04-15	2008-04-15	
SKB-no:	15506	15507	15508	15509	
Name:	Granholmsfjärden	Granholmsfjärden	Frisksjön	Frisksjön	
ID-code:	PSM2064	PSM2064	PSM2065	PSM2065	
Level (cm):	0-5	25-30	0-5	20-25	
Element	Unit				
Pb	µg/l	0.072	0.38	0.28	0.21
Pd	µg/l	<0.01	<0.01	<0.01	<0.01
Pr	µg/l	0.73	0.35	0.75	0.23
Pt	µg/l	<0.001	<0.001	<0.001	<0.001
Rb	µg/l	26	31	8.6	9.1
Re	µg/l	0.002	0.001	0.002	0.005
Rh	µg/l	<0.1	<0.1	<0.1	<0.1
Ru	µg/l	<0.005	<0.005	<0.005	<0.005
S	µg/l	52,000	6,600	4,100	590
Sb	µg/l	0.15	0.37	0.12	0.15
Sc	µg/l	0.1	0.091	0.16	0.07
Se	µg/l	0.75	0.27	0.057	<0.02
Si	µg/l	6,600	10,000	8,000	9,400
Sm	µg/l	0.65	0.36	0.47	0.14
Sn	µg/l	0.3	0.28	0.32	0.32
Sr	µg/l	1,500	1,700	89	68
Ta	µg/l	0.003	0.001	<0.0005	<0.0005
Tb	µg/l	0.083	0.05	0.05	0.015
Te	µg/l	0.033	0.035	<0.002	0.008
Th	µg/l	0.18	0.1	0.21	0.073
Ti	µg/l	9.5	6.3	1.9	1.7
Tl	µg/l	<0.001	<0.001	<0.001	<0.001
Tm	µg/l	0.065	0.041	0.031	0.011
U	µg/l	3.4	3.2	0.65	0.21
V	µg/l	11	12	1.8	0.92
W	µg/l	0.43	0.53	0.019	0.025
Y	µg/l	4	2.4	2.2	0.73
Yb	µg/l	0.42	0.24	0.18	0.057
Zn	µg/l	13	5.9	9.1	3.2
Zr	µg/l	7.7	5.8	1.6	0.55
N-tot (CFA)	mg/l	12	36	3	11
NH <sub>4</sub> -N	mg/l	8.8	31	2.3	9.7
NO <sub>2</sub> -N	mg/l	0.0049	<0.0030	<0.0030	<0.0030
NO <sub>3</sub> -N	mg/l	<0.11	<0.11	<0.11	<0.11
TOC	mg/l	50	46	22	12
C-tot	mg/l	130	200	27	20
Volume pore water	ml	61.9	63	59.5	61.4

## Duplicate analysis of five elements in pore water – Forsmark and Oskarshamn

Laboratory: Chalmers University of Technology.

Samples: Pore water.

Purpose: Control analysis of five elements performed by a non commercial laboratory.

**Concentration in ppb, the uncertainties, one standard deviation, are 8% for Se, 5% for Sr, and 2% for U.**

ID-code	Name	Level (cm)	SKB-no	Unit	Se	Sr	Sn	U	Pu
PSM002065	Frisksjön	0–5	15508	ppb	1.6	81.6	<d.l.	0.5	<d.l.
PSM002065	Frisksjön	25–30	15509	ppb	5.1	55	<d.l.	< d.l.	<d.l.
PSM007090	Kråkelund	0–5	15504	ppb	74.4	1,617.3	<d.l.	0.3	<d.l.
PSM007090	Kråkelund	25–30	15505	ppb	83	1,625.2	<d.l.	5.2	<d.l.
PFM000117	Eckarfjärden	0–5	16000	ppb	1.2	62.5	<d.l.	7.9	<d.l.
PFM000117	Eckarfjärden	25–30	16001	ppb	1.2	97.5	<d.l.	22.5	<d.l.
PFM000063	Tixelfjärden	0–5	16006	ppb	42.9	1,038.3	<d.l.	0.5	<d.l.
PFM000063	Tixelfjärden	20–25	16007	ppb	41.5	981.7	<d.l.	1.9	<d.l.
Detection limit (d.l.)/ppb					1.5	0.5	1	0.1	0.1

## Complementary sediment analysis in Lake Frisksjön – Oskarshamn

Date of field work (sediment sampling): 2008-05-27.  
 Site: PSM002065 Lake Frisksjön.  
 Sampling depth: 0–5 cm.  
 Company: Medins Biologi AB.  
 Laboratory: ALS Scandinavia AB, Luleå.  
 Samples: Unfiltered sediment samples.  
 Purpose: Check possible contamination from Limnos sampler (stainless steel edge). Kajak sampler is metal free.

