

Bilaga 6

Statistik och Trender

I denna bilaga redovisas statistiska förändringar i respektive stations ytvatten (0-10m) för år 2007-2015. I de fall där djupet i stationen var mindre än 10m redovisas yta alternativt yta och mellannivå. För varje år redovisas medelvärde för året (blå stapel) samt högsta respektive lägsta värdet för året (svart streck).

De statistiska beräkningarna har utförts med hjälp av programmet: Mann-Kendall Test and Sen's Slope Estimates for the Trend of Annual Data (Copyright Finnish Meteorological Institute 2002).

Signifikanta förändringar markeras i respektive stations tabell enligt nedan:

+ = nära signifikant ($p < 0,10$)

* = $p < 0,05$

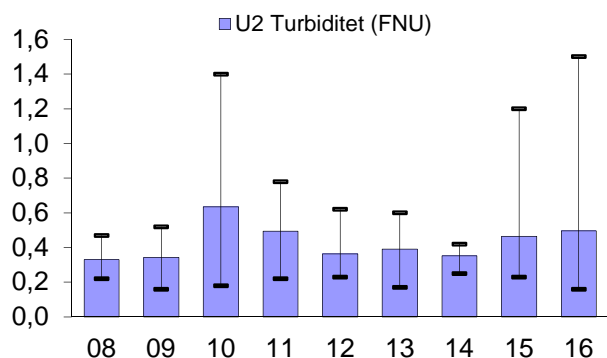
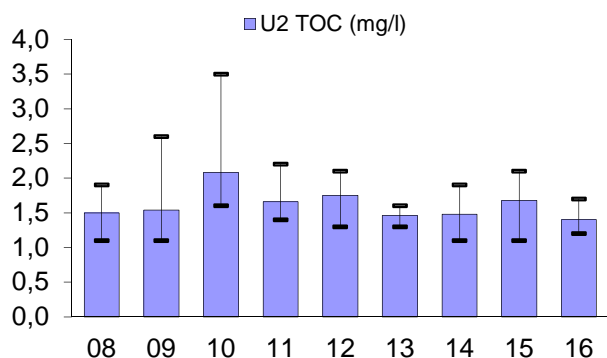
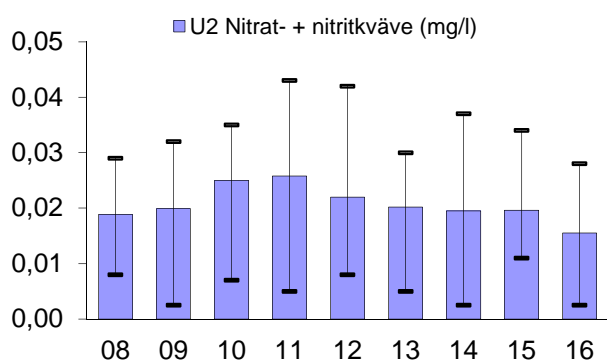
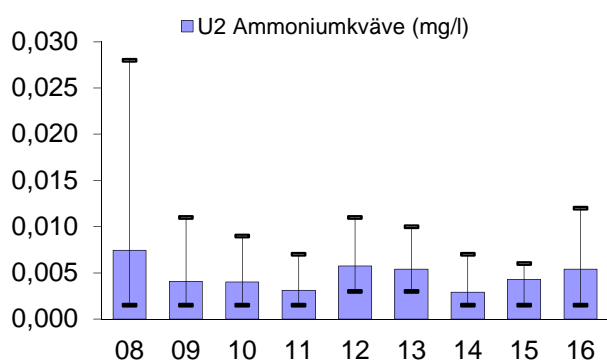
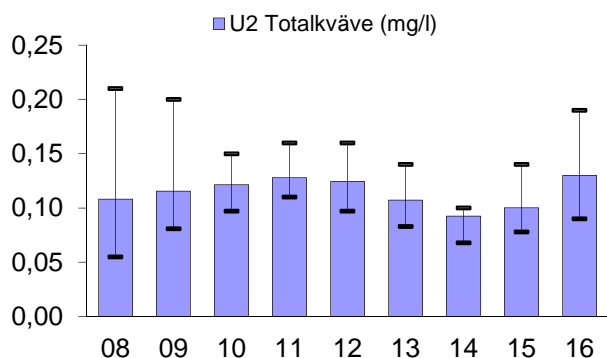
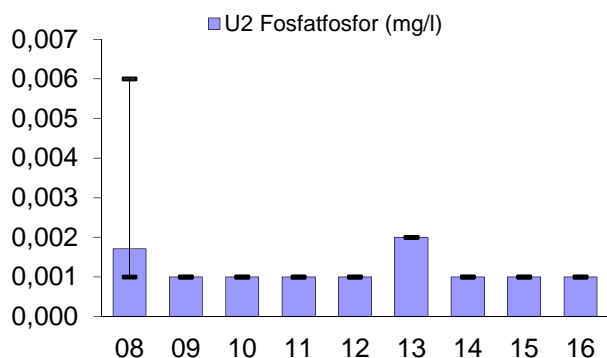
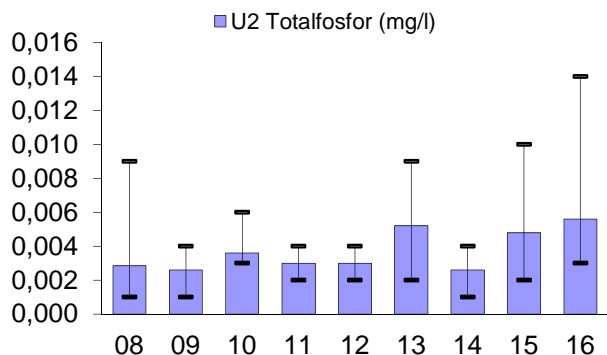
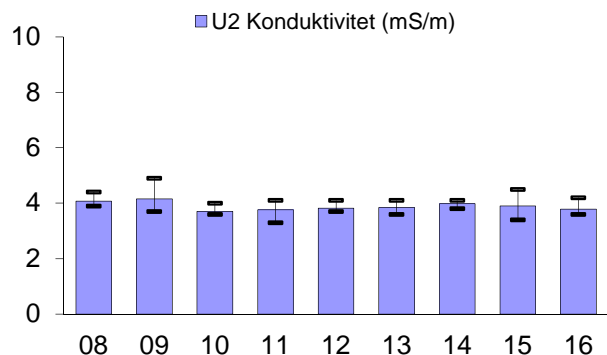
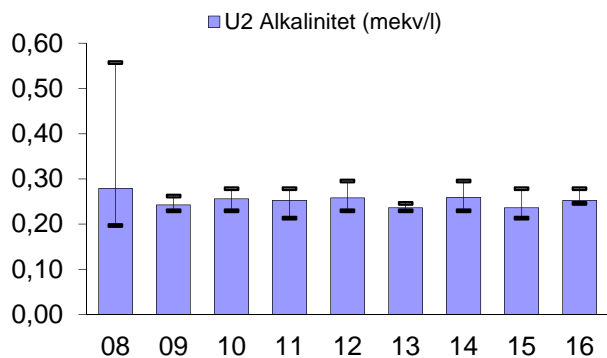
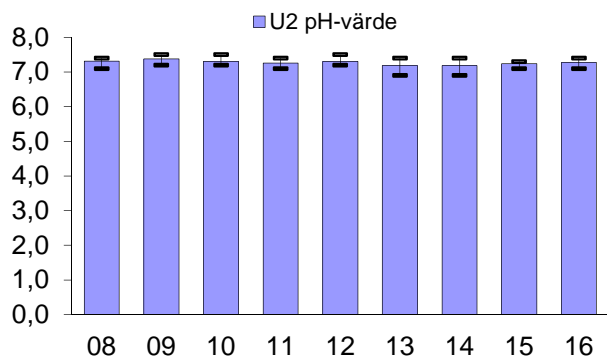
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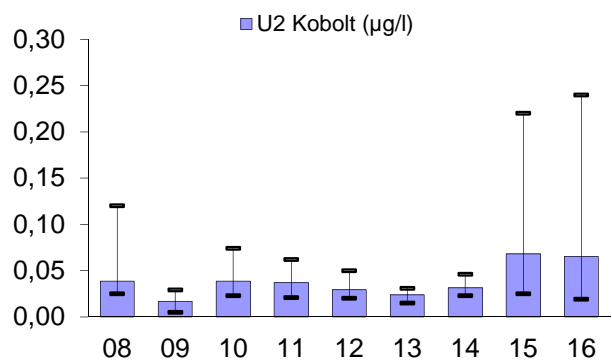
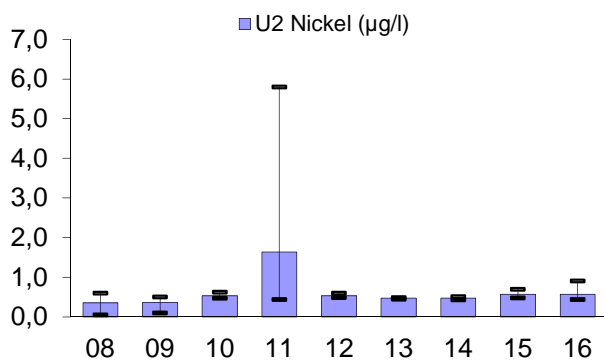
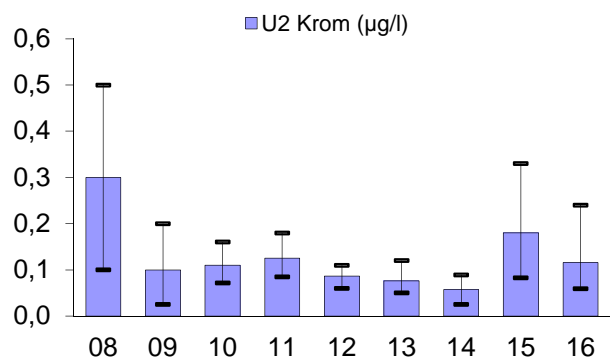
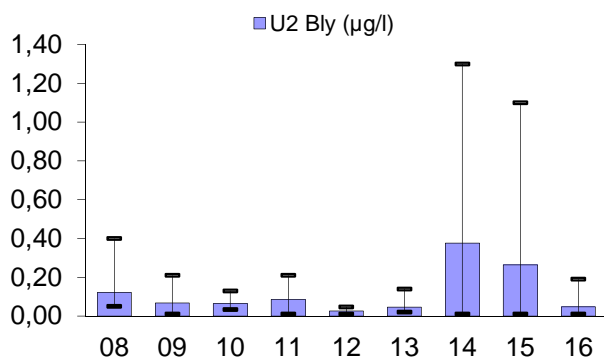
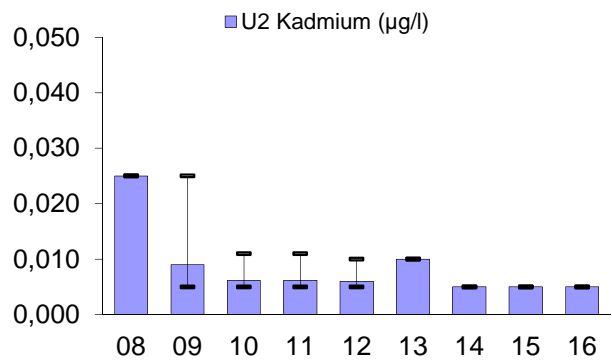
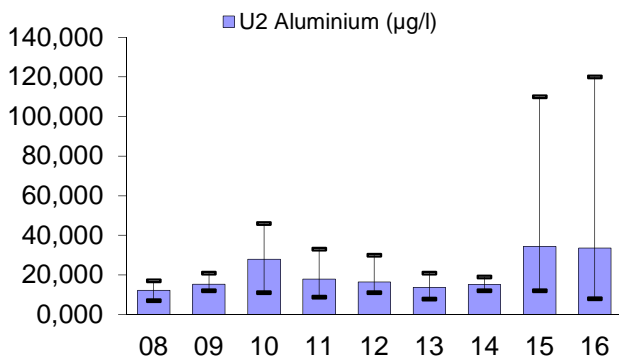
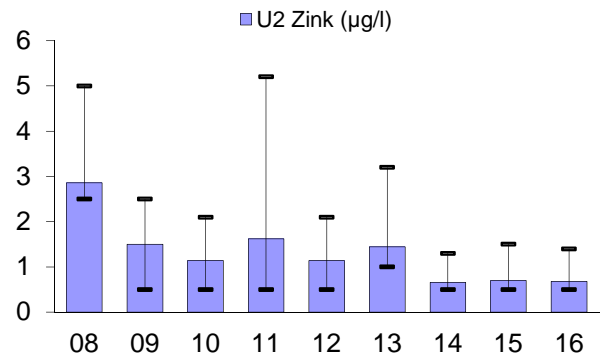
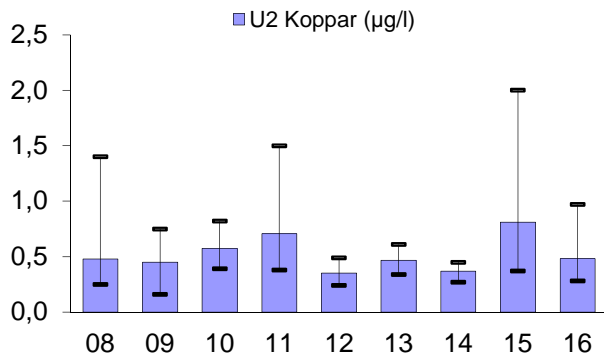
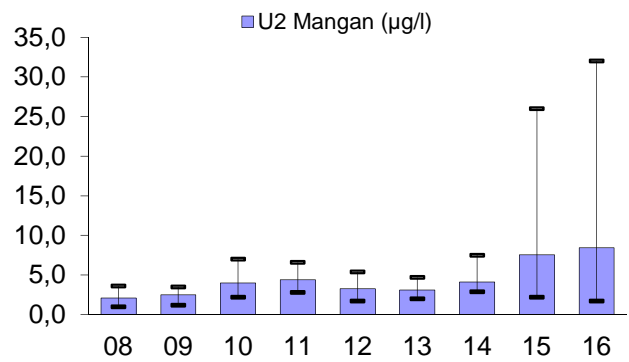
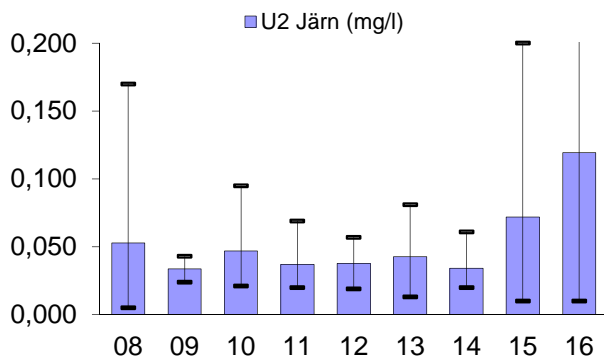
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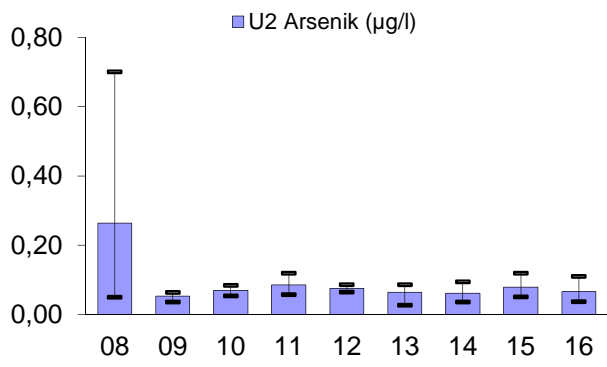
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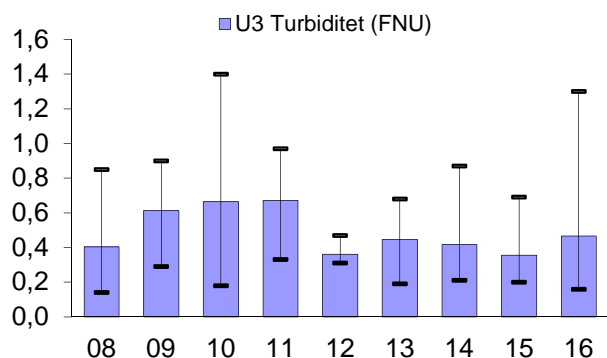
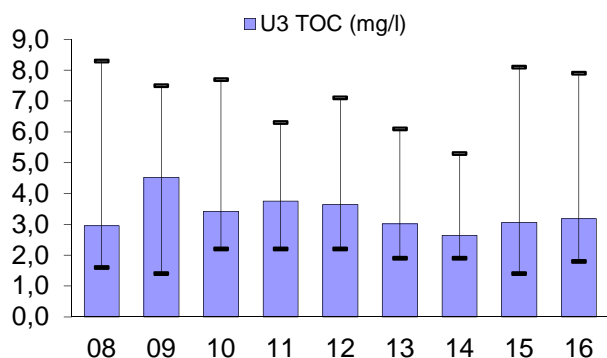
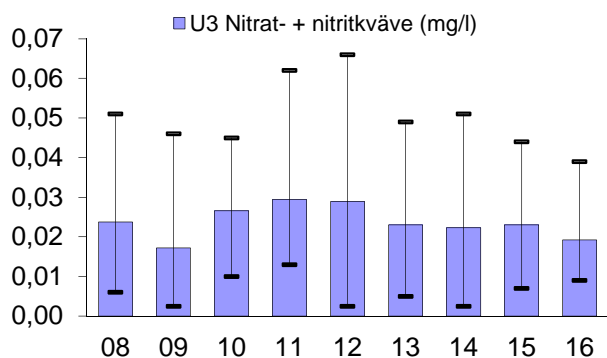
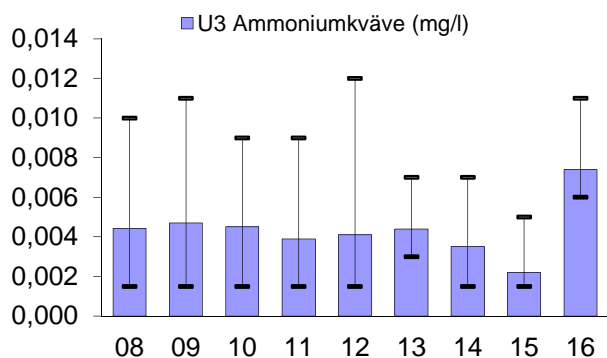
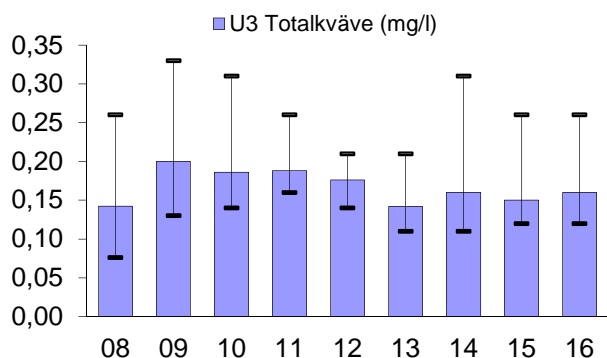
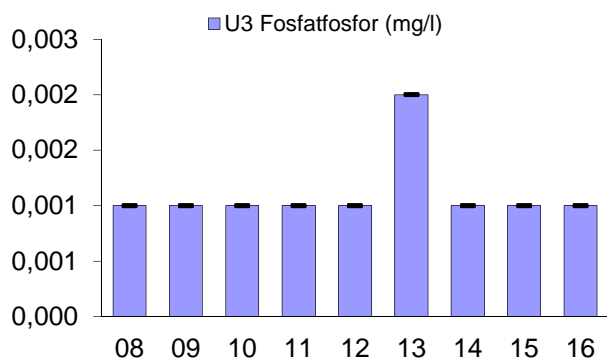
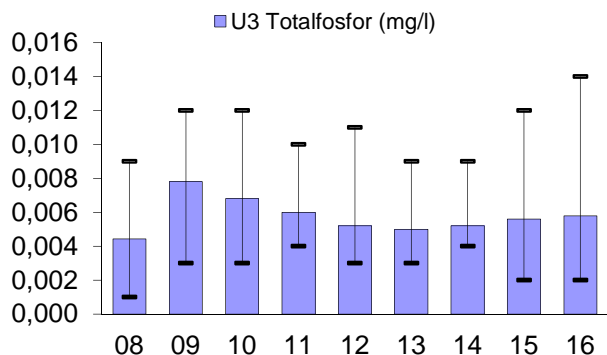
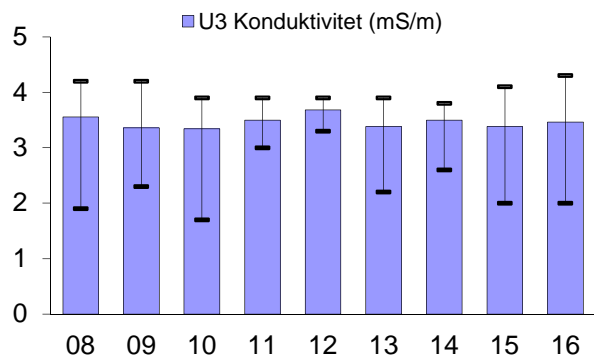
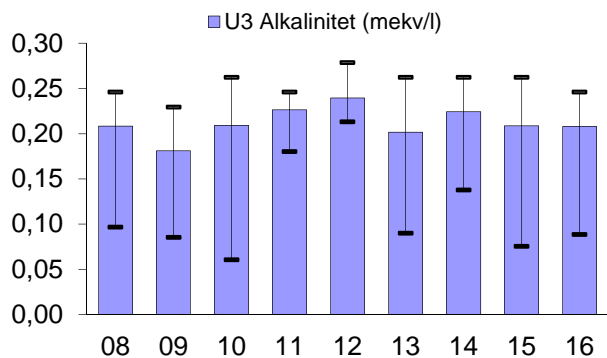
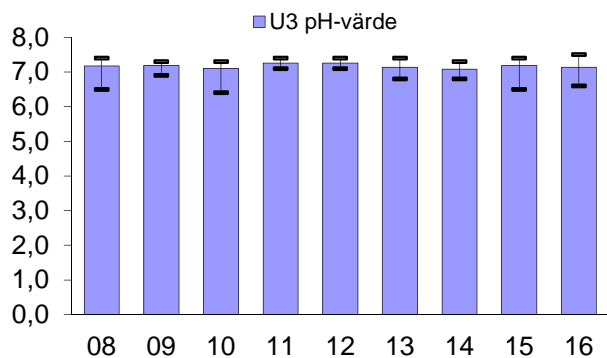


