

# Pesticide monitoring in Iceland

Uppsala 2006

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# Current use of pesticides in Iceland

- The use of pesticide is not allowed unless it is registered at the Environment and Food Agency.
- The first registration of pesticides was initiated in 1975.
- Today there are 102 registered pesticides.
- Most “classical” pesticides have been phased out and banned.

# Some “classical” pesticides

- The use of aldrin, chlordane, dieldrin, DDT, HCB and PCB was very limited in the 1980s
- These substances were banned in Iceland in 1996, except PCB which was banned in 1988.

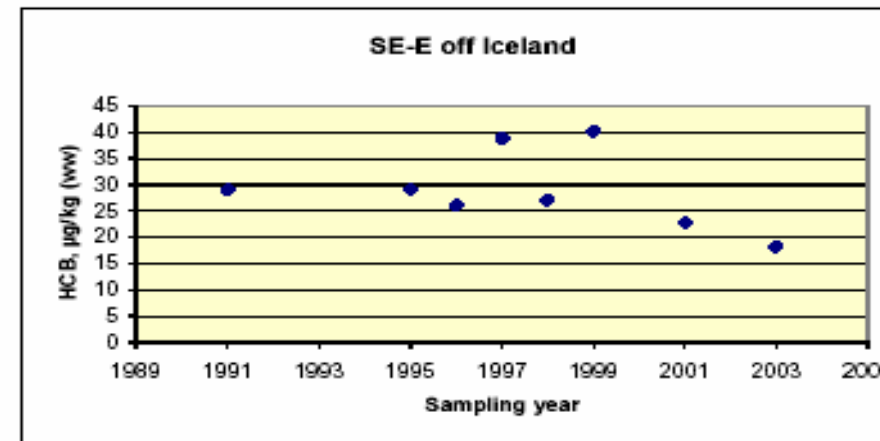
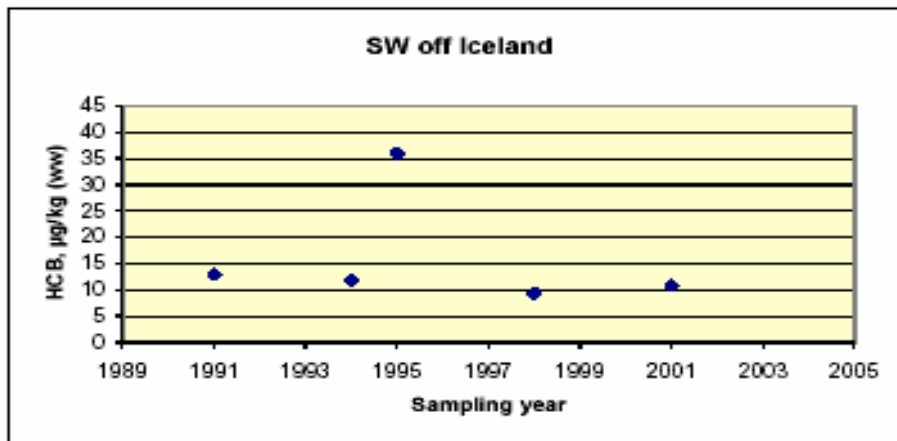
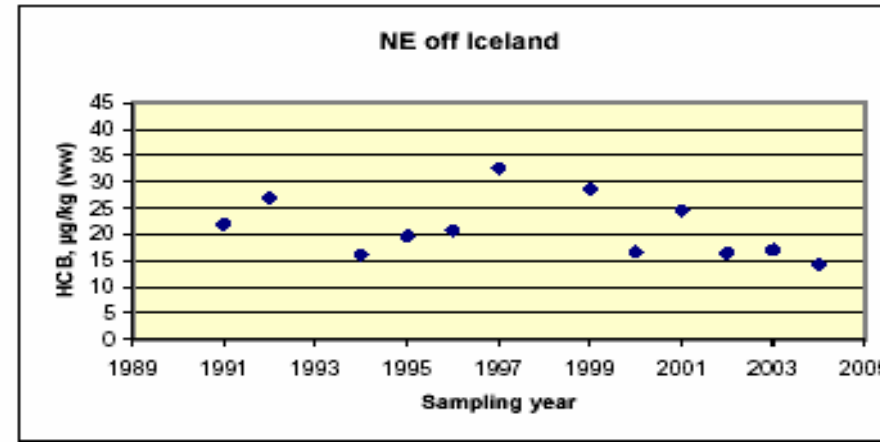
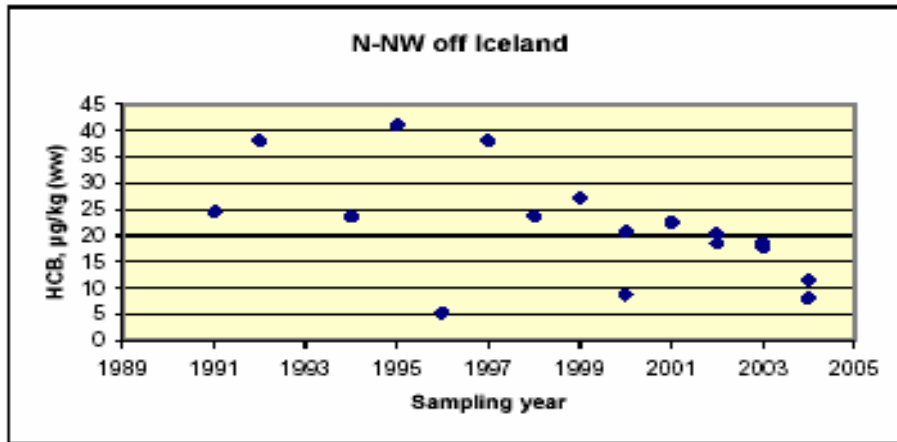
# Monitoring of classical pesticides in Iceland