	Catcher:	Limnos	Limnos	Limnos	Limnos	Limnos	Kajak	Kajak	Kajak	Kajak	Kajak
	SKB no:	15577	15579	15581	15583	15585	15578	15580	15582	15584	15586
Element	Unit										
Ag	mg/kg dw	0.9	0.83	0.83	0.9	1	0.9	0.94	1	0.9	0.9
Al	mg/kg dw	41,000	38,000	38,000	38,000	41,000	41,000	38,000	41,000	41,000	38,000
As	mg/kg dw	5.7	5.8	5.4	4.6	5.9	5.6	6	5.9	5.6	5.5
Au	mg/kg dw	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B	mg/kg dw	70	60	60	60	60	60	60	60	60	60
Ba	mg/kg dw	240	220	220	220	240	230	230	230	230	240
Be	mg/kg dw	10	9.3	9.3	9.5	10	10	10	10	10	10
Bi	mg/kg dw	0.38	0.36	0.35	0.38	0.38	0.35	0.36	0.39	0.38	0.39
Br	mg/kg dw	300	320	300	330	350	320	310	320	310	330
Ca	mg/kg dw	9,100	8,700	8,500	8,200	9,500	9,400	8,900	9,200	9,300	8,800
Cd	mg/kg dw	3.6	3.4	3.4	3.6	3.7	3.4	3.5	3.5	3.7	3.7
Ce	mg/kg dw	270	260	250	260	270	260	260	280	270	270
Co	mg/kg dw	26	25	24	25	26	25	25	27	26	25
Cr	mg/kg dw	47	44	43	46	45	47	46	47	48	45
Cs	mg/kg dw	2.8	2.6	2.6	2.8	2.7	2.7	2.8	2.8	2.8	2.9
Cu	mg/kg dw	92	87	84	93	94	92	92	94	95	90
Dy	mg/kg dw	9.7	9.1	8.7	9.3	9.2	9.2	9.5	9.6	9.3	9.6
Er	mg/kg dw	5.5	5	4.9	5.2	5.3	5.3	5.4	5.5	5.3	5.4
Eu	mg/kg dw	3.6	3.3	3.3	3.5	3.8	3.5	3.6	3.8	3.6	3.7
Fe	mg/kg dw	38,000	35,000	33,000	38,000	38,000	38,000	35,000	36,000	39,000	37,000
Ga	mg/kg dw	6.5	5.6	6	6.2	6.6	6.2	6.2	6.4	6.4	6
Gd	mg/kg dw	13	11	11	12	12	12	12	12	12	12
Ge	mg/kg dw	0.9	0.7	0.8	0.8	0.9	0.8	0.9	0.7	0.8	0.8
Hf	mg/kg dw	2.6	2.4	2.3	2.6	2.7	2.7	2.6	2.7	2.6	2.7
Hg	mg/kg dw	0.21	0.12	0.13	0.11	0.11	0.15	0.13	0.11	0.11	0.12
Ho	mg/kg dw	1.9	1.7	1.7	1.8	1.9	1.8	1.9	1.8	1.9	1.9
I	mg/kg dw	30	30	30	30	30	30	30	30	30	30
In	mg/kg dw	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ir	mg/kg dw	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
K	mg/kg dw	7,600	7,500	6,900	7,000	7,300	7,500	7,700	7,500	8,300	7,700
La	mg/kg dw	140	130	120	130	130	130	130	130	130	130
Li	mg/kg dw	22	20	20	21	21	21	22	21	22	21