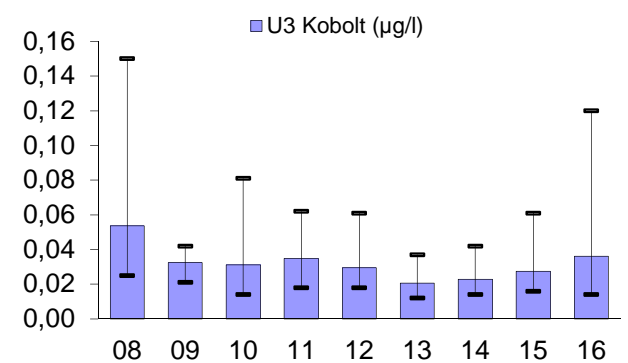
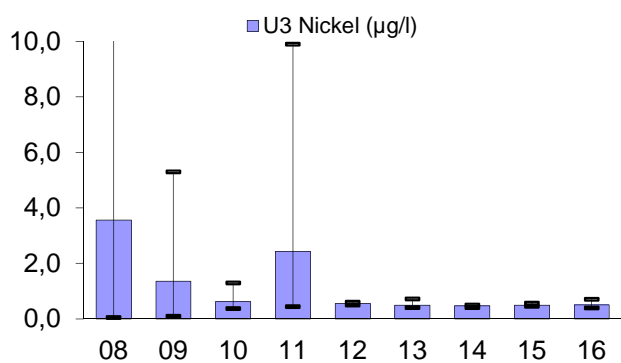
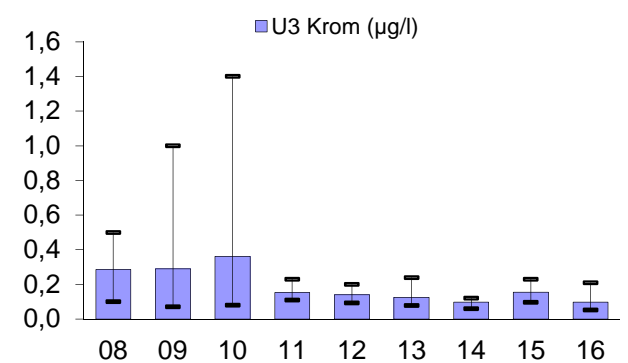
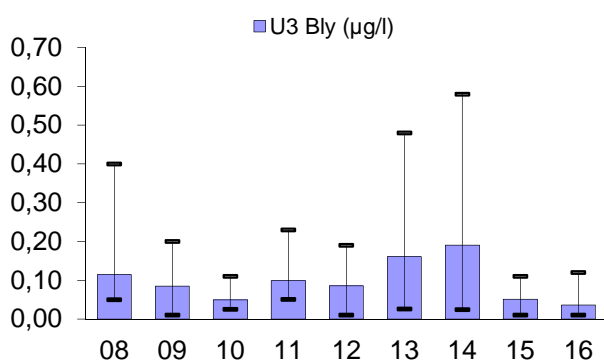
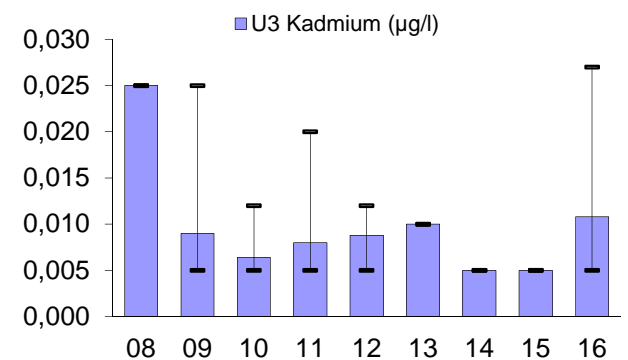
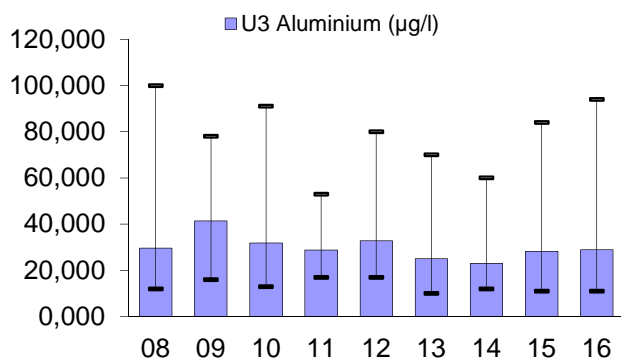
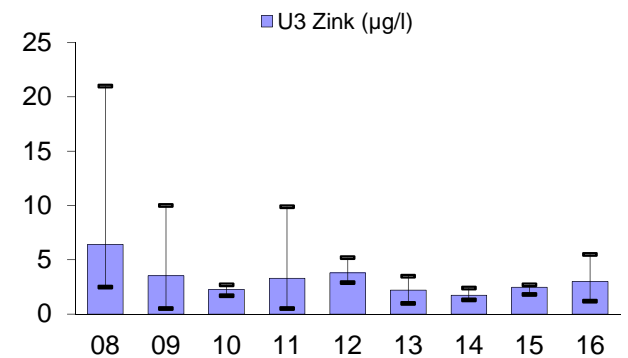
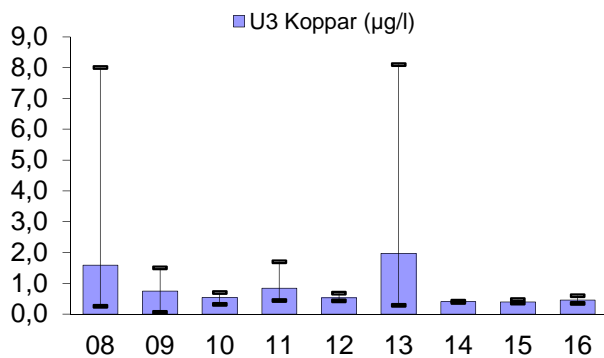
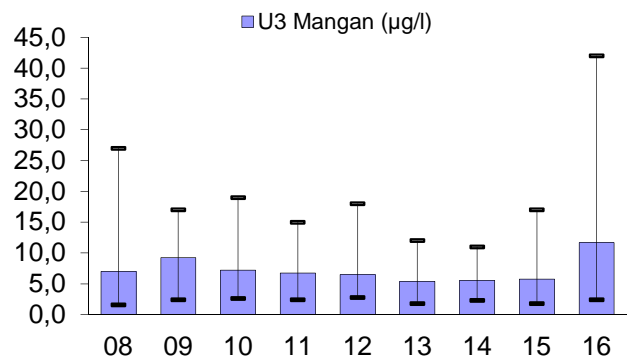
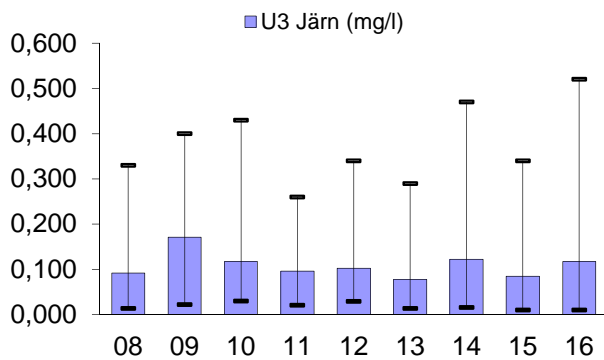


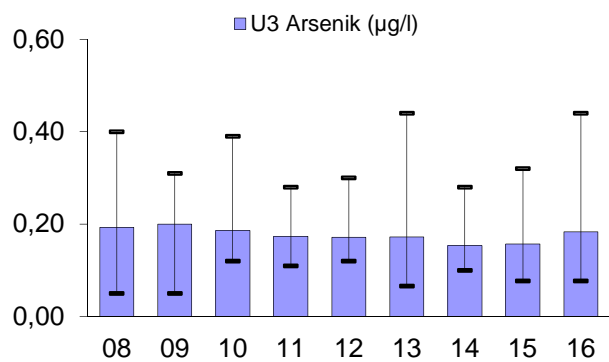
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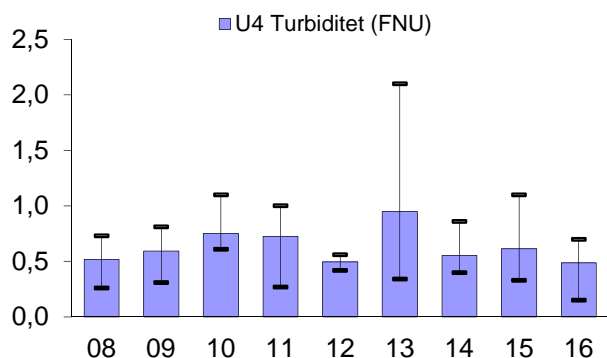
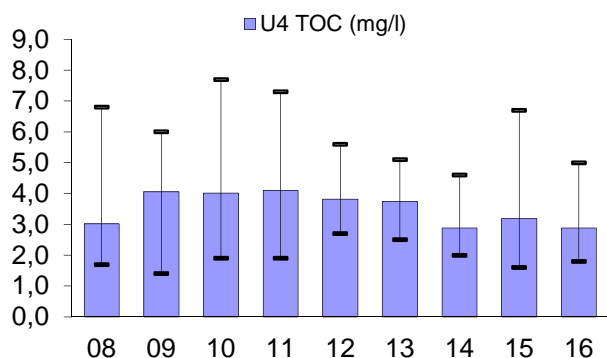
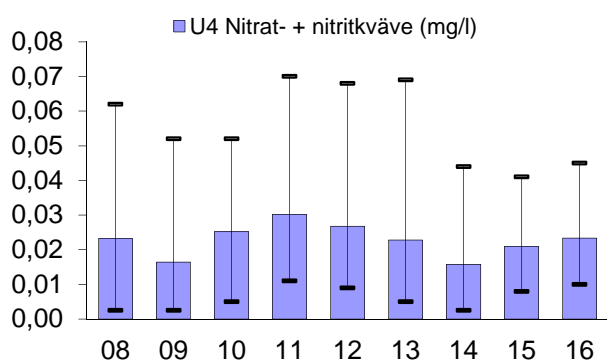
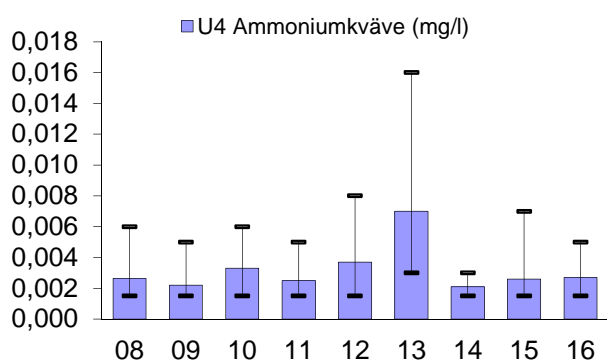
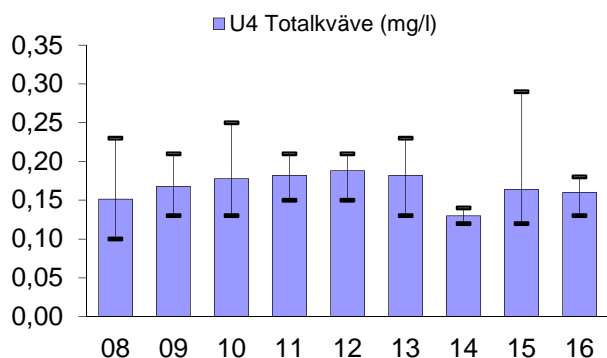
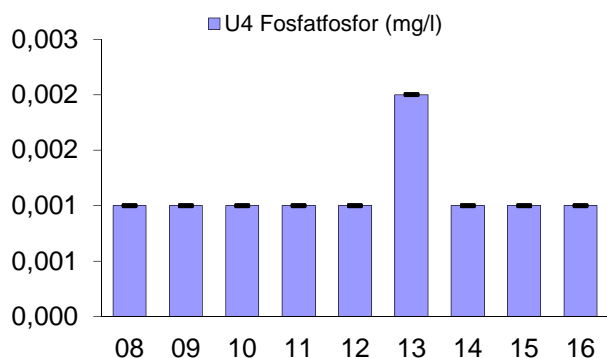
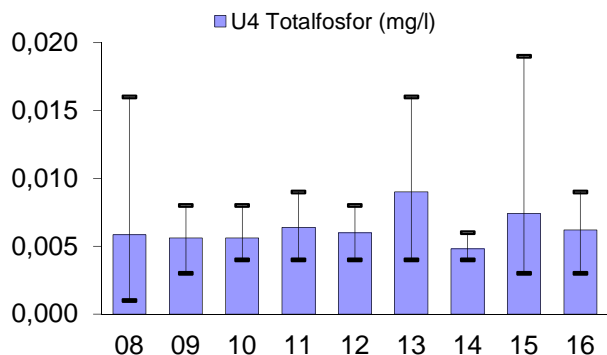
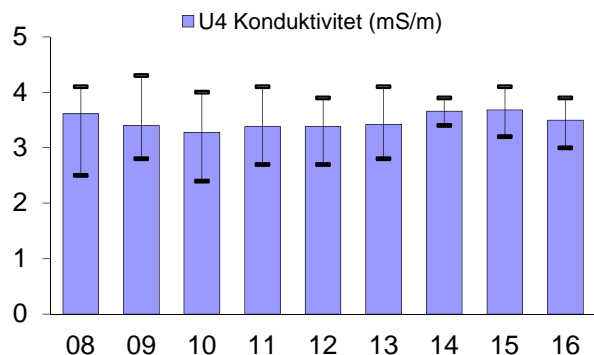
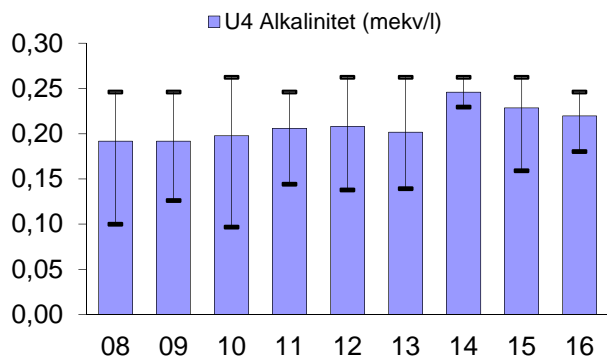
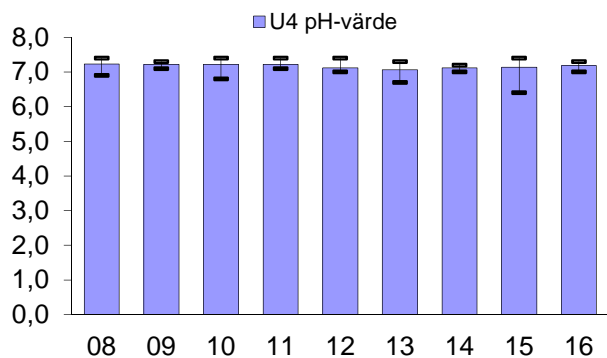