The extent of pesticide monitoring in Iceland

Media	Monitoring period	Substances
Marine biota (15 sampling locations per year, n=30/y)	Since 1992	HCH, HCB, PCB, chlordane, toxaphene and DDT
Air and precipitation (sampling in Westman Islands, n=24/y)	Since 1995	HCH, HCB, chlordane, dieldrin, toxaphene and DDT
Marine sediments (total 60 samples, various locations)	1992-1996	HCH, PCB, HCB and DDT
Birds (total 200 samples, various locations)	1979-2005	HCH, PCB, HCB, chlordane, toxaphene and DDT
Human milk (n=25, various locations)	1993	HCH, HCB and DDT
Human serum (n=3x40, total 120 samples, various locations)	1993, 1998, 2004	HCH, HCB, DDT, chlordane, toxaphene and PCB
Freshwater biota (Þingvallavatn-lake)	1996	HCH, PCB, HCB and DDT

# Results of monitoring

Average concentration of HCB (ww) in livers of 30-45 cm Co  
(*Gadus morhua*) from different locations in Icelandic waters  
in March 1991-2004



# Examples of import and “high use” pesticides in Iceland

CAS-no.	Pesticide	Import (kg)		
		2002	2003	2004
330-55-2	linuron	575		46,6
21087-64-9	metribuzin	193	147	21,7
52645-53-1	permethrin	5,52	137	185,8
23103-98-2	pirimicarb	5	5	
1918-16-7	propachlor	28,8	240	211,2
79622-59-6	fluazinam	123	26,3	42,5
1593-77-7	dodemorph	45,6	30,1	8,6
25606-41-1	propamocarb	20	38,1	35,28
85-00-7	diquat dibromide	232	72,9	262,26
	paraffin oil	49,8	518	480
94-75-7		519	529	
1071-83-6	glyphosate	783	549	2653,06
1194-65-6	dichlobenil	976	772	1050,98
7085-19-0	mechlorprop, mecoprop	1556	1586	

# Monitoring plan

- The Environment and Food Agency is working on a monitoring plan for Iceland.
- The plan will most likely include monitoring of “classical” and high use pesticides in marine environments and freshwaters.
- Other long range substances may be included.
- Not all monitoring and research is within the scope of EFA’s monitoring plan.

# Pesticides to monitor ?

- There are several pesticides on the Oskar and WFD lists of priority substances

CAS	Substance	Type	Framework	Use in Iceland
58-89-9	(gamma-isomer, Lindane)	Pesticide	WFD	0
87-86-5	Pentachlorophenol	Pesticide	WFD	0
470-90-6	Chlorfenvinphos	Pesticide	WFD	100 kg/year
465-73-6	Isodrin	Pesticide/Biocide	OSPAR	0
608-73-1	Hexachlorocyclohexane (HCH)	Pesticide	WFD	0
1912-24-9	Atrazine	Pesticide	WFD	0
2104-64-5	Ethyl O-(p-nitrophenyl) phenyl phosphonothionate (EPN)	Pesticide/Biocide	OSPAR	0
2227-13-6	Tetrasul	Pesticide/Biocide	OSPAR	0
2921-88-2	Chlorpyrifos	Pesticide	WFD	0
70124-77-5	Flucythrinate	Pesticide	WFD	0

Of those priority substances only one is listed as used in Iceland.

# Water quality standards

- Iceland mainly follows the EU regulations on WQS. Some values however are more strict in Icelandic regulations
- All freshwaters in Iceland are being classified

Freshwater classification (I-III oligotrophy/mesotrophy – IV-V eutrophy/hypertrophy):

	I	II	III	IV	V
BOD in rivers	<1,5	1,5-3	3-6	6-10	>10
COD in rivers	<3	3-10	10-20	20-30	>30
TOC in rivers (mg O <sub>2</sub> /l)	<1,5	1,5-3	3-6	6-10	>10
Ammonia (NH <sub>3</sub> mg/l)	<0,01	<0,025	<0,10	<0,25	>0,25
Dissolved phosphate (PO <sub>4</sub> -P mg/l)	<0,01	<0,02	<0,05	<0,10	>0,10
Total phosphate (mg P/l)	<0,02	<0,04	<0,09	<0,15	>0,15
Total nitrogen (mg N/l)	<0,3	0,3-0,75	0,75-1,5	>1,5	>2,5

- Waters are also sorted according to state of pollution

# Water quality standards

- Water quality standards for DDT, HCB, HCH and several other substances were established 1994.

CAS	Substance:	Marine WQS	Freshwater WQS
72-20-8	Endrín	5 ng/l	10 ng/l
107-06-2	1,2-díklóretan (EDC)	10 µg/l	10 µg/l
118-74-1	HCB	0,03 µg/l	
127-18-4	Perklóretýlen	10 µg/l	10 µg/l
180-70-3	Tríklórbensen	0,4 µg/l	0,4 µg/l
309-00-2	Aldrín	5 ng/l	10 ng/l
465-73-6	Ísódrín	5 ng/l	10 ng/l
50-29-3	DDT		
56-23-5	Koltetraklóríð	12 µg/l CCl <sub>4</sub>	12 µg/l CCl <sub>4</sub>
60-57-1	Díeldrín	5 ng/l	10 ng/l
67-66-3	Klóróform	12 µg/l	
87-68-3	Hexaklórbutadíen (HCBD)	0,1 µg/l	
87-86-5	Pentaklórfenól	2 µg/l	
	Tríklóretýlen	10 µg/l	10 µg/l