<b>Catcher:</b>		<b>Limnos</b>	<b>Limnos</b>	<b>Limnos</b>	<b>Limnos</b>	<b>Limnos</b>	<b>Kajak</b>	<b>Kajak</b>	<b>Kajak</b>	<b>Kajak</b>	<b>Kajak</b>
<b>SKB no:</b>		<b>15577</b>	<b>15579</b>	<b>15581</b>	<b>15583</b>	<b>15585</b>	<b>15578</b>	<b>15580</b>	<b>15582</b>	<b>15584</b>	<b>15586</b>
<b>Element</b>	<b>Unit</b>										
Lu	mg/kg dw	1.1	1	1	1.1	1.1	1.1	1.1	1.2	1.1	1.1
Mg	mg/kg dw	3,900	3,700	3,600	3,700	3,800	3,900	3,600	3,900	3,800	3,800
Mn	mg/kg dw	340	310	310	310	350	330	330	320	330	310
Mo	mg/kg dw	3.4	3.4	3.2	3.6	3.7	3.6	3.4	3.8	3.6	3.6
Na	mg/kg dw	2,700	2,700	2,600	2,800	2,800	2,800	2,900	2,900	2,900	2,900
Nb	mg/kg dw	5.5	4.9	4.9	5.3	5.4	5.5	5.1	8.1	5.4	5.3
Nd	mg/kg dw	150	140	130	140	140	140	140	150	150	150
Ni	mg/kg dw	72	70	67	73	74	73	71	75	75	72
Os	mg/kg dw	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
P	mg/kg dw	2,300	2,200	2,200	2,200	2,400	2,300	2,300	2,200	2,300	2,300
Pb	mg/kg dw	58	54	51	55	57	55	58	57	58	58
Pd	mg/kg dw	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pr	mg/kg dw	39	35	36	37	39	36	37	40	39	38
Pt	mg/kg dw	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Rb	mg/kg dw	43	40	36	36	40	40	40	40	42	39
Re	mg/kg dw	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Rh	mg/kg dw	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ru	mg/kg dw	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
S	mg/kg dw	18,000	18,000	18,000	20,000	19,000	20,000	19,000	20,000	20,000	19,000
Sb	mg/kg dw	0.42	0.34	0.36	0.37	0.38	0.4	0.37	0.37	0.39	0.36
Sc	mg/kg dw	12	12	11	12	12	12	12	12	12	12
Se	mg/kg dw	1.4	1.5	1.3	1.9	1.7	1.7	1.6	1.6	2.1	1.6
Si	mg/kg dw	310,000	280,000	280,000	290,000	310,000	310,000	290,000	310,000	310,000	300,000
Sm	mg/kg dw	24	22	21	22	23	23	23	23	23	23
Sn	mg/kg dw	3.5	3.2	3.3	3.4	3.6	3.4	3.6	3.5	3.4	3.3
Sr	mg/kg dw	78	72	70	72	73	75	74	77	72	76
Ta	mg/kg dw	0.68	0.61	0.6	0.63	0.62	0.64	0.65	0.62	0.63	0.62
Tb	mg/kg dw	1.8	1.6	1.5	1.7	1.8	1.7	1.7	1.9	1.7	1.8
Te	mg/kg dw	0.085	0.085	0.079	0.095	0.098	0.088	0.11	0.096	0.095	0.095
Th	mg/kg dw	12	11	11	12	12	11	12	12	12	12
Ti	mg/kg dw	1,400	1,300	1,300	1,400	1,400	1,400	1,300	1,400	1,500	1,300
Tl	mg/kg dw	0.61	0.64	0.68	0.78	0.65	0.63	0.65	0.73	0.64	0.6
Tm	mg/kg dw	0.76	0.74	0.7	0.73	0.75	0.74	0.73	0.8	0.74	0.77
U	mg/kg dw	16	15	15	16	17	16	17	17	16	16
V	mg/kg dw	56	49	50	52	55	54	53	55	57	51
W	mg/kg dw	1.7	1.5	1.6	1.5	1.6	1.7	1.7	1.8	1.6	1.6
Y	mg/kg dw	100	97	90	93	93	100	93	100	93	95
Yb	mg/kg dw	4.9	4.7	5	5	5.1	4.7	5	5.2	5.2	5
Zn	mg/kg dw	280	270	270	280	280	280	290	290	290	280
Zr	mg/kg dw	59	56	56	57	58	58	58	63	58	62

<b>Catcher:</b>		<b>Limnos</b>	<b>Limnos</b>	<b>Limnos</b>	<b>Limnos</b>	<b>Limnos</b>	<b>Kajak</b>	<b>Kajak</b>	<b>Kajak</b>	<b>Kajak</b>	<b>Kajak</b>
<b>SKB no:</b>		<b>15577</b>	<b>15579</b>	<b>15581</b>	<b>15583</b>	<b>15585</b>	<b>15578</b>	<b>15580</b>	<b>15582</b>	<b>15584</b>	<b>15586</b>
<b>Parameter</b>	<b>Unit</b>										
Weight	g	14.9	9.8	16.3	16.6	13.2	6.4	5.5	4.6	5.2	6
DW 50°C	%	6.2	6.5	6.6	6.3	6.1	5.9	6	5.2	5.7	5.7
DW 105°C	%	6	6.3	6.4	6.2	5.9	5.8	5.8	5.1	5.5	5.5
LOI	% of DW	34.7	34.7	34.7	34.4	34.6	35	34.8	35	35	34.8

## Field data – Forsmark

## Suspended material

Site	ID-code	Sampling date	Air temp °C	Cloudiness	Precipitaion	Wind velocity	Wind direction	Secchi depth (m)
Asphällsfjärden	PFM000062	2008-04-07	4	cloudy	light rain	2–6 m/s	NE	4.0
Utanför Tixlorna	PFM007401	2008-04-07	4	cloudy	light rain	2–6 m/s	NE	3.8
Marträäd	PFM007402	2008-04-07	4	cloudy	light rain	2–6 m/s	NE	3.8
Bolundsfjärden	PFM000107	2008-04-08	0	cloudy	no	6–10 m/s	N	
Eckarfjärden	PFM000117	2008-04-08	3	cloudy	no	6–10 m/s	N	>2
Labboträsket	PFM000074	2008-04-08	2	cloudy	heavy rain	6–10 m/s	N	>0.9