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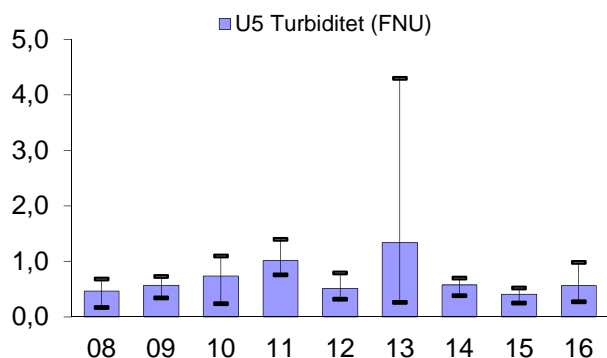
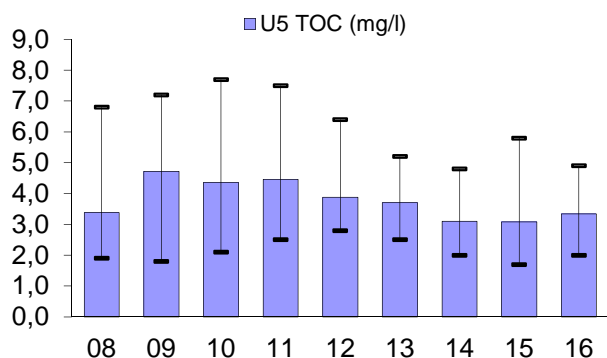
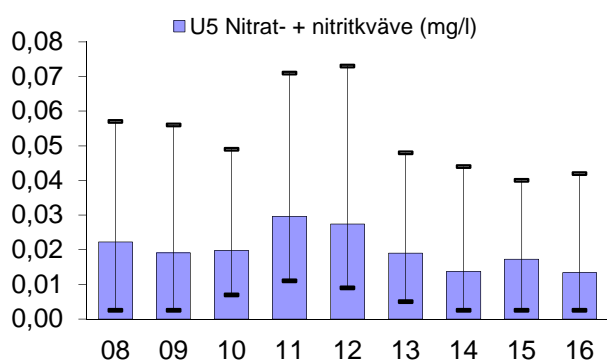
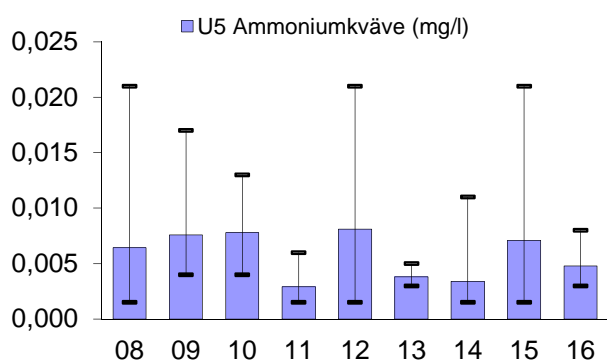
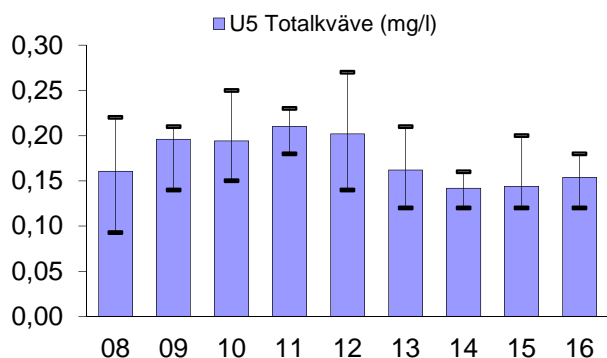
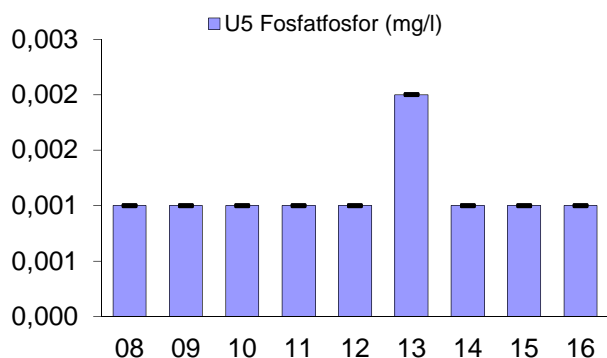
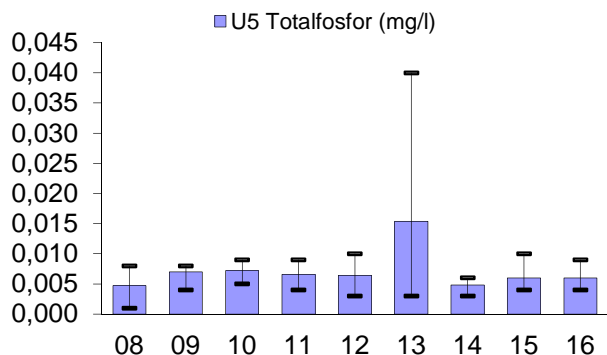
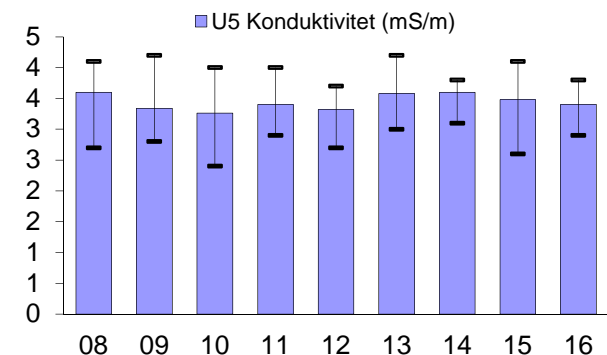
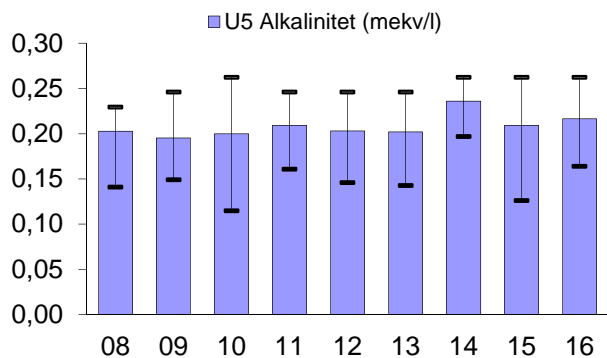
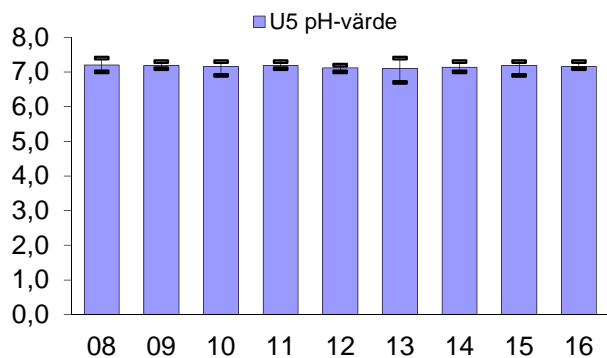
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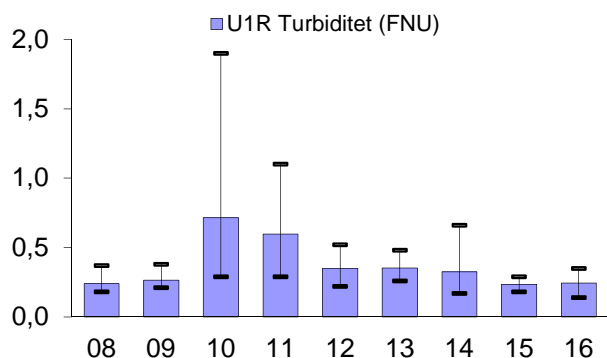
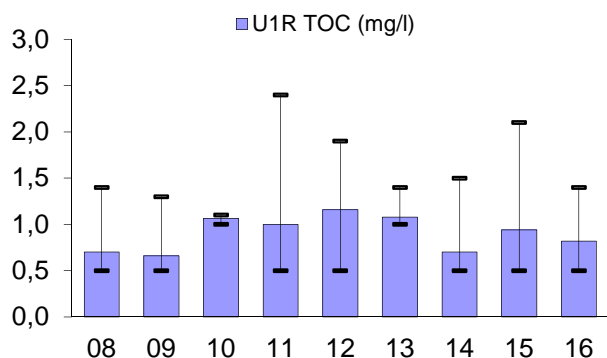
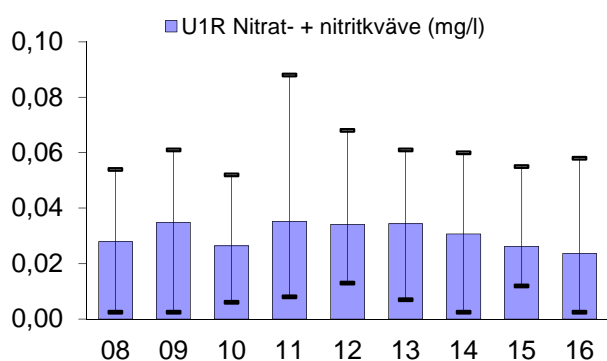
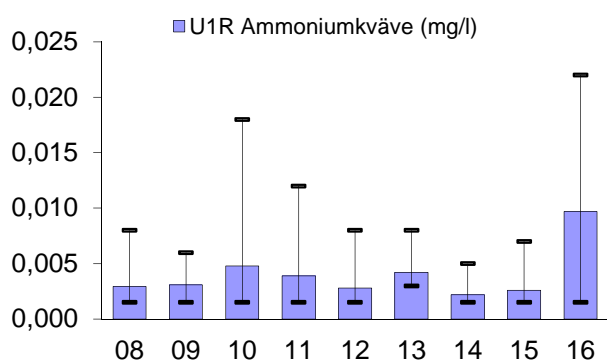
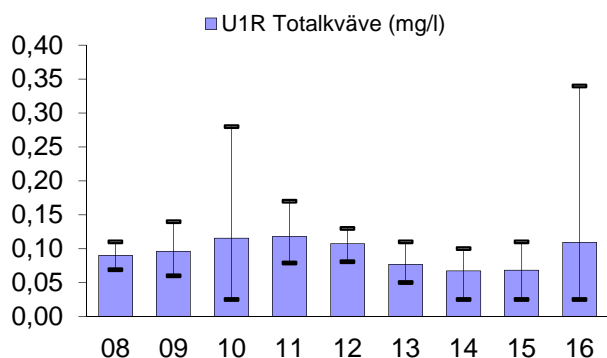
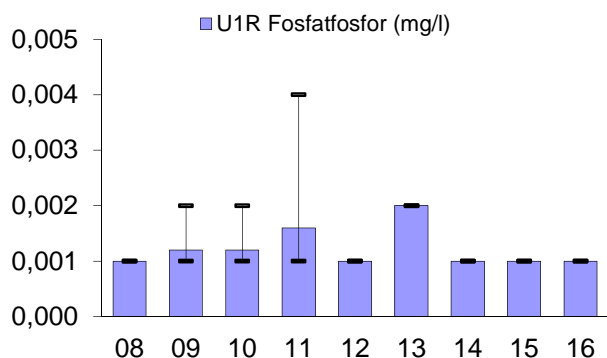
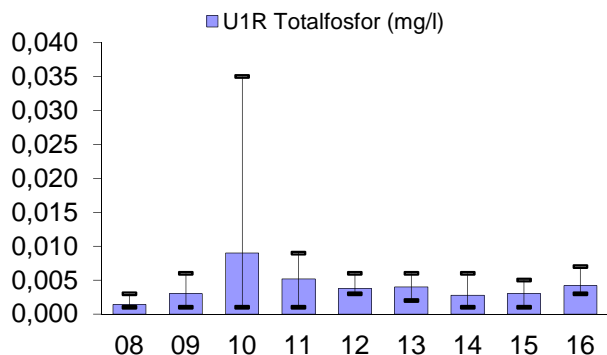
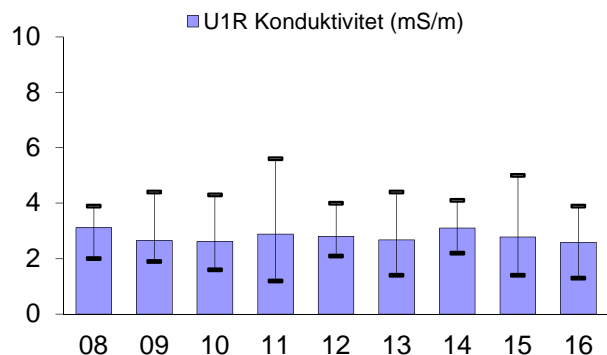
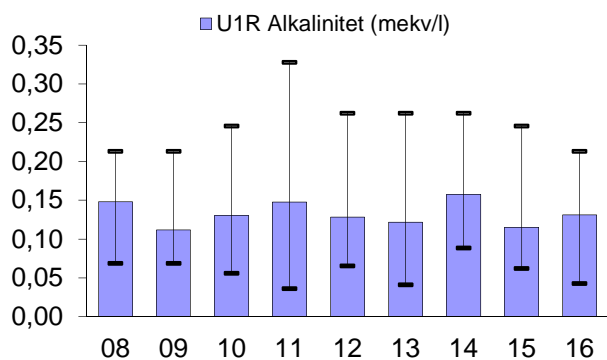
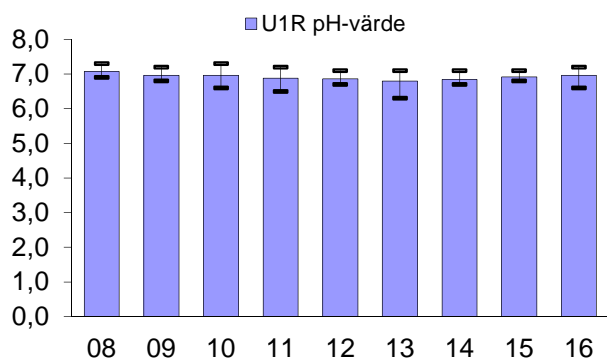
			Mann-Kendall trend			Sen's slope estimate						
Time series	First year	Last Year	n	Test S	Test Z	Signific.	Q	Qmin99	Qmax99	Qmin95	Qmax95	B
U5 PH	2008	2016	9	-12			-0,005					7,19
U5 ALK	2008	2016	9	18		+	0,002					0,20
U5 KOND	2008	2016	9	4			0,014					3,36
U5 TOTP	2008	2016	9	-6			0,000					0,01
U5 PO4P	2008	2016	9	2			0,000					0,00
U5 TOTN	2008	2016	9	-12			-0,006					0,20
U5 NH4N	2008	2016	9	-4			0,000					0,01
U5 NO32N	2008	2016	9	-20		*	-0,001					0,02
U5 TOC	2008	2016	9	-20		*	-0,209					4,74
U5 TURB	2008	2016	9	0			0,000					0,57



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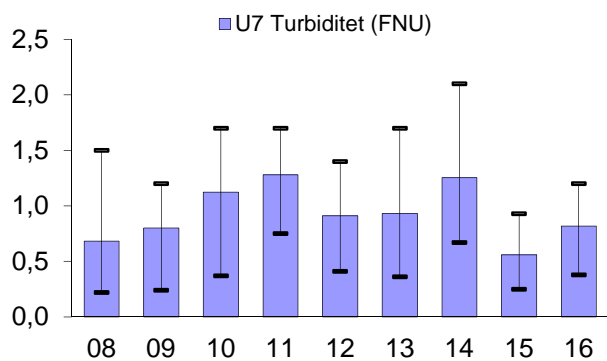
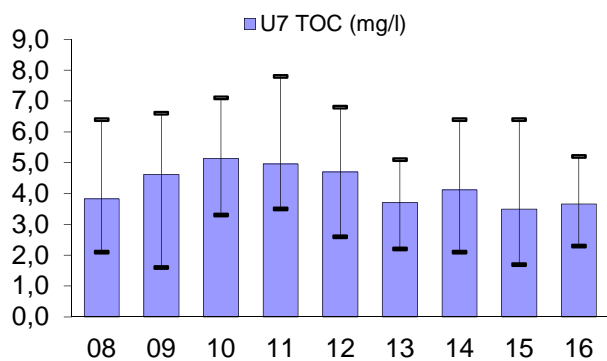
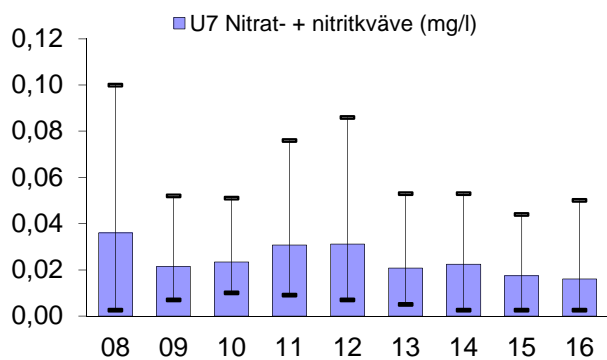
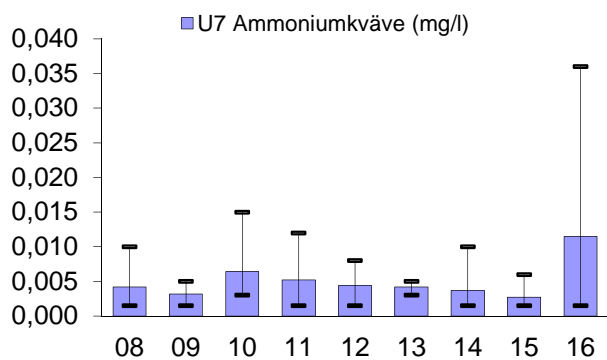
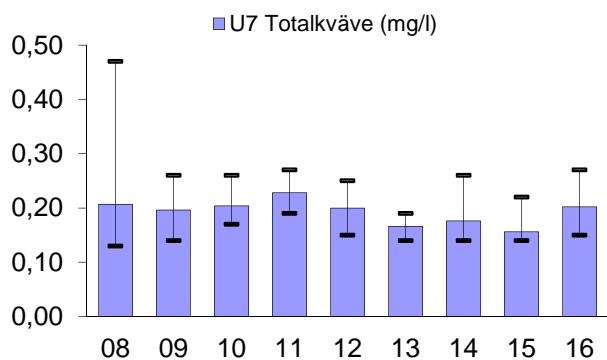
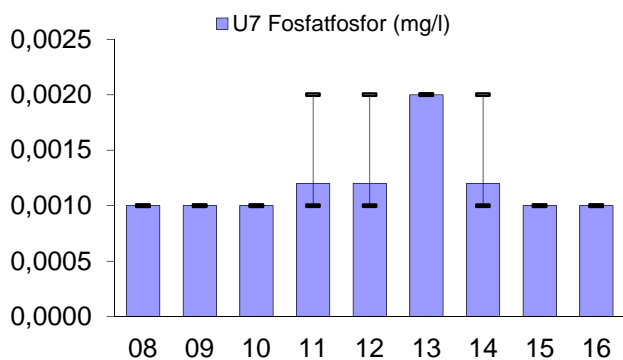
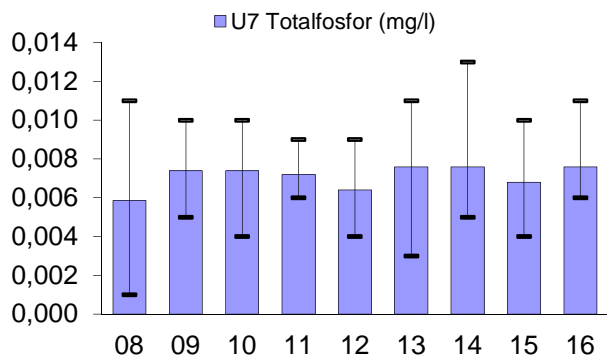
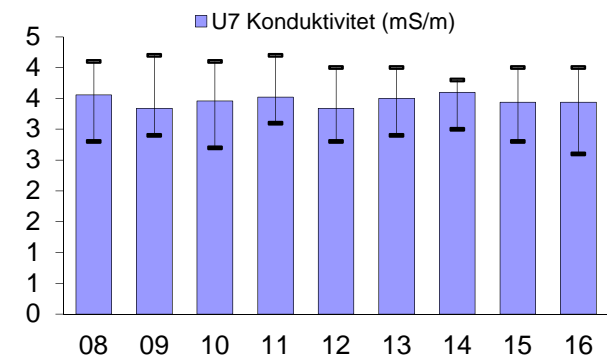
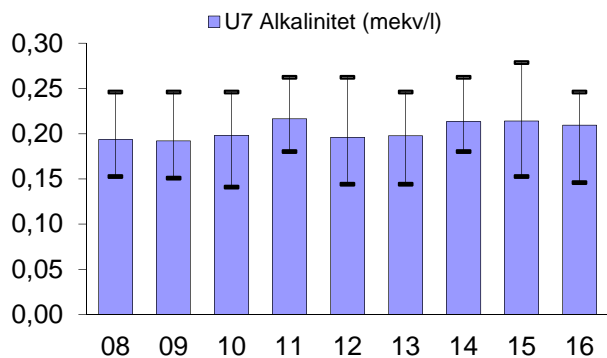
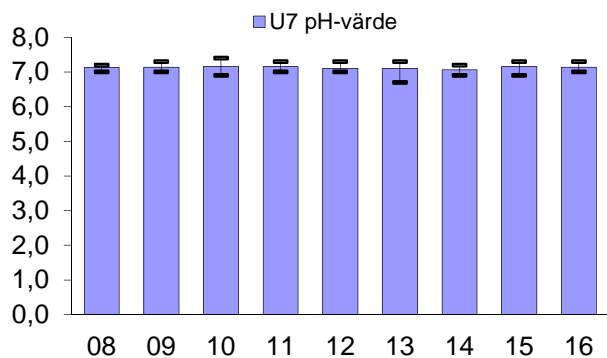
			Mann-Kendall trend			Sen's slope estimate						
Time series	First year	Last Year	n	Test S	Test Z	Signific.	Q	Qmin99	Qmax99	Qmin95	Qmax95	B
U6 PH	2008	2016	9	-4			-0,003					7,18
U6 ALK	2008	2016	9	6			0,000					0,21
U6 KOND	2008	2016	9	-4			-0,006					3,43
U6 TOTP	2008	2016	9	1			0,000					0,01
U6 PO4P	2008	2016	9	-3			0,000					0,00
U6 TOTN	2008	2016	9	-12			-0,002					0,19
U6 NH4N	2008	2016	9	-5			0,000					0,00
U6 NO32N	2008	2016	9	-20		*	-0,001					0,02
U6 TOC	2008	2016	9	-12			-0,163					4,77
U6 TURB	2008	2016	9	-6			-0,011					0,66