Site	ID-code	Sampling date	Depth (m)	Water temp°C	DO mg/l
Asphällsfjärden	PFM000062	2008-04-07	0.5	2.11	15.98
Asphällsfjärden	PFM000062	2008-04-07	1.5	2.11	15.92
Asphällsfjärden	PFM000062	2008-04-07	2.5	2.11	15.9
Asphällsfjärden	PFM000062	2008-04-07	3.5	2.09	15.9
Utanför Tixlorna	PFM007401	2008-04-07	0.5	2.36	15.93
Utanför Tixlorna	PFM007401	2008-04-07	1	2.38	15.92
Utanför Tixlorna	PFM007401	2008-04-07	2	2.46	15.91
Utanför Tixlorna	PFM007401	2008-04-07	3	2.49	15.87
Utanför Tixlorna	PFM007401	2008-04-07	4	2.49	15.82
Utanför Tixlorna	PFM007401	2008-04-07	5	2.44	15.82
Utanför Tixlorna	PFM007401	2008-04-07	6	2.49	15.79
Marträäd	PFM007402	2008-04-07	0.5	2.35	15.8
Marträäd	PFM007402	2008-04-07	1	2.37	15.75
Marträäd	PFM007402	2008-04-07	2	2.35	15.7
Marträäd	PFM007402	2008-04-07	3	2.34	15.71
Marträäd	PFM007402	2008-04-07	4	2.33	15.67
Marträäd	PFM007402	2008-04-07	5	2.33	15.67
Marträäd	PFM007402	2008-04-07	6	2.33	15.61
Bolundsfjärden	PFM000107	2008-04-08	0.5	6.3	10.94
Bolundsfjärden	PFM000107	2008-04-08	1	6.3	10.89
Eckarfjärden	PFM000117	2008-04-08	0.5	6.14	13.05
Eckarfjärden	PFM000117	2008-04-08	1	6.16	12.86
Labboträsket	PFM000074	2008-04-08	0.5	5.4	8.71

## Sediment

Site Lake/Sea	Id-code	Position RT90 (Y, X)	Start YYYY-MM-DD-HH:MM	Stop YYYY-MM-DD-HH:MM
Bolundsfjärden	PFM000107	1632065, 6699031	2008-04-09 10:38	2008-04-09 12:56
Eckarfjärden	PFM000117	1631946, 6697118	2008-04-08 16:00	2008-04-08 18:00
Labboträsket	PFM000074	1629854, 6699393	2008-04-09 08:30	2008-04-09 09:52
Tixlan	PFM000063	1634833, 6699014	2008-04-10 09:30	2008-04-10 13:00

Site Lake/Sea	Id-code	Company	Field crew
Bolundsfjärden	PFM000107	Sveriges Vattenekologer AB	Micke Borgiel, Susanne Quarfordt
Eckarfjärden	PFM000117	Sveriges Vattenekologer AB	Micke Borgiel, Susanne Quarfordt
Labboträsket	PFM000074	Sveriges Vattenekologer AB	Micke Borgiel, Susanne Quarfordt
Tixlan	PFM000063	Sveriges Vattenekologer AB	Micke Borgiel, Susanne Quarfordt, Jonny Skarp

Site Lake/Sea	Id-code	SKB-no	Sampled level (cm)	No. of sediment samples	Water depth (m)
Bolundsfjärden	PFM000107	16004	0–5	7	2
Bolundsfjärden	PFM000107	16005	25–30	5	2
Eckarfjärden	PFM000117	16000	0–5	7	2.1
Eckarfjärden	PFM000117	16001	25–30	5	2.1
Labboträsket	PFM000074	16002	0–5	7	0.9
Labboträsket	PFM000074	16003	25–30	5	0.9
Tixlan	PFM000063	16006	0–5	7	5.4
Tixlan	PFM000063	16007	20–25	7	5.4

Site Lake/Sea	Id-code	Air temp °C	Cloudiness	Precipitation	Wind velocity	Wind direction
Bolundsfjärden	PFM000107	–1	cloudy	light snowfall	very strong wind	N
Eckarfjärden	PFM000117	1	cloudy	heavy rain	very strong wind	N
Labboträsket	PFM000074	–1	cloudy	light snowfall	very strong wind	N
Tixlan	PFM000063	1	cloudy	–	weak wind	SV

Site Lake/Sea	Id-code	Sampled level (cm)	Comments
Bolundsfjärden	PFM000107	0–5	very loose green algal mat
Bolundsfjärden	PFM000107	25–30	brown, with Vaucheria sp?
Eckarfjärden	PFM000117	0–5	very loose green algal mat
Eckarfjärden	PFM000117	25–30	algal mat/detritus loose brown
Labboträsket	PFM000074	0–5	very loose green/brown algal mat
Labboträsket	PFM000074	25–30	loose brown/green algal mat
Tixlan	PFM000063	0–5	brown
Tixlan	PFM000063	20–25	brown/black, sharp odor of hydrogen sulfide



## Field data – Oskarshamn

## Suspended material

Site	ID-code	Air temp °C	Cloudiness	Precipitaion	Wind velocity	Wind direction	Secchi depth (m)
Jämsen	PSM002067	7	almost clear	no	0–2 m/s	E	1.5
Götemar	PSM002066	7	almost clear	no	2–6 m/s	E	4.5
Kräkelund	PSM007090	6	cloudy	no	2–6 m/s	E	6.5
Borholmsfjärden	PSM007097	5	cloudy	heavy rain	2–6 m/s	NE	2.9
Granholmsfjärden	PSM002064	4	cloudy	light rain	2–6 m/s	NE	3
Frisksjön	PSM002065	6	cloudy	no	2–6 m/s	NE	1.8

Site	ID-code	Sampling date	Depth (m)	Water temp °C	DO mg/l	DO (%)
Jämsen	PSM002067	2008-04-15	0.91	7.11	11.50	95.0
Jämsen	PSM002067	2008-04-15	2.005	7.06	11.45	94.5
Jämsen	PSM002067	2008-04-15	3.005	6.91	11.35	93.3
Jämsen	PSM002067	2008-04-15	4.009	6.52	11.18	91.1
Jämsen	PSM002067	2008-04-15	5.004	6.38	11.16	90.6
Jämsen	PSM002067	2008-04-15	6.009	6.20	11.01	88.9
Jämsen	PSM002067	2008-04-15	7.013	5.29	10.86	85.7
Jämsen	PSM002067	2008-04-15	8.000	4.68	10.91	84.8
Jämsen	PSM002067	2008-04-15	9.037	4.43	10.59	81.7
Jämsen	PSM002067	2008-04-15	10.004	4.35	9.87	76.0
Götemar	PSM002066	2008-04-15	1.01	6.45	12.86	104.5
Götemar	PSM002066	2008-04-15	1.99	6.33	12.86	104.2
Götemar	PSM002066	2008-04-15	3.01	6.31	12.82	103.8
Götemar	PSM002066	2008-04-15	4.01	6.27	12.83	103.8
Götemar	PSM002066	2008-04-15	5.00	6.19	12.83	103.6
Götemar	PSM002066	2008-04-15	6.01	6.02	12.85	103.3
Götemar	PSM002066	2008-04-15	7.02	5.97	12.82	102.9
Götemar	PSM002066	2008-04-15	7.97	5.96	12.79	102.7
Götemar	PSM002066	2008-04-15	9.02	5.94	12.74	102.3
Götemar	PSM002066	2008-04-15	10.01	5.89	12.75	102.2
Götemar	PSM002066	2008-04-15	10.99	5.86	12.72	101.8
Götemar	PSM002066	2008-04-15	12.01	5.84	12.73	101.9
Götemar	PSM002066	2008-04-15	12.98	5.79	12.69	101.4
Götemar	PSM002066	2008-04-15	14.03	5.73	12.68	101.2
Götemar	PSM002066	2008-04-15	14.99	5.70	12.63	100.7
Kräkelund	PSM007090	2008-04-15	1.00	5.60	13.27	110.5
Kräkelund	PSM007090	2008-04-15	2.01	5.57	13.26	110.4
Kräkelund	PSM007090	2008-04-15	3.06	5.43	13.22	109.7
Kräkelund	PSM007090	2008-04-15	4.01	5.20	13.21	109.0
Kräkelund	PSM007090	2008-04-15	5.04	5.15	13.15	108.4
Kräkelund	PSM007090	2008-04-15	5.98	5.12	13.13	108.1

Site	ID-code	Sampling date	Depth (m)	Water temp°C	DO mg/l	DO (%)
Kråkelund	PSM007090	2008-04-15	7.01	5.04	13.10	107.7
Kråkelund	PSM007090	2008-04-15	8.01	4.83	13.04	106.6
Kråkelund	PSM007090	2008-04-15	9.00	4.71	13.06	106.4
Kråkelund	PSM007090	2008-04-15	10.00	4.68	13.08	106.5
Kråkelund	PSM007090	2008-04-15	11.01	4.67	13.07	106.4
Kråkelund	PSM007090	2008-04-15	12.02	4.60	13.04	106.0
Kråkelund	PSM007090	2008-04-15	13.00	4.58	13.01	105.7
Kråkelund	PSM007090	2008-04-15	14.01	4.57	13.00	105.6
Kråkelund	PSM007090	2008-04-15	15.02	4.55	12.98	105.4
Kråkelund	PSM007090	2008-04-15	16.01	4.57	12.96	105.3
Kråkelund	PSM007090	2008-04-15	17.01	4.54	12.91	104.8
Kråkelund	PSM007090	2008-04-15	18.01	4.52	12.89	104.5
Kråkelund	PSM007090	2008-04-15	19.02	4.52	12.89	104.5
Kråkelund	PSM007090	2008-04-15	20.02	4.52	12.87	104.4
Borholmsfjärden	PSM007097	2008-04-16	1.01	8.00	11.77	103.0
Borholmsfjärden	PSM007097	2008-04-16	2.00	7.99	11.77	102.9
Borholmsfjärden	PSM007097	2008-04-16	3.02	7.57	11.42	99.0
Borholmsfjärden	PSM007097	2008-04-16	4.02	7.05	10.34	88.7
Borholmsfjärden	PSM007097	2008-04-16	5.03	6.47	7.72	65.4
Borholmsfjärden	PSM007097	2008-04-16	6.01	6.05	1.75	14.6
Borholmsfjärden	PSM007097	2008-04-16	6.51	6.04	0.42	3.5
Granolmsfjärden	PSM002064	2008-04-16	1.01	7.12	12.57	107.9
Granolmsfjärden	PSM002064	2008-04-16	1.99	7.10	12.56	107.8
Granolmsfjärden	PSM002064	2008-04-16	3.00	6.75	12.40	105.5
Granolmsfjärden	PSM002064	2008-04-16	4.04	6.28	12.25	103.1
Granolmsfjärden	PSM002064	2008-04-16	5.02	5.71	11.83	98.3
Granolmsfjärden	PSM002064	2008-04-16	6.00	5.32	11.51	94.7
Granolmsfjärden	PSM002064	2008-04-16	7.00	4.83	10.98	89.3
Granolmsfjärden	PSM002064	2008-04-16	8.02	4.80	10.92	88.7
Granolmsfjärden	PSM002064	2008-04-16	9.02	4.34	10.38	83.4
Granolmsfjärden	PSM002064	2008-04-16	10.00	4.16	10.09	80.6
Granolmsfjärden	PSM002064	2008-04-16	11.00	4.03	9.89	78.8
Granolmsfjärden	PSM002064	2008-04-16	12.01	4.04	9.70	77.3
Granolmsfjärden	PSM002064	2008-04-16	13.00	4.06	9.51	75.8
Granolmsfjärden	PSM002064	2008-04-16	14.00	4.06	8.91	71.1
Granolmsfjärden	PSM002064	2008-04-16	15.02	4.07	8.48	67.6
Granolmsfjärden	PSM002064	2008-04-16	16.03	4.07	8.17	65.2
Granolmsfjärden	PSM002064	2008-04-16	16.51	4.07	8.12	64.7
Frisksjön	PSM002065	2008-04-16	0.50	8.20	11.56	98.1
Frisksjön	PSM002065	2008-04-16	1.00	8.21	11.53	97.9
Frisksjön	PSM002065	2008-04-16	2.00	8.14	11.51	97.6
Frisksjön	PSM002065	2008-04-16	2.50	7.98	11.19	94.5