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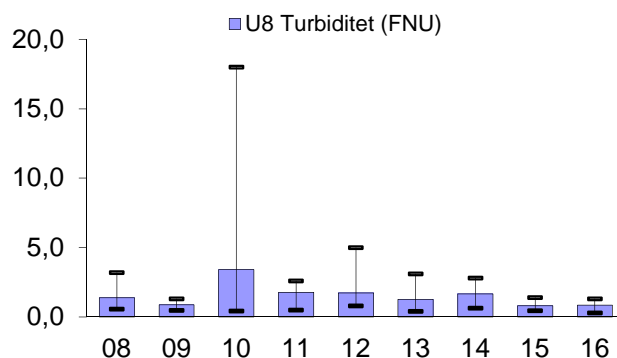
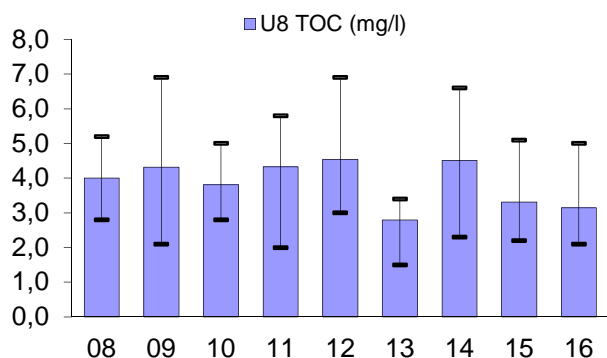
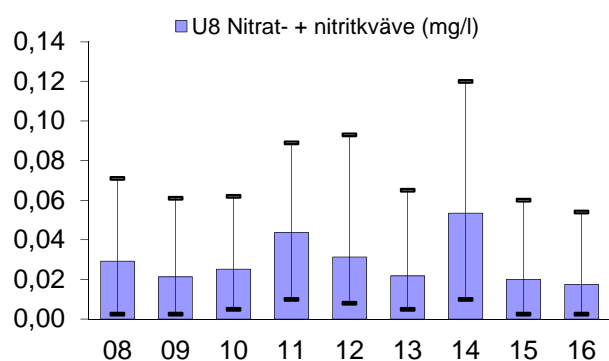
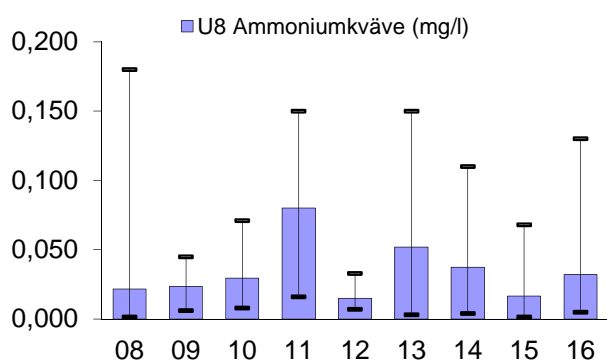
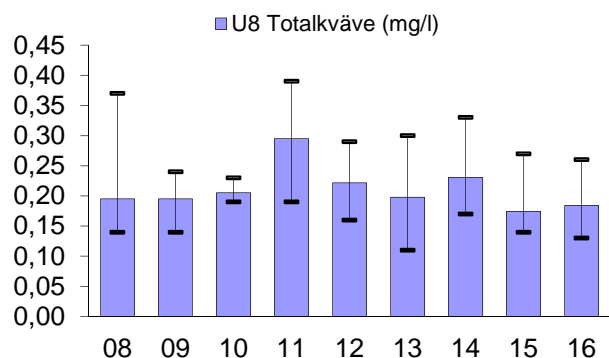
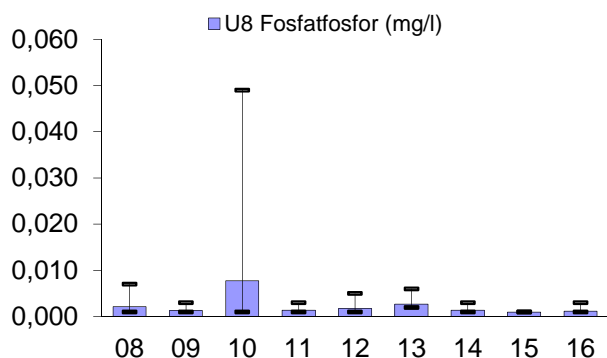
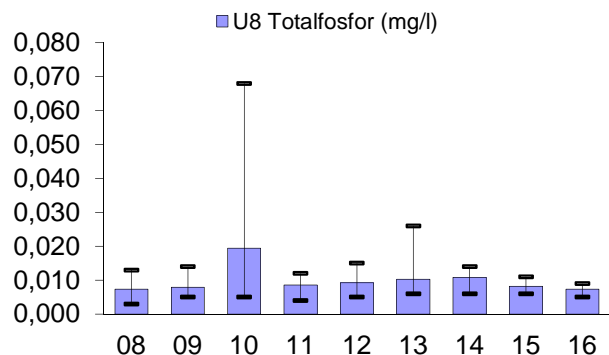
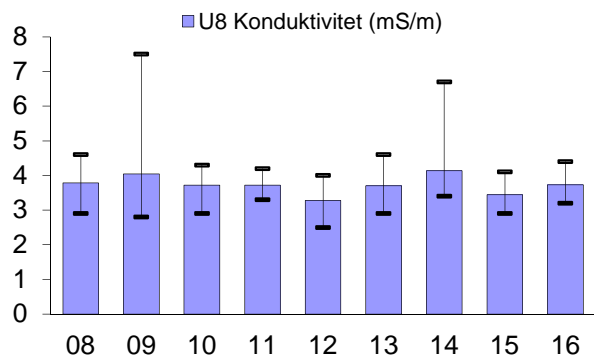
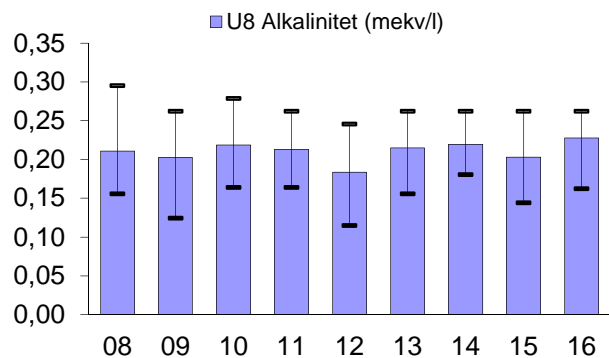
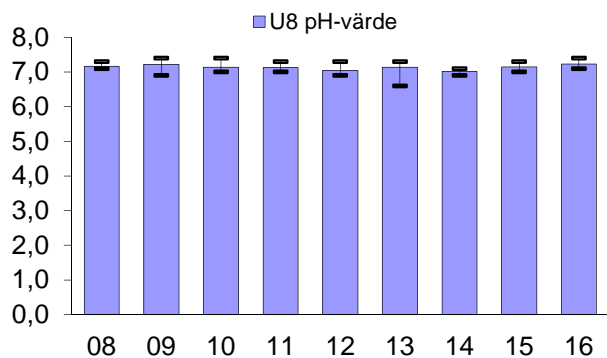
Time series	First year	Last Year	n	Mann-Kendall trend			Sen's slope estimate					
				Test S	Test Z	Signific.	Q	Qmin99	Qmax99	Qmin95	Qmax95	B
U7 PH	2008	2016	9	-2			0,000					7,14
U7 ALK	2008	2016	9	16			0,002					0,19
U7 KOND	2008	2016	9	-2			-0,002					3,46
U7 TOTP	2008	2016	9	12			0,000					0,01
U7 PO4P	2008	2016	9	5			0,000					0,00
U7 TOTN	2008	2016	9	-14			-0,005					0,21
U7 NH4N	2008	2016	9	-4			0,000					0,00
U7 NO32N	2008	2016	9	-20		*	-0,002					0,03
U7 TOC	2008	2016	9	-16			-0,183					5,13
U7 TURB	2008	2016	9	2			0,010					0,87



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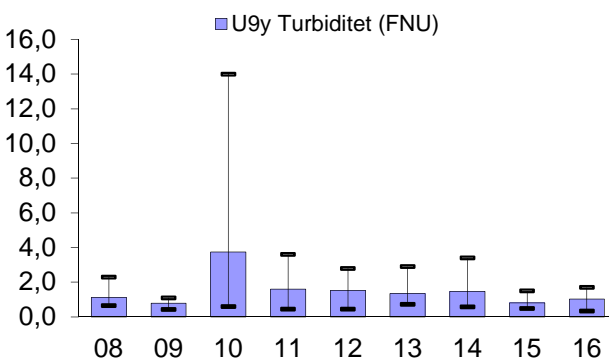
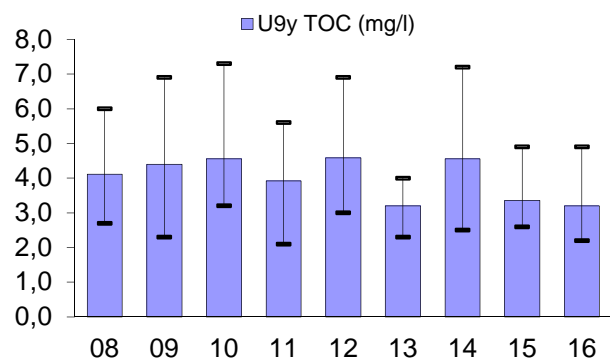
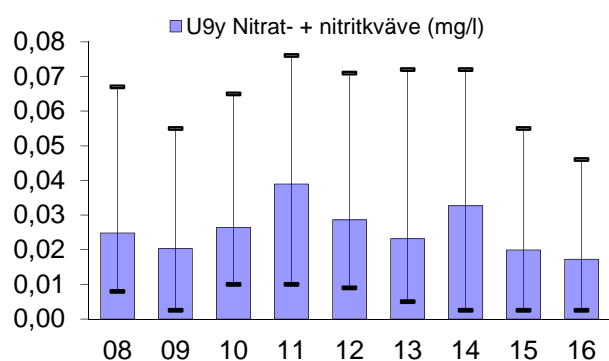
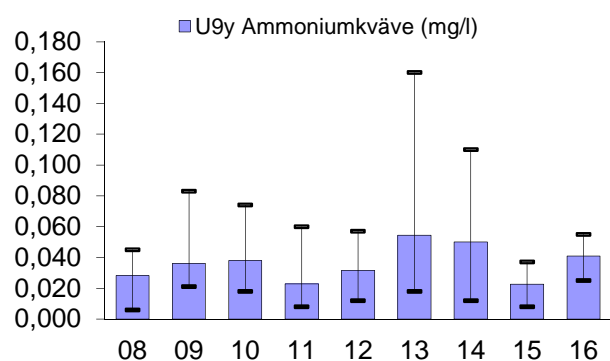
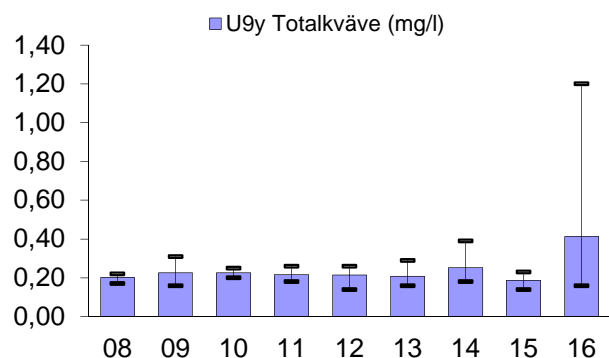
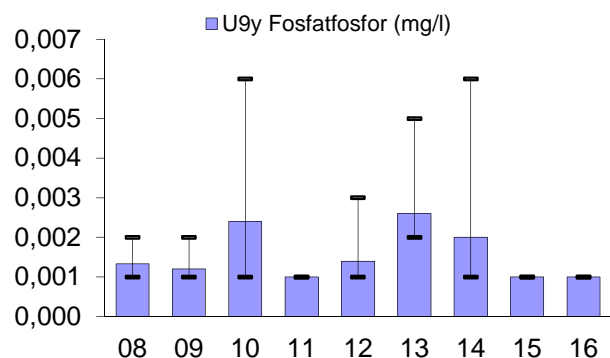
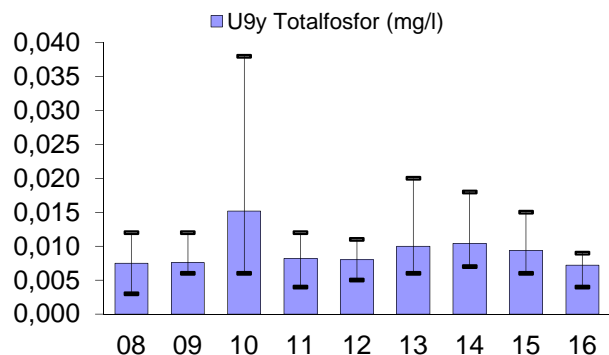
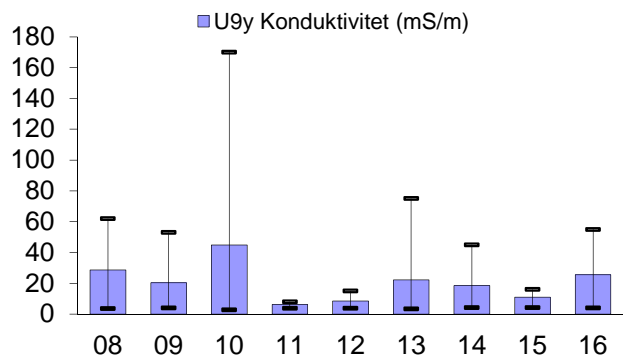
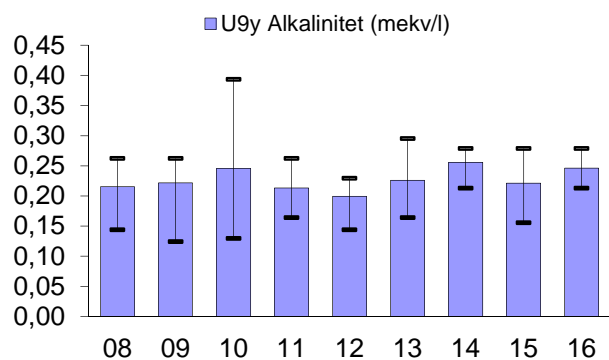
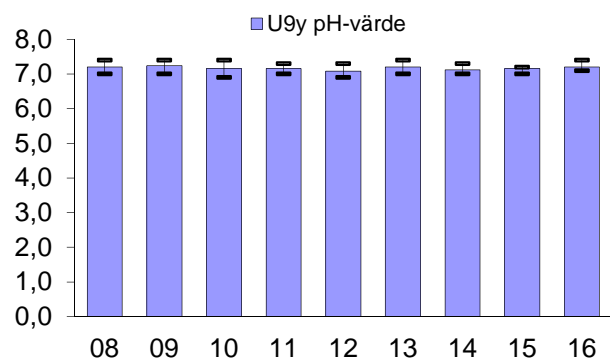
			Mann-Kendall trend			Sen's slope estimate						
Time series	First year	Last Year	n	Test S	Test Z	Signific.	Q	Qmin99	Qmax99	Qmin95	Qmax95	B
U8 PH	2008	2016	9	-2			-0,003					7,15
U8 ALK	2008	2016	9	12			0,001					0,21
U8 KOND	2008	2016	9	-8			-0,014					3,77
U8 TOTP	2008	2016	9	4			0,000					0,01
U8 PO4P	2008	2016	9	-13			0,000					0,00
U8 TOTN	2008	2016	9	-4			-0,001					0,21
U8 NH4N	2008	2016	9	4			0,001					0,03
U8 NO32N	2008	2016	9	-8			-0,001					0,03
U8 TOC	2008	2016	9	-6			-0,099					4,01
U8 TURB	2008	2016	9	-14			-0,075					1,63