Site	ID-code	Ec (mS/m)	Salinity (‰)	Turbidity (NTU)	PAR ( $\mu\text{mol}/\text{m}^2 \cdot \text{s}$ )	Atmospheric pressure (hPa)
Jämsen	PSM002067	11.7	0.06	2.7	14.2	1,011.0
Jämsen	PSM002067	11.6	0.05	2.7	6.0	1,009.0
Jämsen	PSM002067	11.6	0.05	2.8	5.3	1,009.0
Jämsen	PSM002067	11.6	0.05	3.0	5.2	1,009.0
Jämsen	PSM002067	11.6	0.05	3.0	5.2	1,009.0
Jämsen	PSM002067	11.7	0.06	3.1	5.2	1,009.0
Jämsen	PSM002067	11.6	0.05	3.1	5.3	1,009.0
Jämsen	PSM002067	11.8	0.06	3.1	5.2	1,009.0
Jämsen	PSM002067	11.6	0.05	3.4	5.2	1,009.0
Jämsen	PSM002067	11.7	0.05	4.2	5.2	1,009.0
Götemar	PSM002066	15.9	0.08	0.9	96.5	1,011.0
Götemar	PSM002066	15.9	0.08	1.0	50.1	1,011.0
Götemar	PSM002066	15.9	0.08	0.9	25.2	1,011.0
Götemar	PSM002066	15.9	0.08	0.9	16.5	1,011.0
Götemar	PSM002066	15.9	0.08	0.9	11.5	1,011.0
Götemar	PSM002066	15.9	0.08	1.0	8.6	1,011.0
Götemar	PSM002066	15.9	0.08	1.0	7.0	1,011.0
Götemar	PSM002066	15.8	0.07	1.0	6.2	1,012.0
Götemar	PSM002066	15.9	0.07	1.1	5.7	1,012.0
Götemar	PSM002066	15.8	0.07	1.1	5.5	1,012.0
Götemar	PSM002066	15.8	0.07	1.1	5.4	1,012.0
Götemar	PSM002066	15.8	0.07	1.1	5.3	1,012.0
Götemar	PSM002066	15.8	0.07	1.5	5.3	1,012.0
Götemar	PSM002066	15.8	0.07	1.3	5.2	1,012.0
Götemar	PSM002066	15.8	0.07	1.8	5.2	1,012.0
Kräkelund	PSM007090	1,237.0	7.04	0.6	219.6	1,012.0
Kräkelund	PSM007090	1,238.0	7.04	0.8	125.0	1,013.0
Kräkelund	PSM007090	1,239.0	7.04	0.8	97.7	1,012.0
Kräkelund	PSM007090	1,242.0	7.06	0.8	67.7	1,012.0
Kräkelund	PSM007090	1,243.0	7.06	0.8	49.8	1,012.0
Kräkelund	PSM007090	1,243.0	7.07	0.7	38.8	1,012.0
Kräkelund	PSM007090	1,245.0	7.07	0.6	27.9	1,012.0
Kräkelund	PSM007090	1,248.0	7.09	0.6	22.7	1,012.0
Kräkelund	PSM007090	1,251.0	7.10	0.6	18.3	1,012.0
Kräkelund	PSM007090	1,251.0	7.10	0.6	14.9	1,012.0
Kräkelund	PSM007090	1,251.0	7.10	0.6	12.3	1,012.0
Kräkelund	PSM007090	1,252.0	7.11	0.6	10.4	1,012.0
Kräkelund	PSM007090	1,253.0	7.11	0.6	9.1	1,012.0
Kräkelund	PSM007090	1,253.0	7.11	0.6	8.2	1,012.0
Kräkelund	PSM007090	1,253.0	7.11	0.6	7.5	1,012.0
Kräkelund	PSM007090	1,253.0	7.11	0.5	7.0	1,012.0
Kräkelund	PSM007090	1,253.0	7.11	0.7	6.6	1,012.0
Kräkelund	PSM007090	1,254.0	7.11	0.5	6.3	1,013.0
Kräkelund	PSM007090	1,254.0	7.11	0.6	6.1	1,013.0
Kräkelund	PSM007090	1,254.0	7.11	0.6	6.0	1,013.0
Borholmsfjärden	PSM007097	969.0	5.44	1.4	25.8	1,012.0
Borholmsfjärden	PSM007097	969.0	5.45	1.4	14.4	1,011.0
Borholmsfjärden	PSM007097	1,011.0	5.70	1.3	9.0	1,012.0