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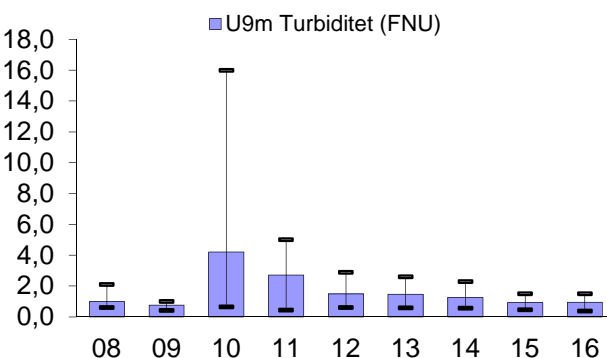
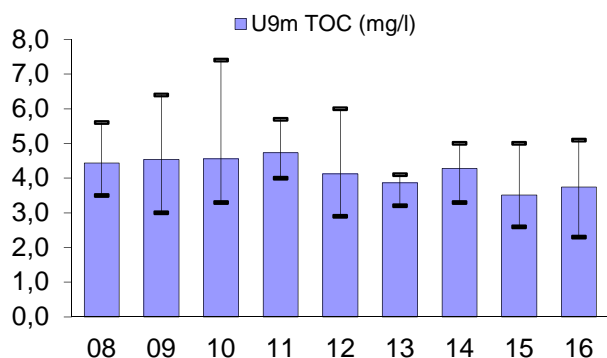
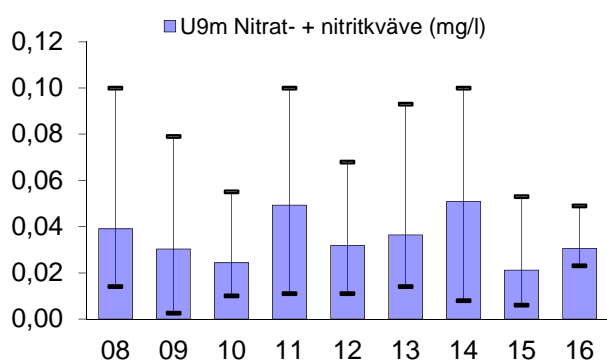
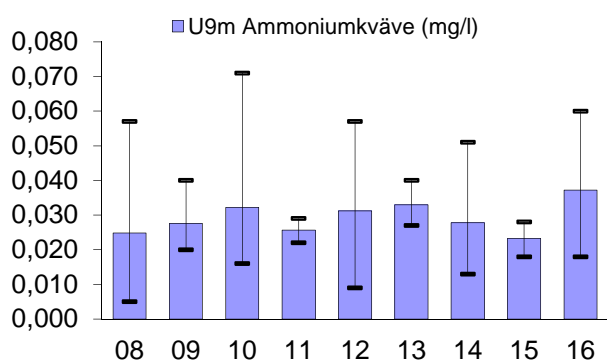
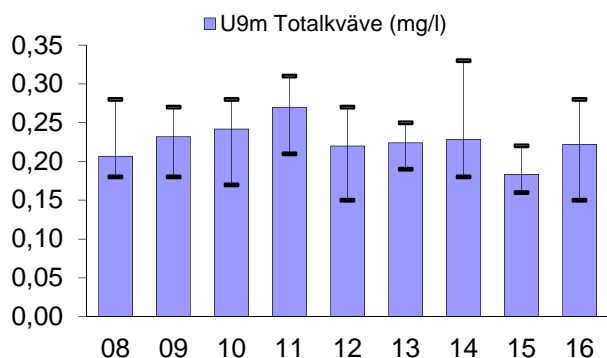
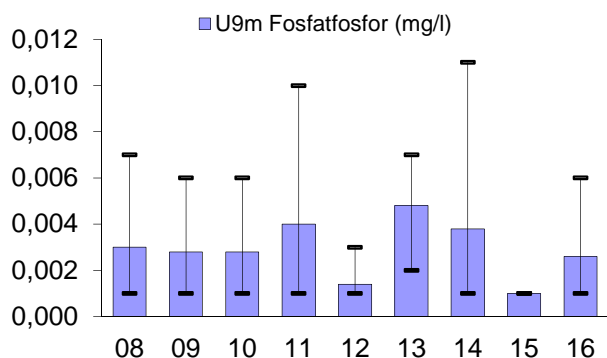
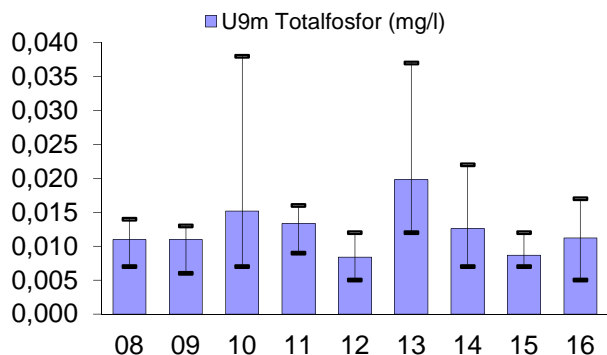
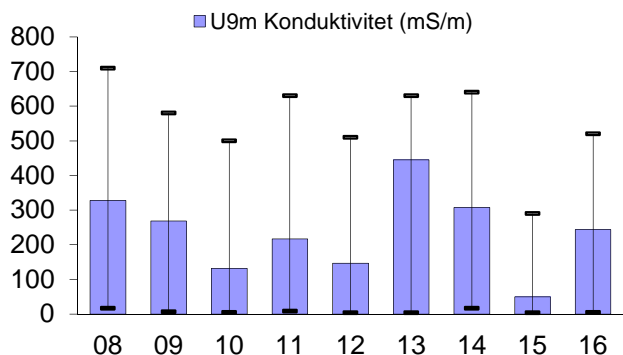
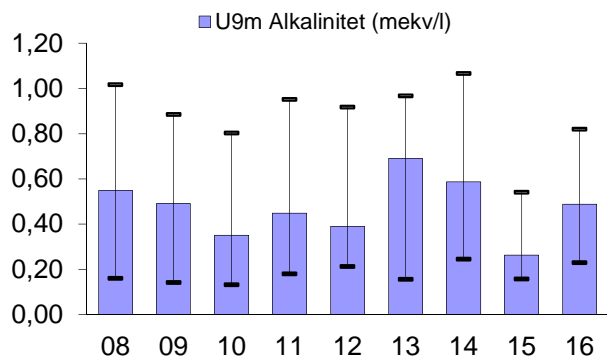
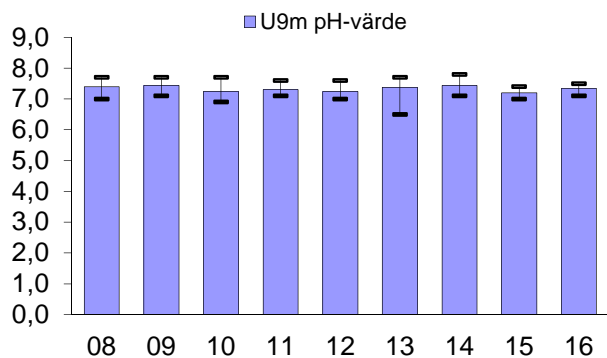
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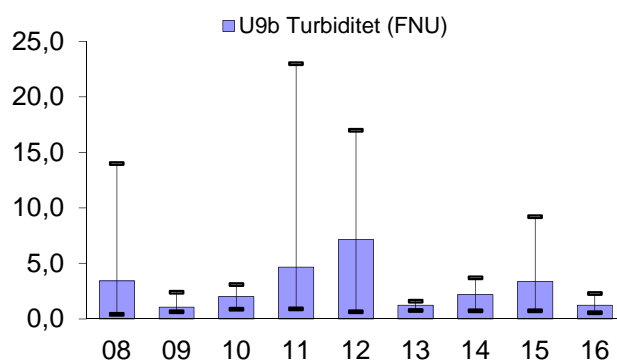
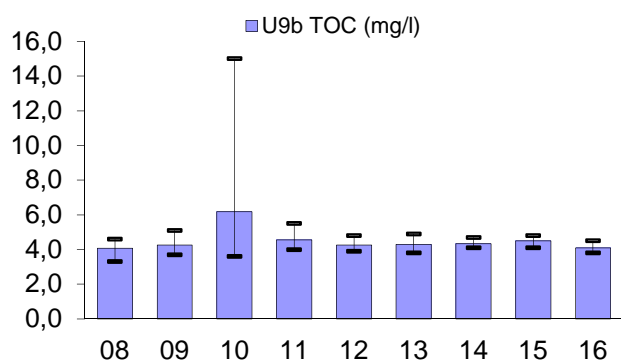
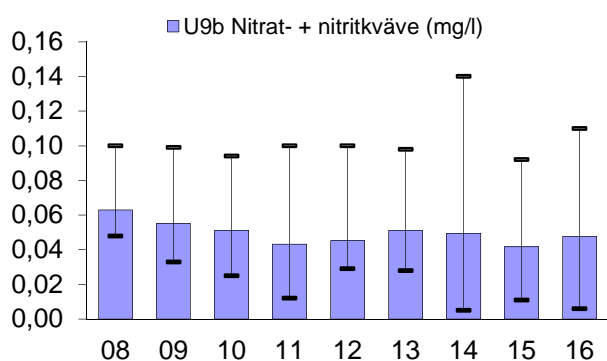
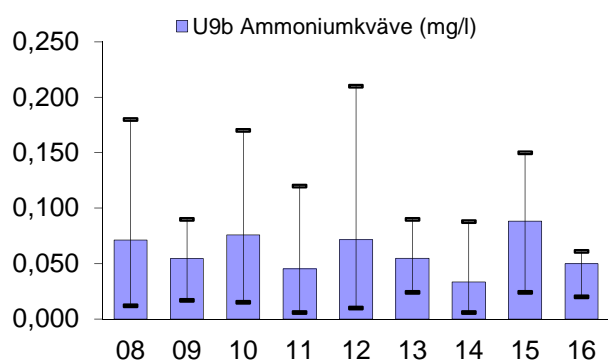
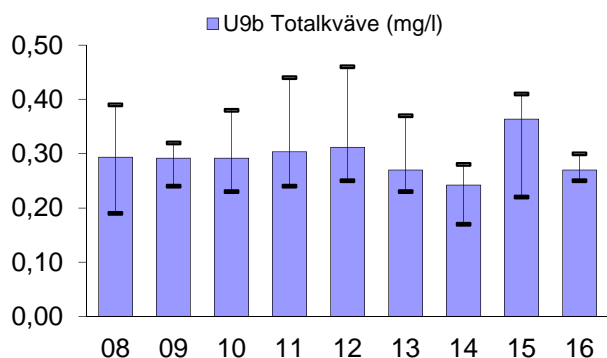
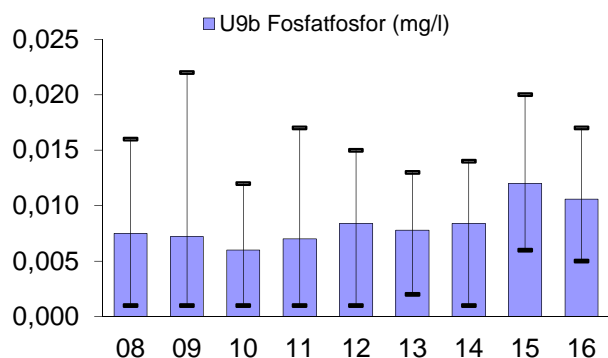
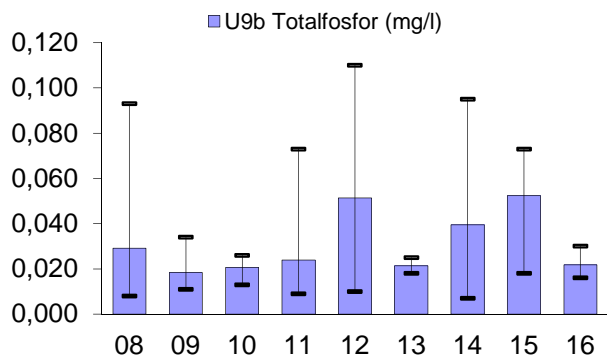
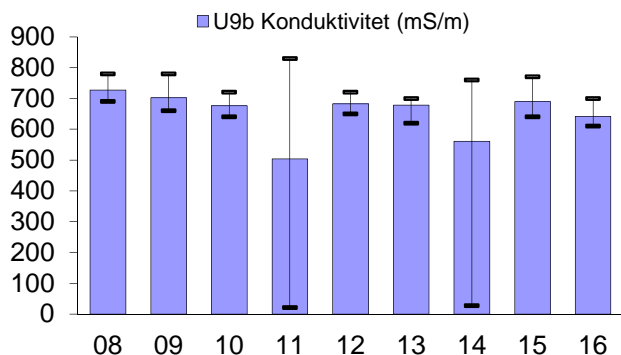
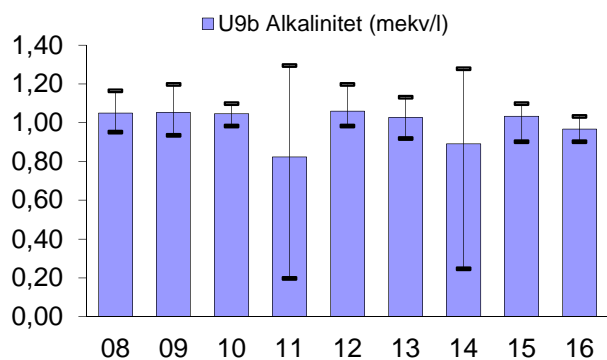
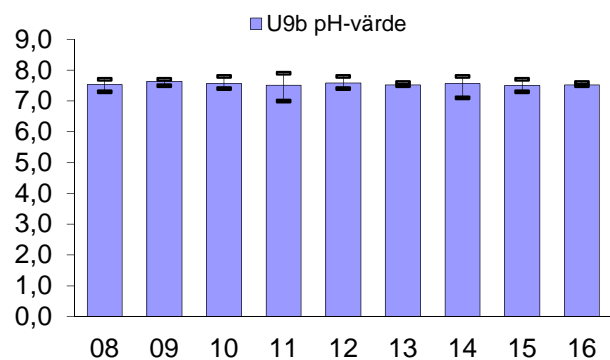
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TREND STATISTICS

	Mann-Kendall trend	Sen's slope estimate
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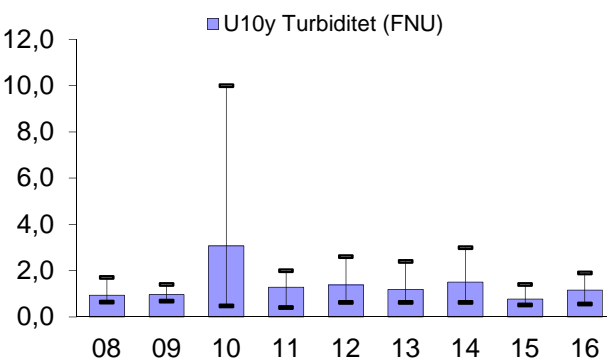
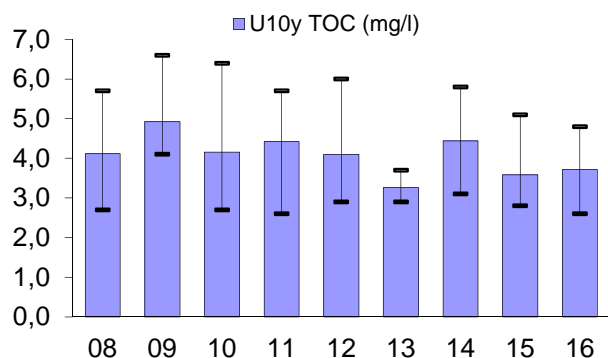
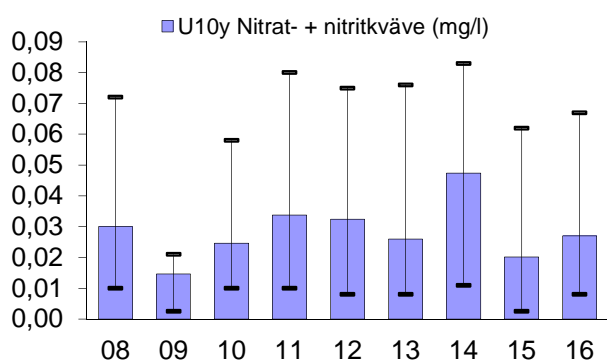
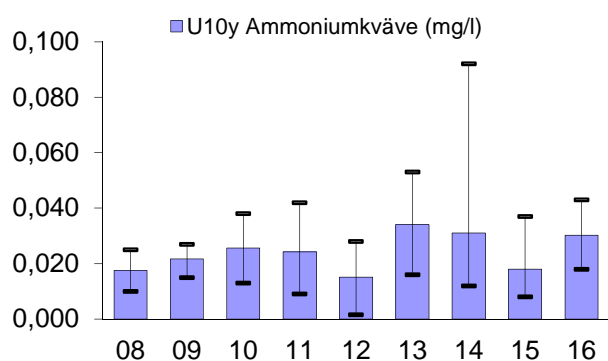
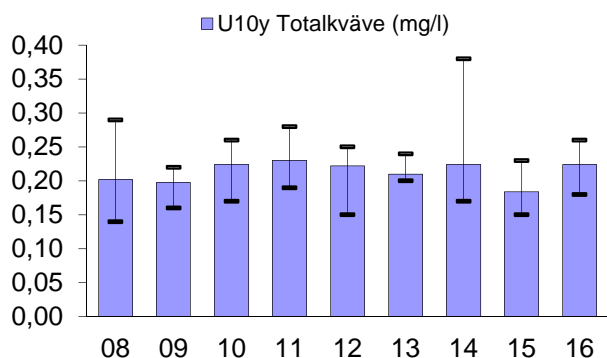
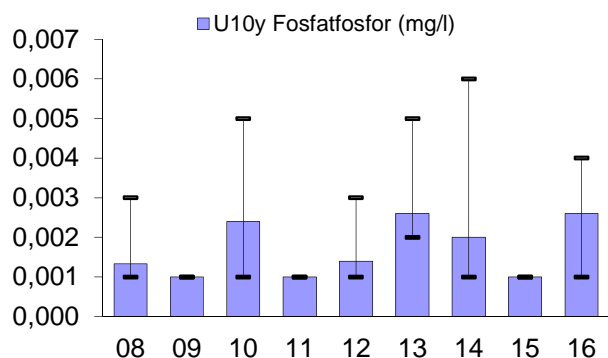
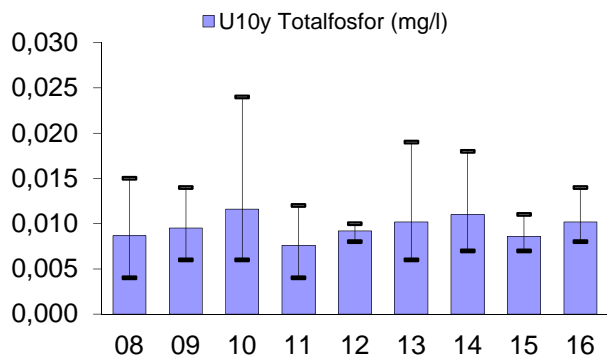
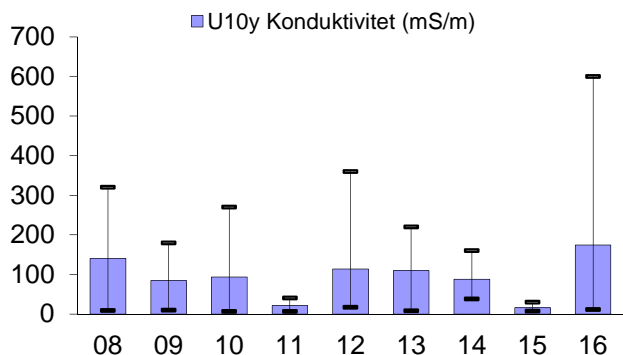
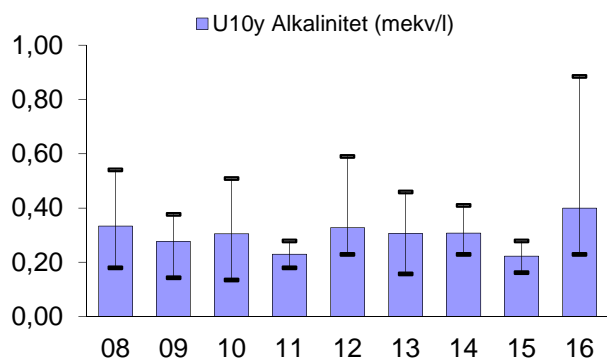
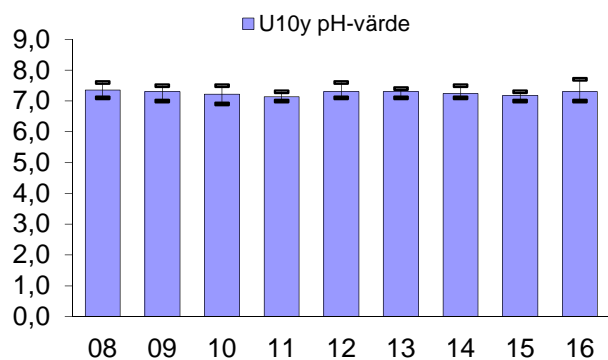
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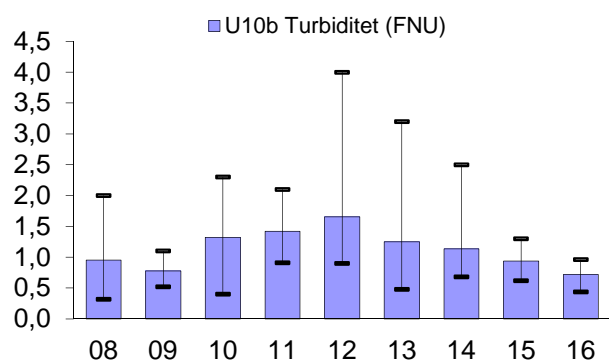
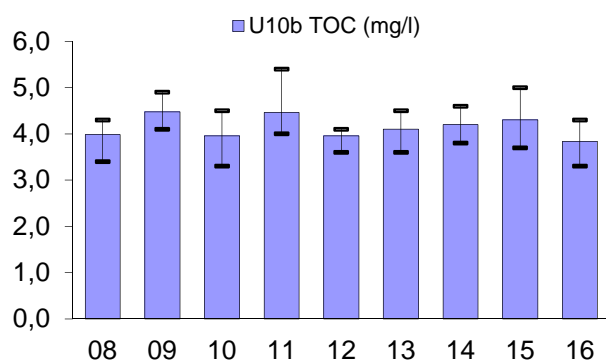
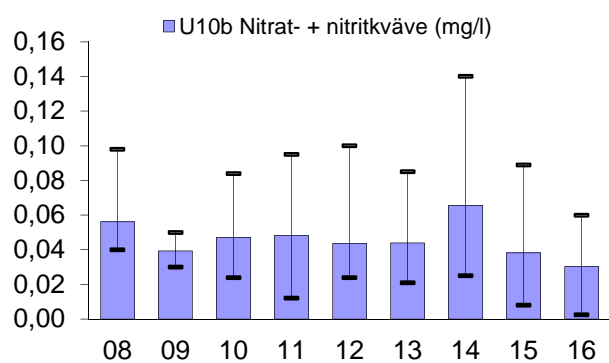
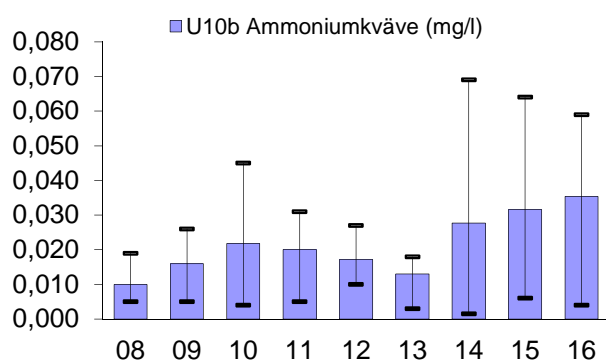
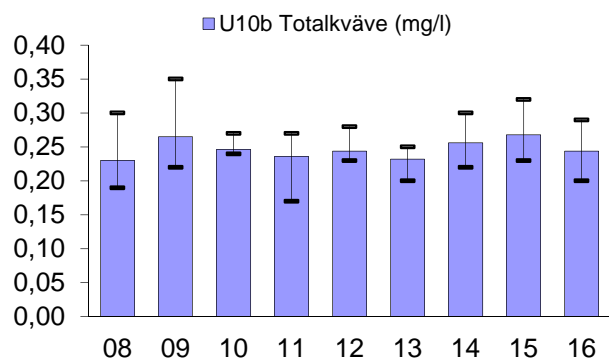
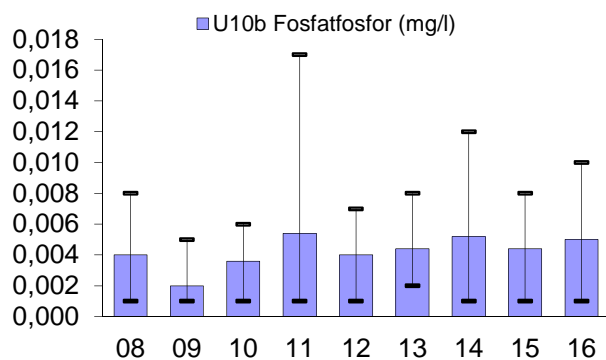
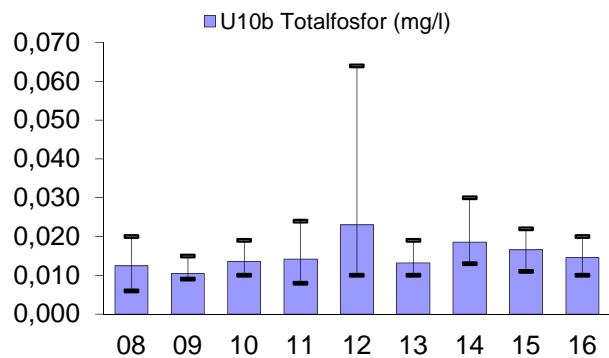
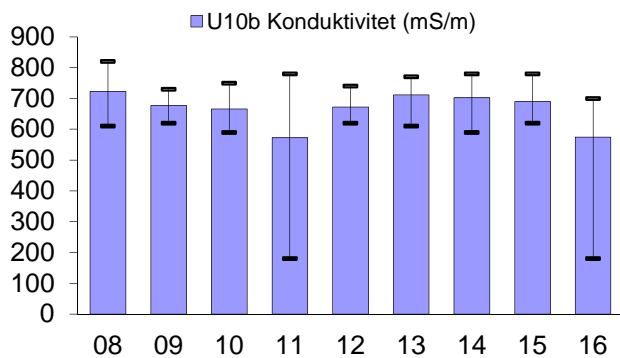
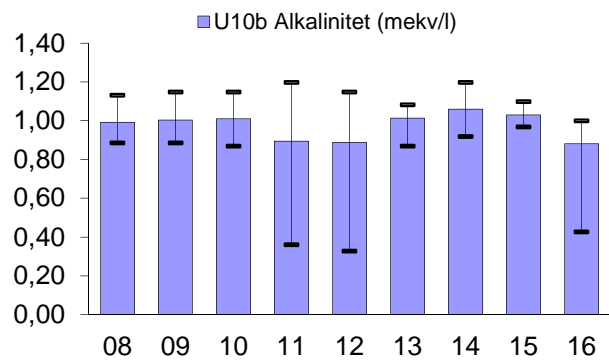
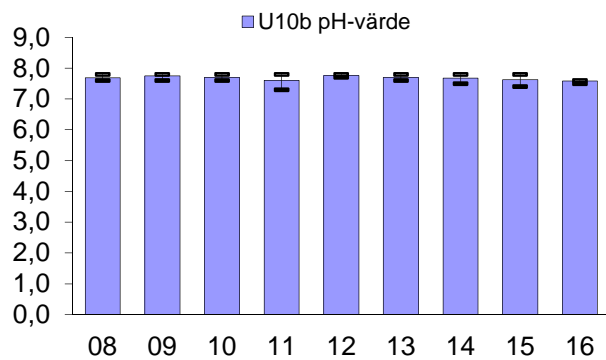
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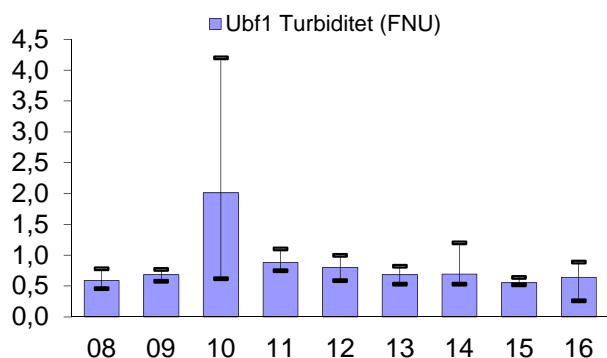
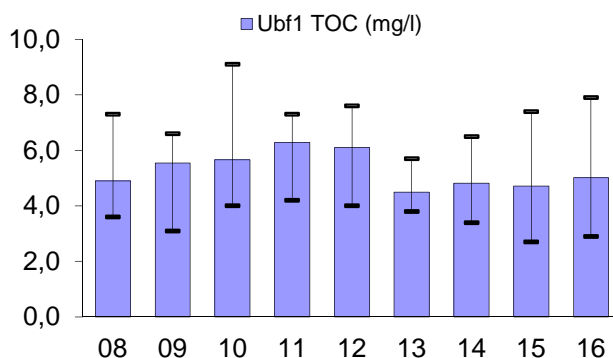
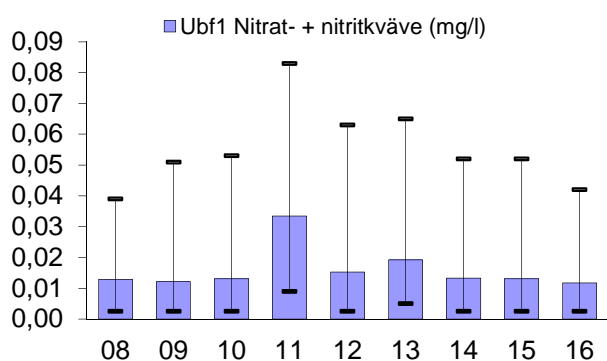
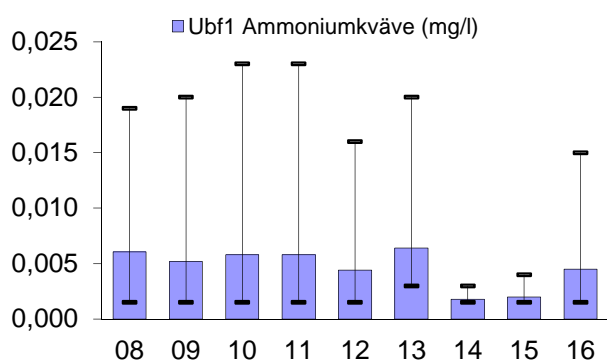
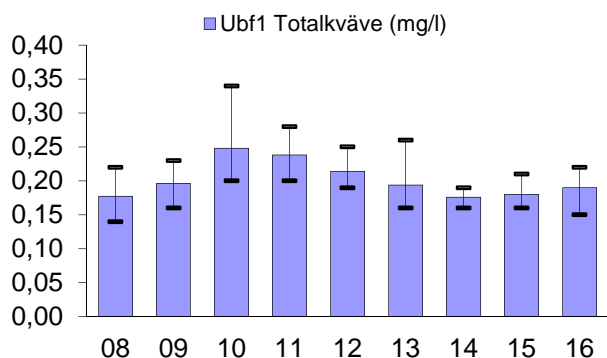
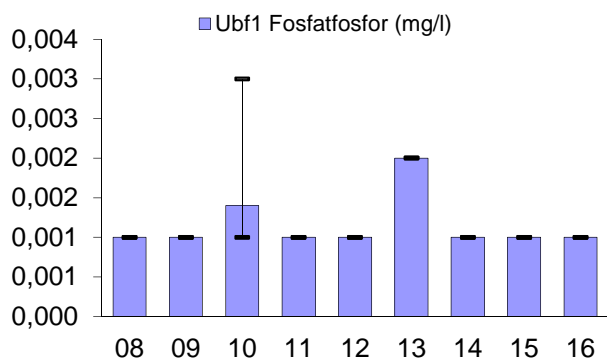
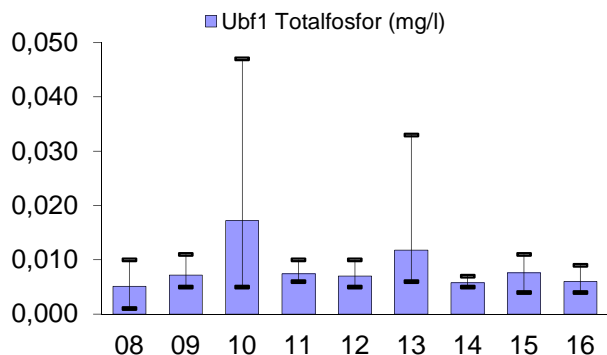
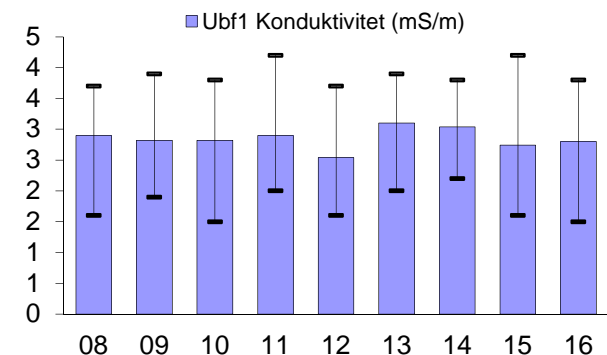
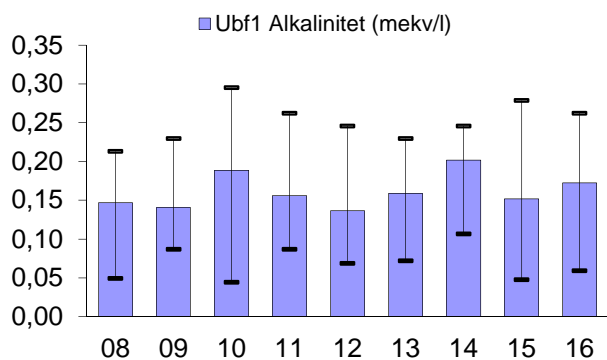
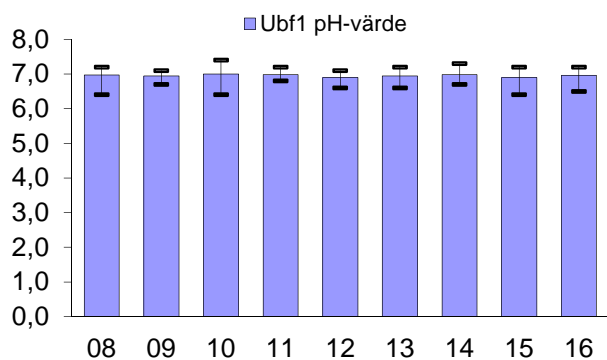
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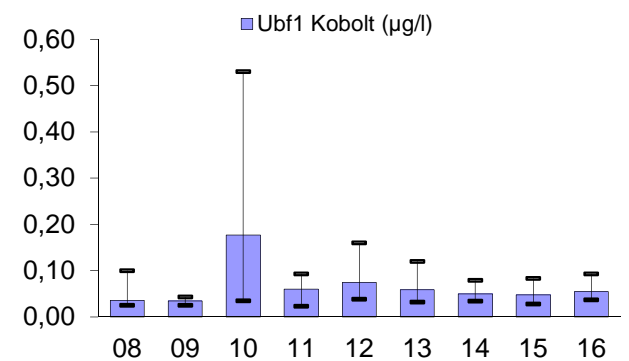
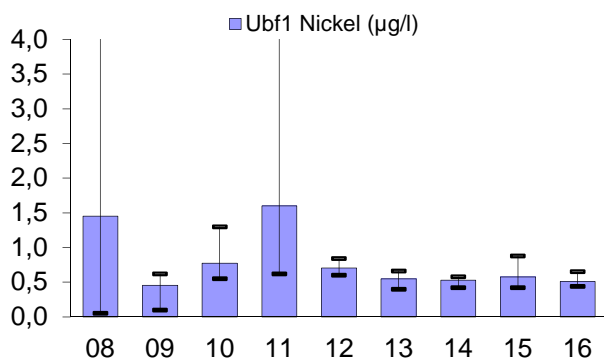
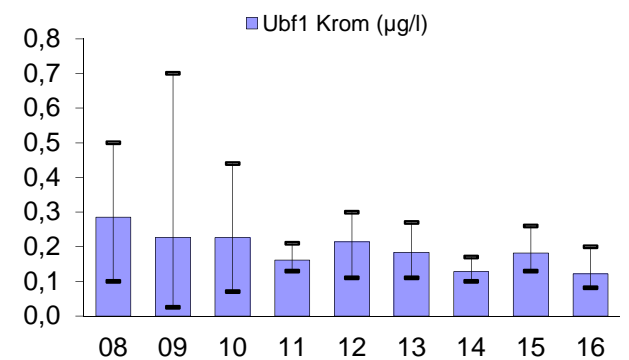
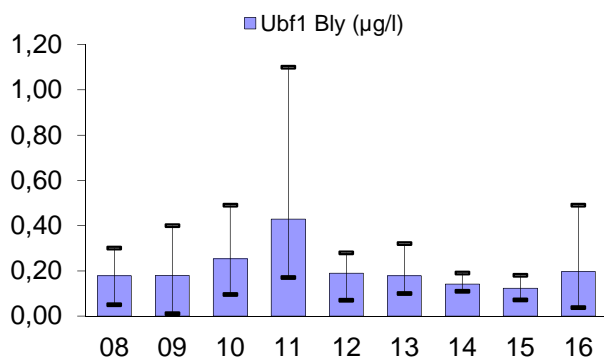
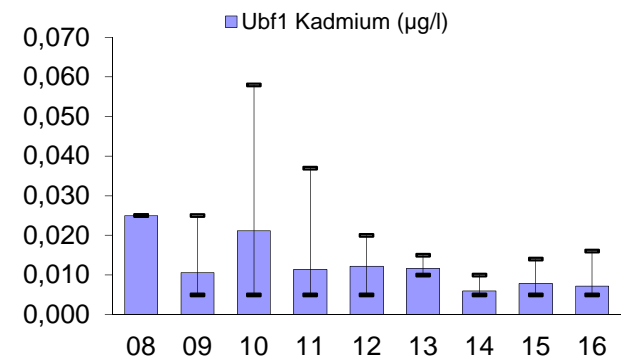
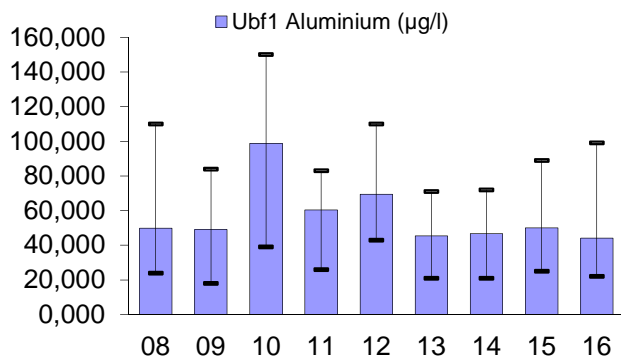
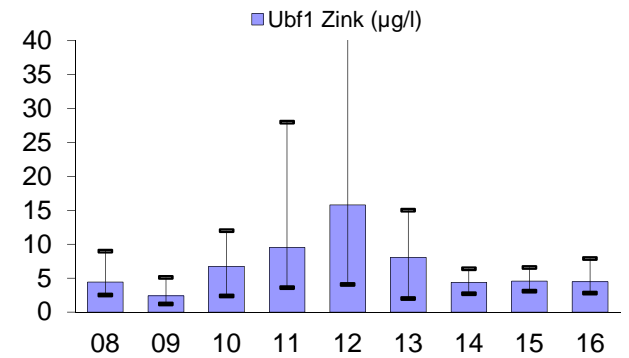
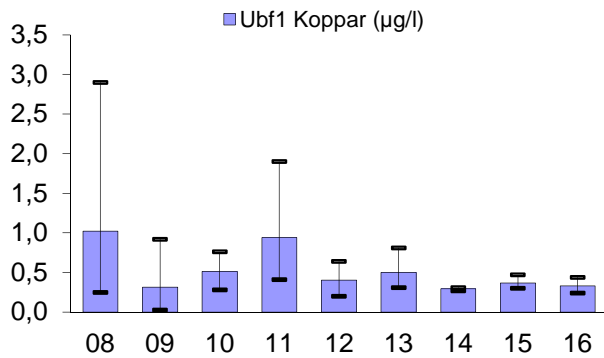
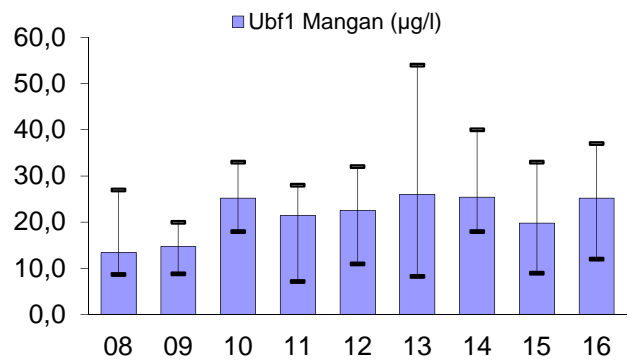
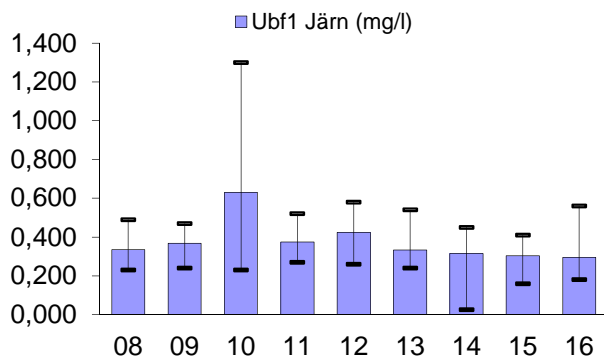