Site	ID-code	Ec (mS/m)	Salinity (‰)	Turbidity (NTU)	PAR ( $\mu\text{mol}/\text{m}^2 \cdot \text{s}$ )	Atmospheric pressure (hPa)
Borholmsfjärden	PSM007097	1,072.0	6.06	1.2	6.8	1,011.0
Borholmsfjärden	PSM007097	1,101.0	6.23	1.3	5.9	1,011.0
Borholmsfjärden	PSM007097	1,113.0	6.29	6.7	5.4	1,012.0
Borholmsfjärden	PSM007097	1,114.0	6.30	7.4	5.3	1,012.0
Granholmsfjärden	PSM002064	1,034.0	5.83	1.1	66.1	1,012.1
Granholmsfjärden	PSM002064	1,034.0	5.83	1.0	33.4	1,012.8
Granholmsfjärden	PSM002064	1,052.0	5.93	1.0	17.8	1,012.8
Granholmsfjärden	PSM002064	1,066.0	6.01	1.0	10.5	1,014.9
Granholmsfjärden	PSM002064	1,096.0	6.18	0.9	7.3	1,014.2
Granholmsfjärden	PSM002064	1,100.0	6.20	0.9	7.1	1,013.5
Granholmsfjärden	PSM002064	1,117.0	6.29	1.0	6.0	1,012.8
Granholmsfjärden	PSM002064	1,118.0	6.30	0.8	5.6	1,012.1
Granholmsfjärden	PSM002064	1,120.0	6.30	1.2	5.4	1,012.1
Granholmsfjärden	PSM002064	1,123.0	6.31	1.0	5.2	1,012.1
Granholmsfjärden	PSM002064	1,124.0	6.32	1.1	5.2	1,011.5
Granholmsfjärden	PSM002064	1,125.0	6.32	1.0	5.2	1,011.5
Granholmsfjärden	PSM002064	1,125.0	6.32	1.0	5.2	1,011.5
Granholmsfjärden	PSM002064	1,126.0	6.33	1.3	5.2	1,010.8
Granholmsfjärden	PSM002064	1,127.0	6.33	1.6	5.2	1,010.1
Granholmsfjärden	PSM002064	1,127.0	6.34	1.6	5.1	1,010.1
Granholmsfjärden	PSM002064	1,127.0	6.34	1.9	5.1	1,010.8
Frisksjön	PSM002065	13.9	0.07	2.2	37.8	1,011.9
Frisksjön	PSM002065	13.9	0.07	2.3	17.8	1,011.9
Frisksjön	PSM002065	13.9	0.07	2.3	7.3	1,011.9
Frisksjön	PSM002065	13.9	0.07	2.5	6.3	1,011.9

## Sediment

Site Lake/Sea	Id-code	Position RT90 (Y, X)	Start YYYY-MM-DD-HH:MM	Stop YYYY-MM-DD-HH:MM
Jämsen	PSM002067	154019, 636490	2008-04-15 10:00	2008-04-15 12:00
Kräkelund	PSM007090	1555285, 6369787	2008-04-15 16:15	2008-04-15 17:30
Granholmsfjärden	PSM002064	155052, 636862	2008-04-15 17:45	2008-04-15 18:40
Frisksjön	PSM002065	154901, 636810	2008-04-15 19:00	2008-04-15 20:00

Site Lake/Sea	Id-code	Company	Field crew
Jämsen	PSM002067	Medins Biologi AB	Robert Andersson, Ylva Meissner
Kräkelund	PSM007090	Medins Biologi AB	Robert Andersson, Ylva Meissner
Granholmsfjärden	PSM002064	Medins Biologi AB	Robert Andersson, Ylva Meissner
Frisksjön	PSM002065	Medins Biologi AB	Robert Andersson, Ylva Meissner

Site Lake/Sea	Id-code	SKB-no	Sampled level (cm)	No. of sediment samples	Water depth (m)
Jämsen	PSM002067	15502	0–5	6	10.5
Jämsen	PSM002067	15503	15–20	5	10.5
Kräkelund	PSM007090	15504	0–5	5	21
Kräkelund	PSM007090	15505	25–30	5	21
Granholmsfjärden	PSM002064	15506	0–5	6	18
Granholmsfjärden	PSM002064	15507	25–30	6	18
Frisksjön	PSM002065	15508	0–5	6	3
Frisksjön	PSM002065	15509	20–25	6	3

Site Lake/Sea	Id-code	Sampled level (cm)	Comments
Jämsen	PSM002067	0–5	dark brown
Jämsen	PSM002067	15–20	black with lighter bands, darkening with depth
Kräkelund	PSM007090	0–5	first a few millimetre beige, followed by green-black, prominent smell of hydrogen sulphide
Kräkelund	PSM007090	25–30	Green-black, prominent smell of hydrogen sulphide
Granholmsfjärden	PSM002064	0–5	soft, green-black
Granholmsfjärden	PSM002064	25–30	fairly firm, green-black
Frisksjön	PSM002065	0–5	soft, dark brown
Frisksjön	PSM002065	20–25	quite firm, dark brown

## Pilot study – Oskarshamn

Date of field work (water sampling): 2007-10-16.  
 Site: PSM007097 Borholmsfjärden.  
 Sampling depth: 3 m.  
 Company: Medins Biologi AB.  
 Laboratory: ALS Scandinavia AB, Luleå.