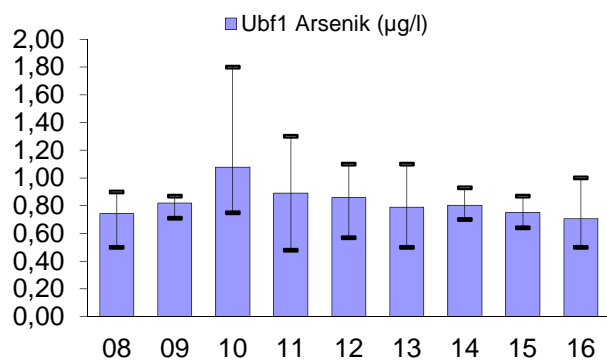
TREND STATISTICS

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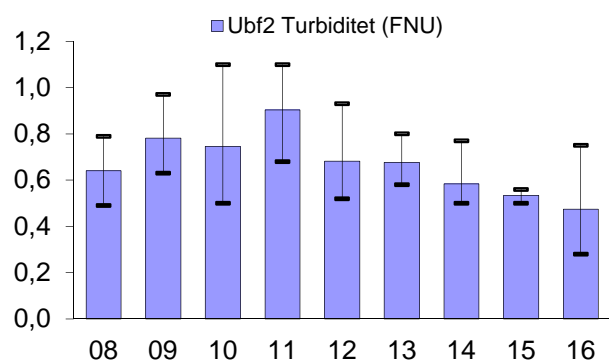
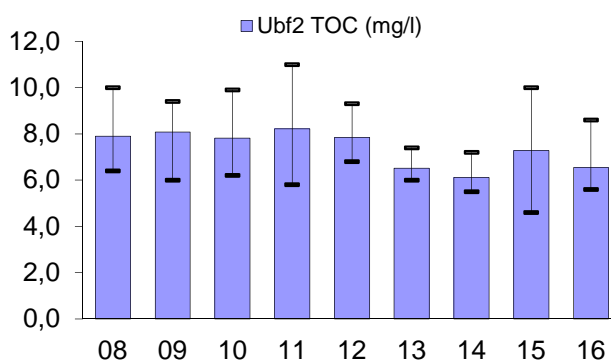
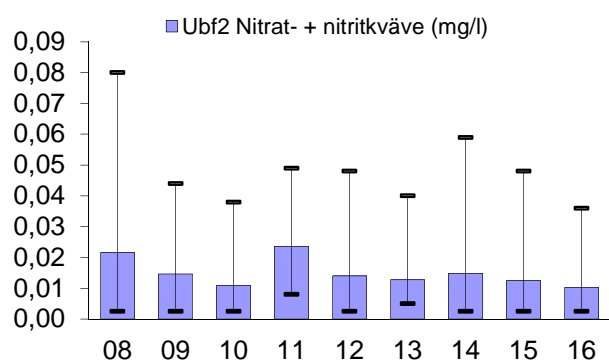
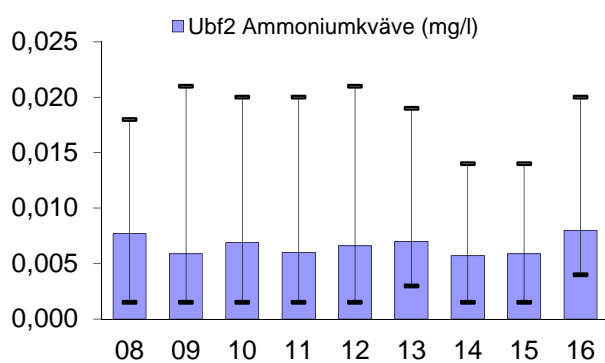
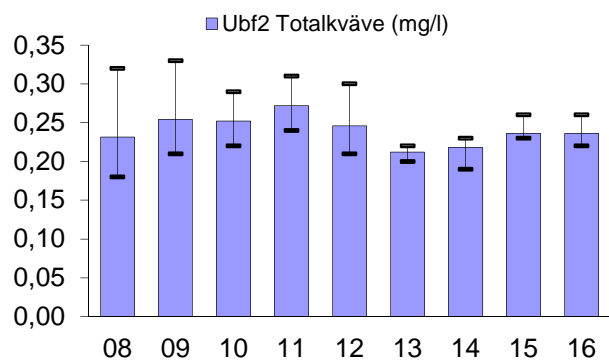
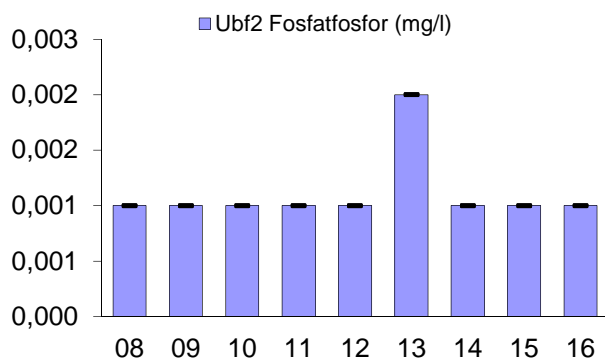
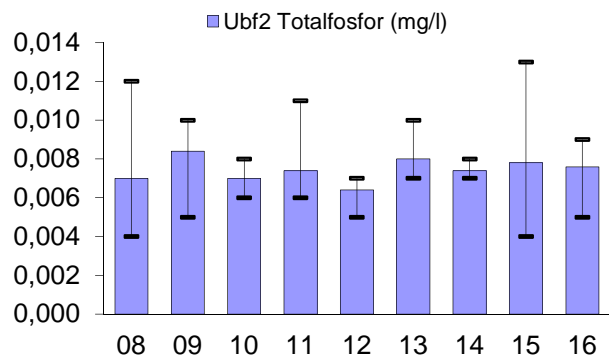
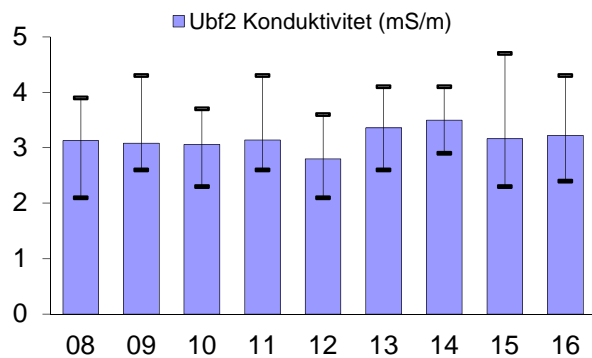
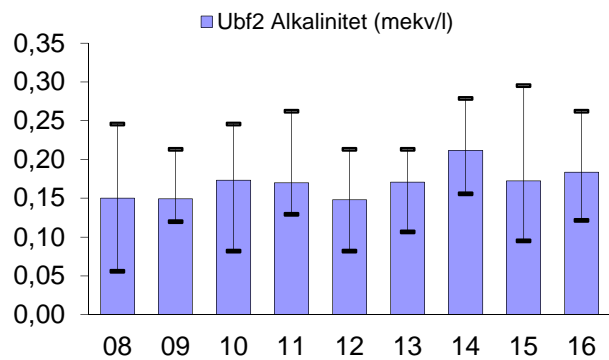
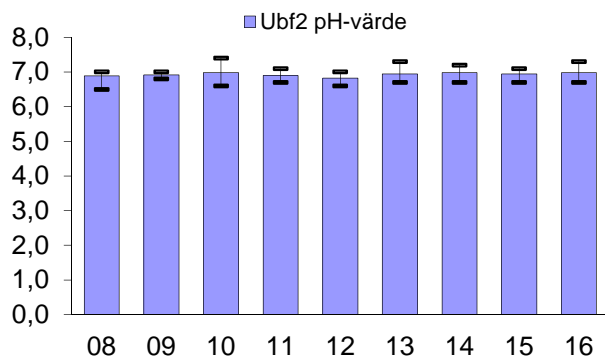