Suspended material analysis:	mg/l	Filtered volume (ml)
Standard suspended material analysis through 1.6 µm glassfiber filter (for C and N)	2.7	1,363
Suspended material through 0.22 µm membrane filter (for elements)	8.8	7,800

Element	Suspended material from 7.8 L water collected on filter (µg tot)	Blank filter soaked in filtered water (µg tot)	Filtered water (µg/l)
Aluminium, Al	80	0.7	70
Antimony, Sb	0.052	0.038	0.07
Arsenic, As	0.23	0.004	0.6
Barium, Ba	1.5	0.08	20
Beryllium, Be	0.018	0.0002	<0.05
Lead, Pb	0.33	0.02	0.05
Boron, B	3.6	2.7	2,100
Bromine, Br	15	19	11,000
Cerium, Ce	1.2	0.005	0.026
Cesium, Cs	0.004	0.0001	0.045
Dysprosium, Dy	0.034	0.0002	<0.01
Erbium, Er	0.021	0.0001	<0.01
Europium, Eu	0.014	0.0001	<0.01
Phosphorous, P	110	0.9	10
Gadolinium, Gd	0.06	0.0002	<0.01
Gallium, Ga	0.011	0.0001	<0.05
Germanium, Ge	0.003	0.0006	<0.1
Gold, Au	0.0012	0.0005	<0.01
Hafnium, Hf	0.0044	0.0001	<0.01
Holmium, Ho	0.007	0.00004	<0.01
Iridium, Ir	0.00001	0.00001	<0.002
Iodine, I	1.4	1.4	4
Iron, Fe	260	1.4	0.8
Cadmium, Cd	0.012	0.0002	<0.02
Calcium, Ca	240	160	95,000
Potassium, K	220	140	71,000
Silicon, Si	720	60	300
Cobalt, Co	0.19	0.008	0.07
Copper, Cu	0.37	0.05	0.61

Element	Suspended material from 7.8 L water collected on filter (µg tot)	Blank filter soaked in filtered water (µg tot)	Filtered water (µg/l)
Chromium, Cr	0.51	0.44	0.1
Mercury, Hg	0.0008	0.0002	<0.02
Lanthanum, La	0.69	0.003	0.035
Lithium, Li	0.11	0.065	40
Lutetium, Lu	0.005	0.00003	<0.01
Magnesium, Mg	480	410	21,000
Indium, In	<0.01	<0.01	<0.5
Manganese, Mn	33	0.15	1.4
Molybdenum, Mo	0.021	0.004	2
Sodium, Na	3,670	3,500	1,800,000
Neodymium, Nd	0.55	0.002	0.028
Niobium, Nb	0.014	0.0006	<0.01
Nickel, Ni	0.56	0.26	1
Osmium, Os	<0.001	<0.001	<0.01
Palladium, Pd	<0.005	<0.005	<0.05
Platinum, Pt	<0.0005	<0.0005	<0.01
Praseodymium, Pr	0.15	0.0007	<0.01
Rhenium, Re	0.00004	0.00002	<0.01
Rhodium, Rh	<0.001	<0.001	<0.05
Rubidium, Rb	0.15	0.05	25
Ruthenium, Ru	<0.0001	<0.0001	<0.01
Samarium, Sm	0.082	0.0004	<0.01
Selenium, Se	0.35	0.37	<100
Silver, Ag	0.0065	0.0004	<0.01
Scandium, Sc	0.03	0.0005	<0.02
Strontium, Sr	5.5	2.7	1,500
Sulphur, S	460	320	180,000
Tantalum, Ta	0.09	0.09	<0.02
Tellurium, Te	0.0021	0.0002	0.04
Thallium, Tl	6.6	0.3	<0.01
Tin, Sn	0.021	0.002	<0.1
Terbium, Tb	0.0081	0.00004	<0.01
Titanium, Ti	2.2	0.03	<0.1
Thorium, Th	0.028	0.0002	<0.01
Thulium, Tm	0.0027	0.00001	<0.01
Uranium, U	0.013	0.0015	0.75
Vanadium, V	0.47	0.0023	0.14
Bismuth, Bi	0.002	0.00005	<0.005
Tungsten, W	0.0069	0.0013	0.016
Ytterbium, Yb	0.018	0.0001	<0.01
Yttrium, Y	0.41	0.002	0.07
Zinc, Zn	3	1.5	1.3
Zirconium, Zr	0.13	0.004	<0.05