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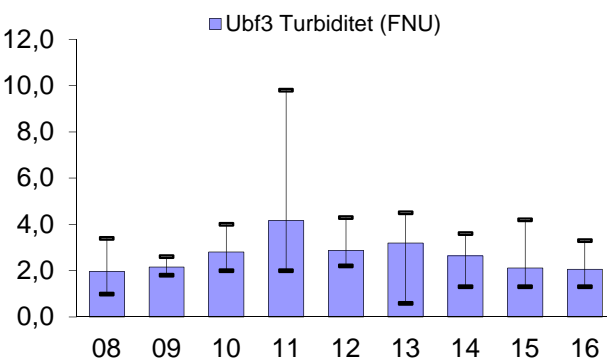
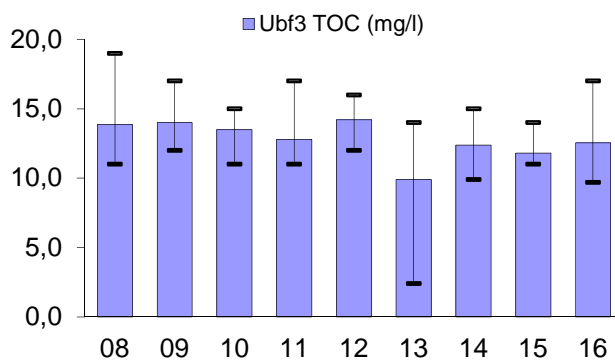
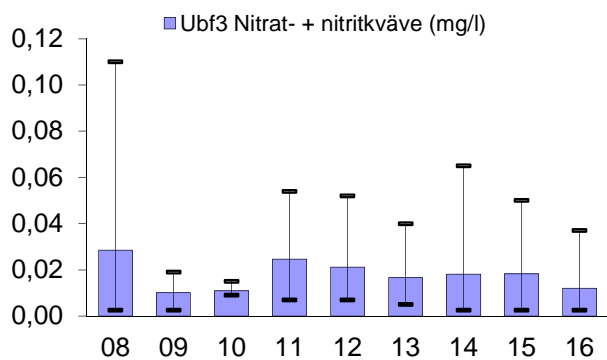
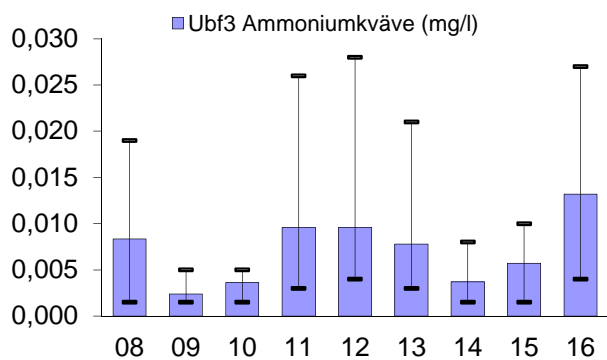
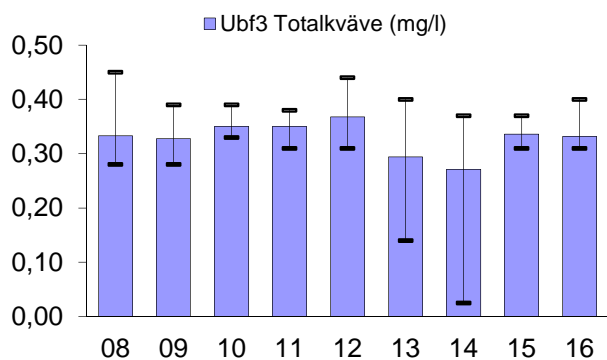
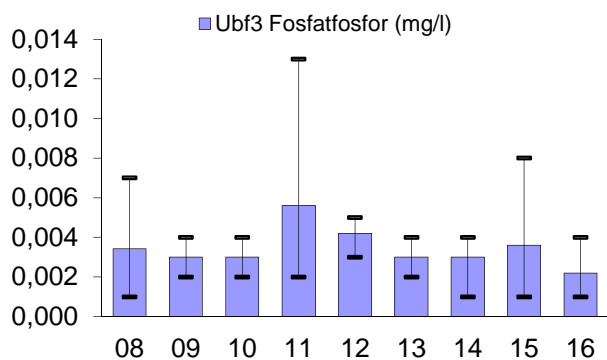
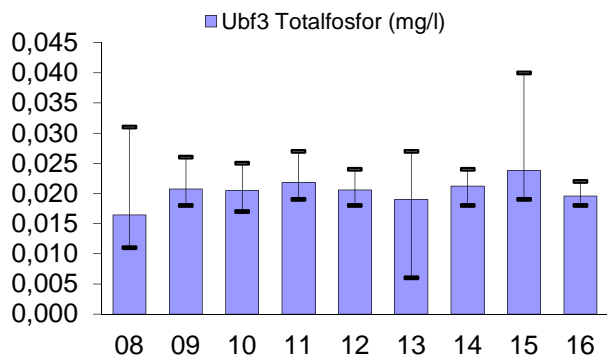
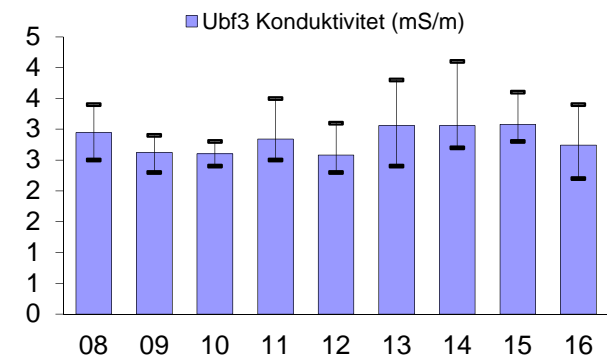
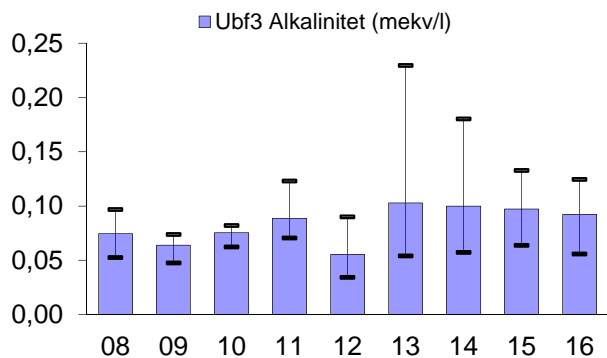
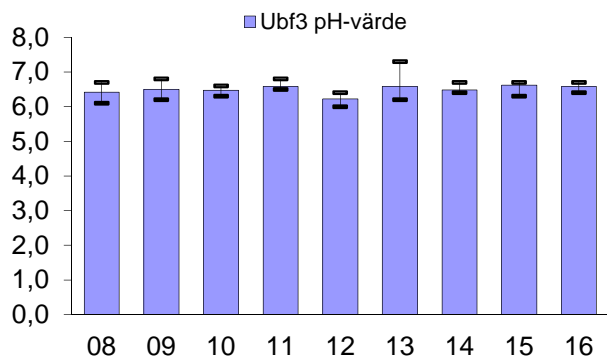
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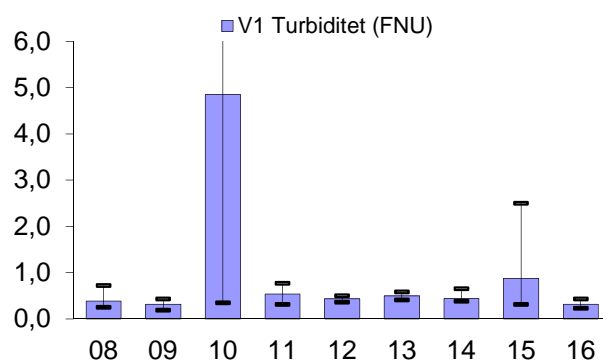
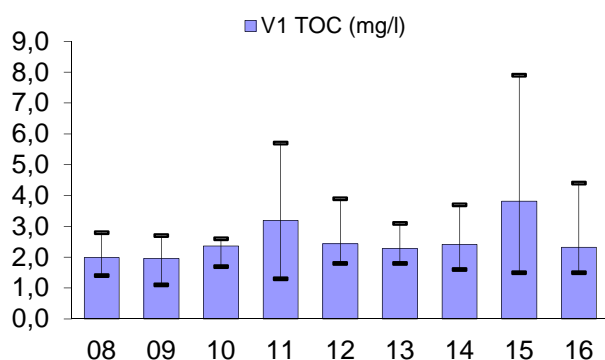
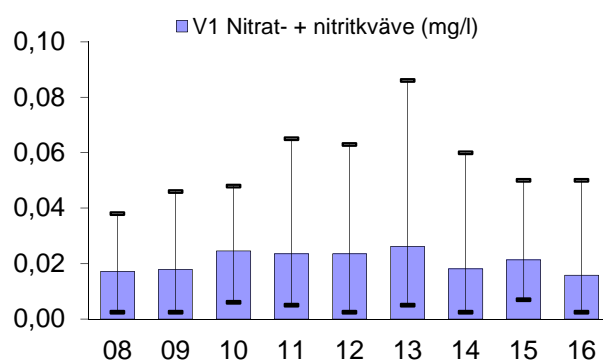
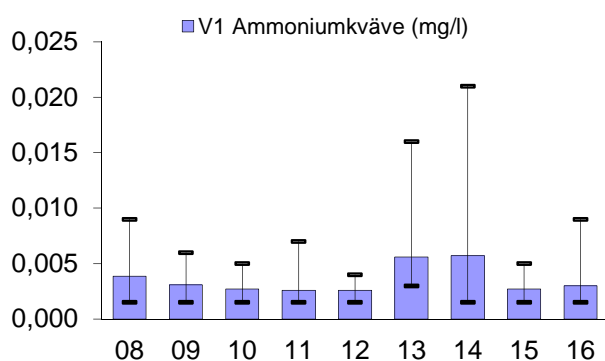
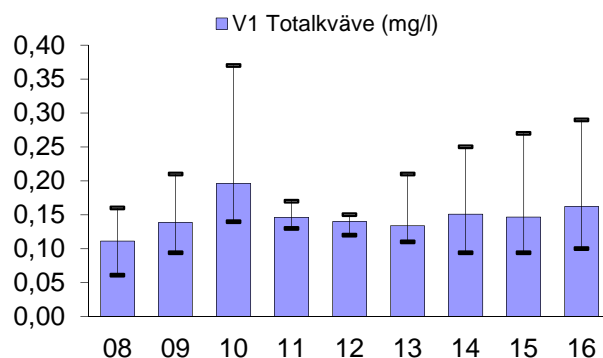
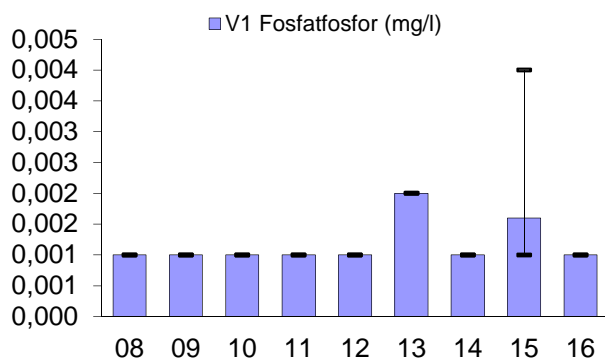
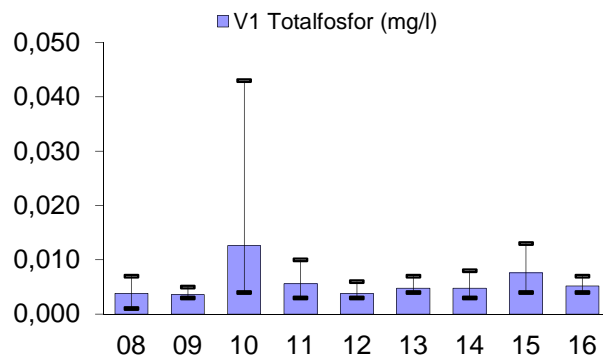
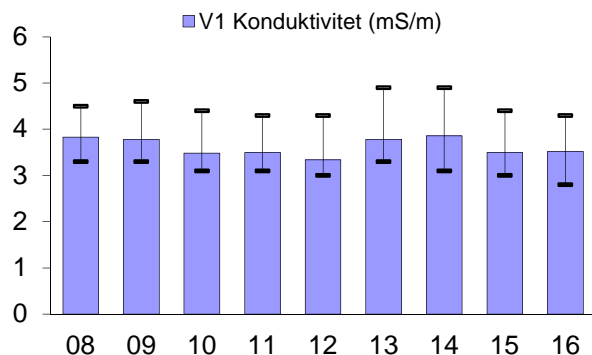
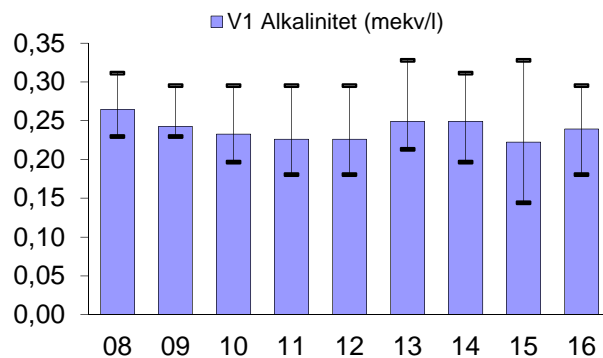
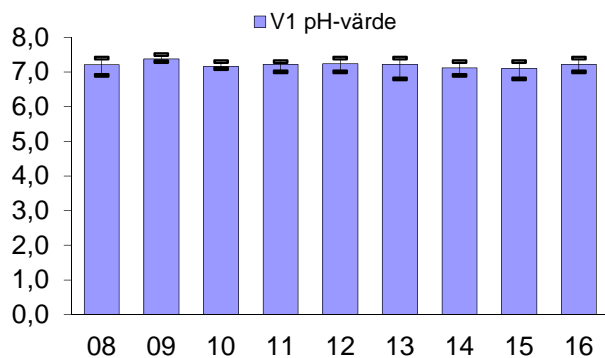
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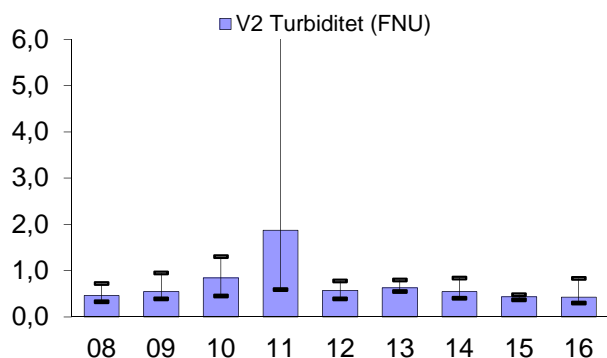
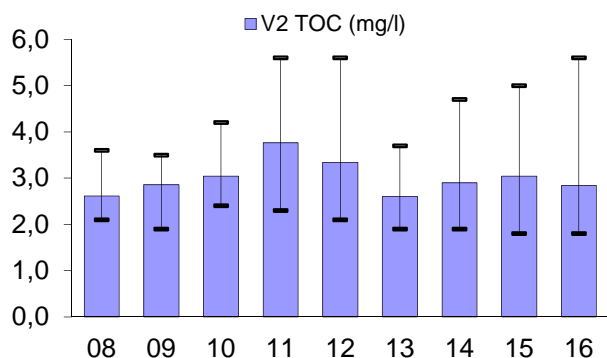
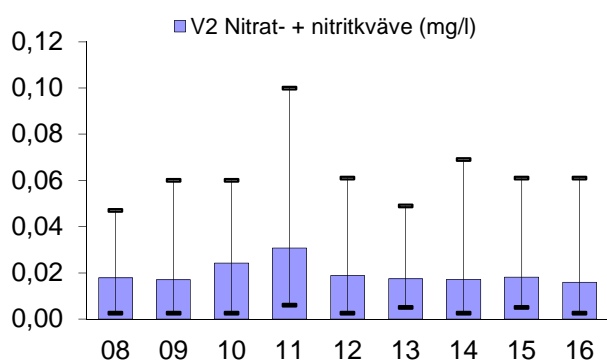
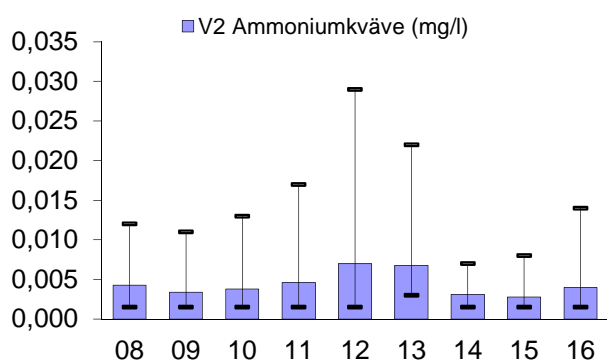
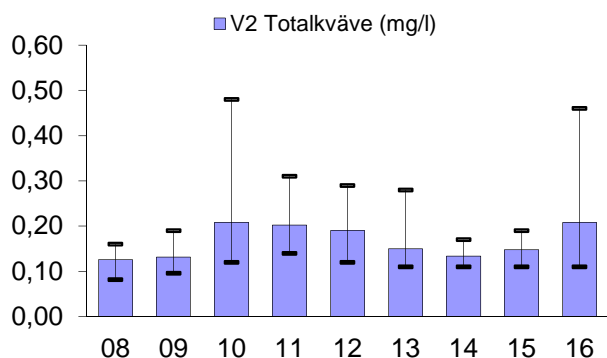
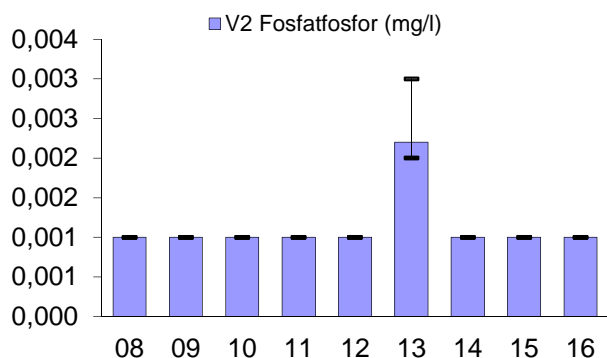
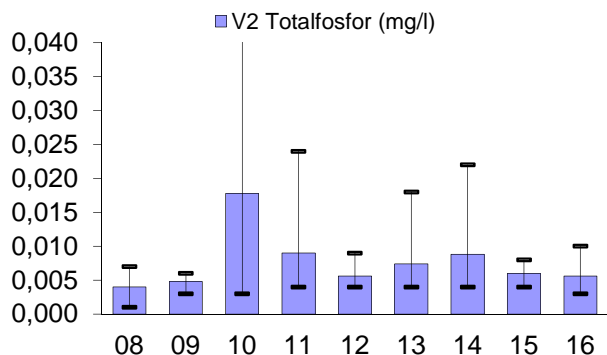
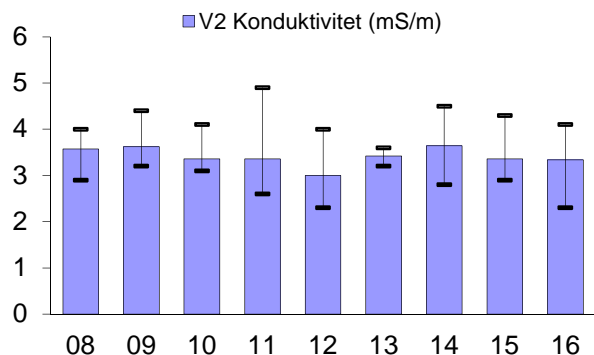
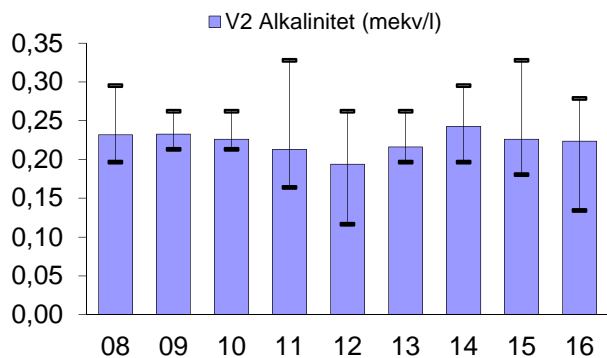
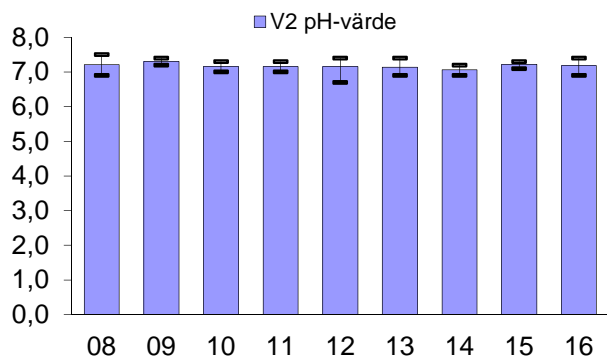
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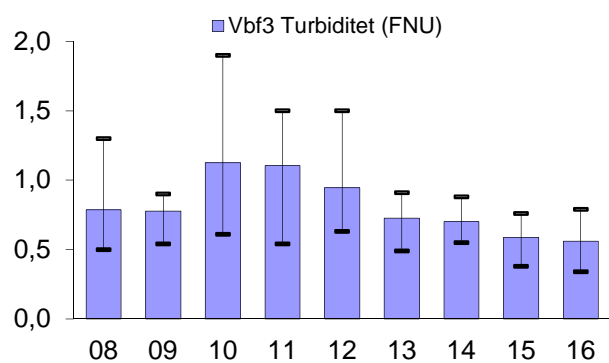
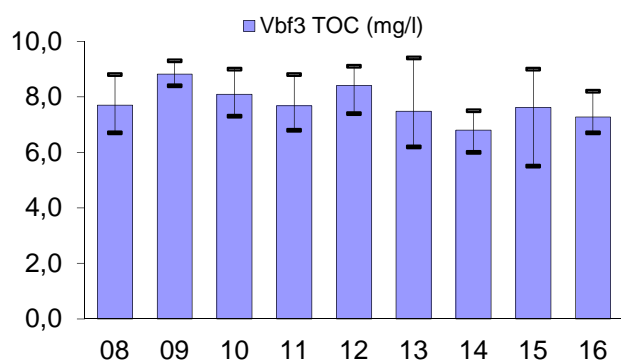
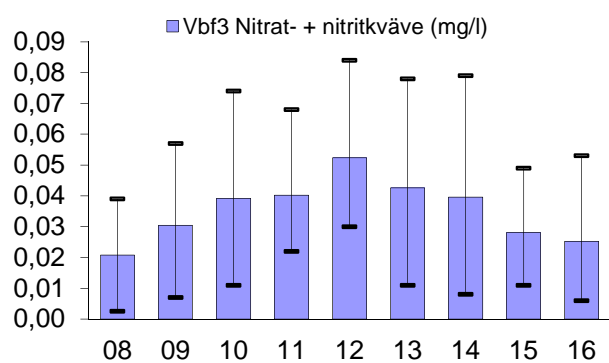
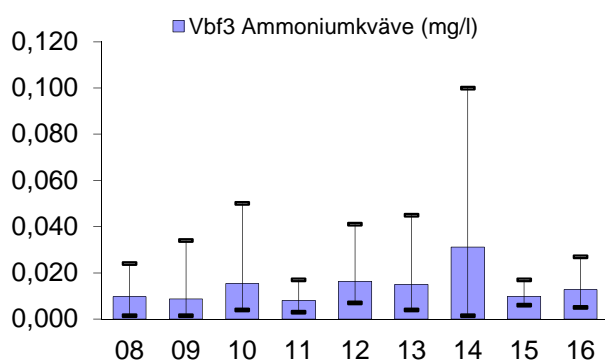
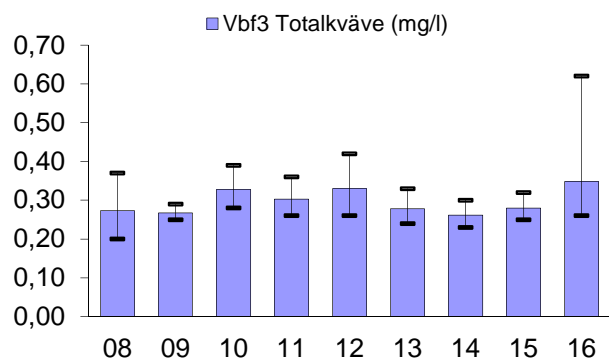
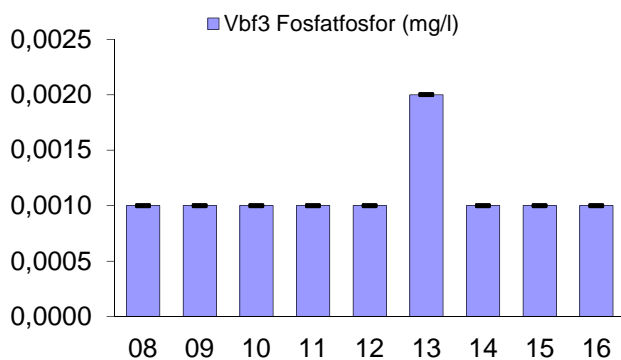
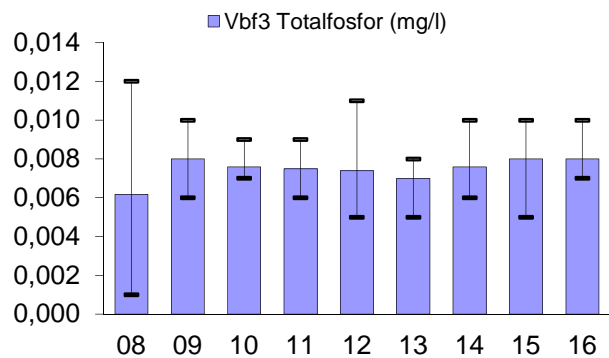
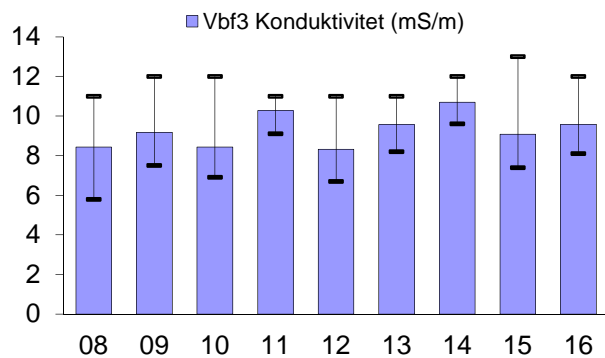
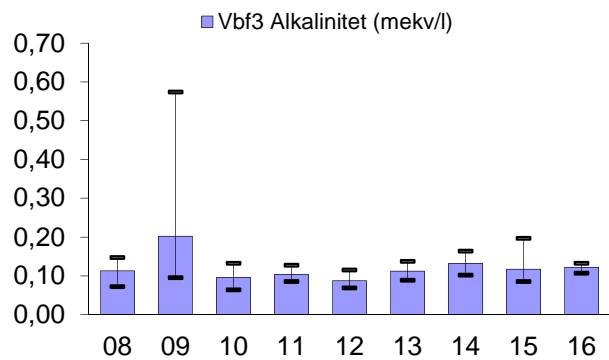
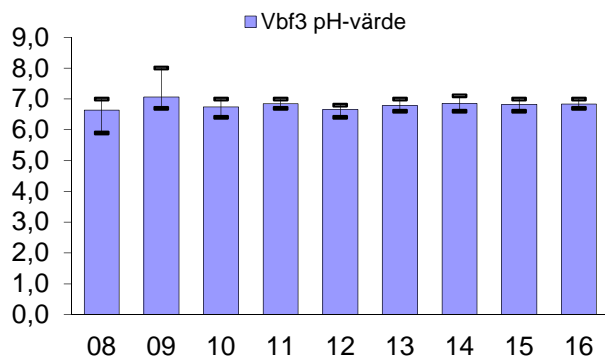
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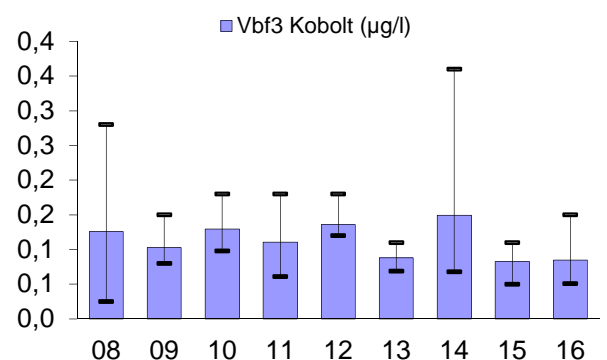
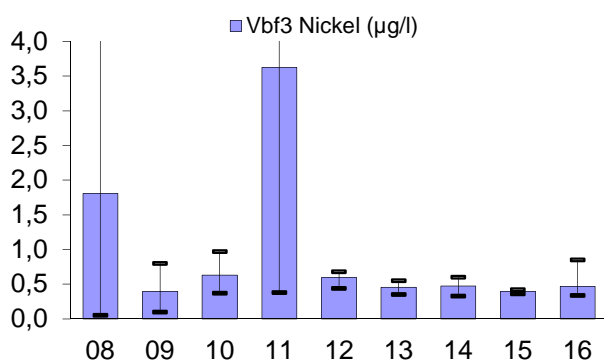
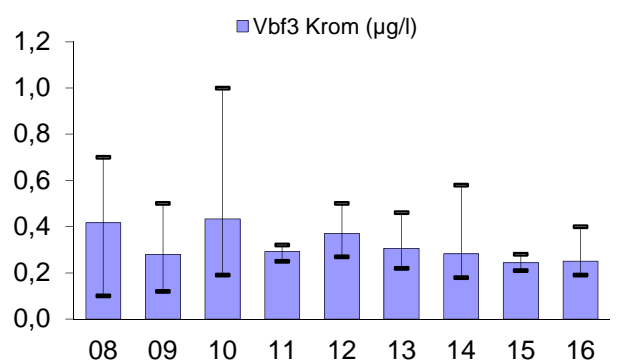
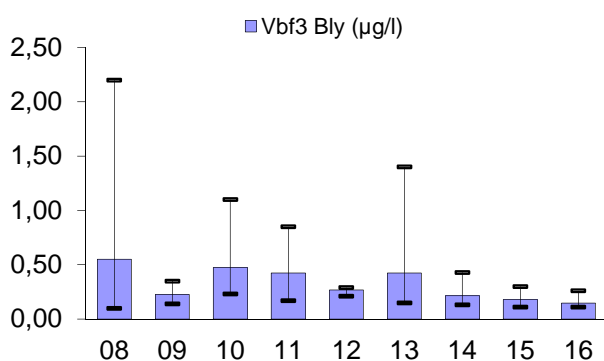
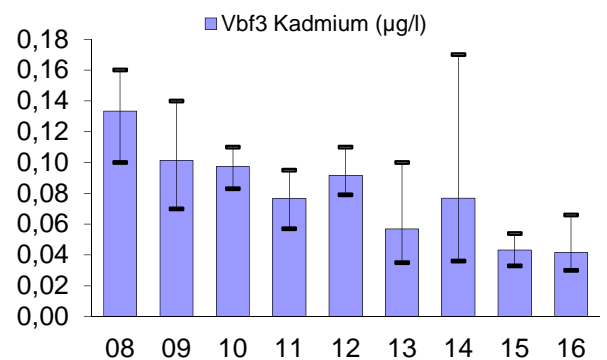
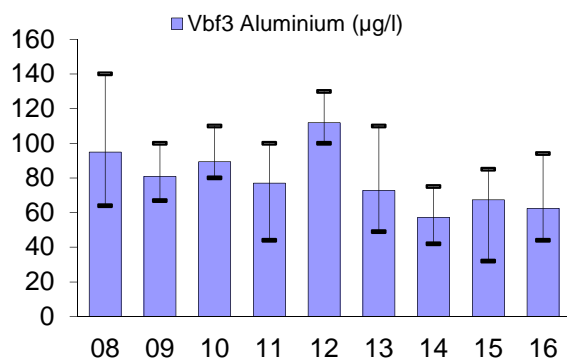
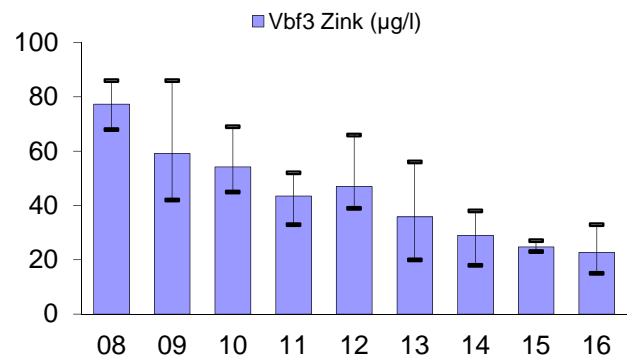
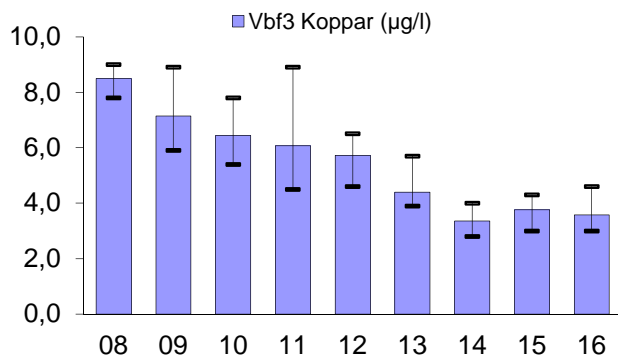
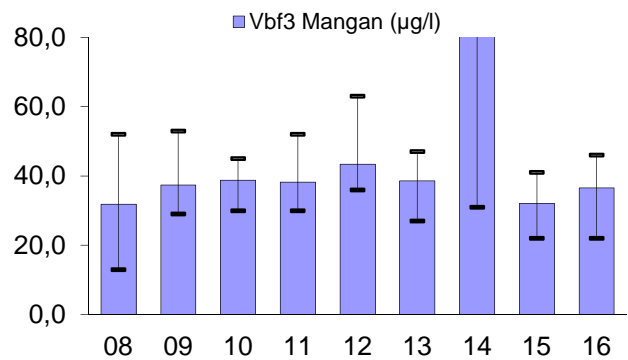
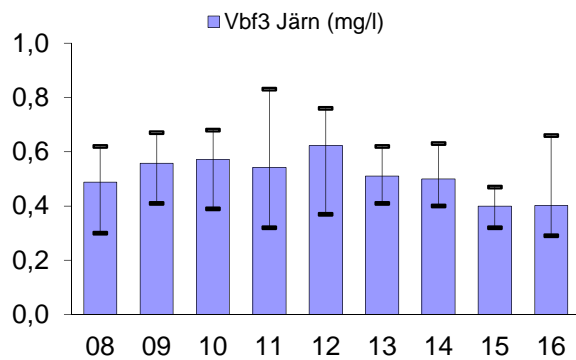


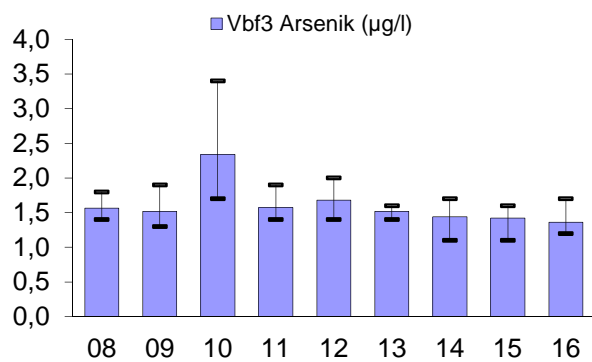
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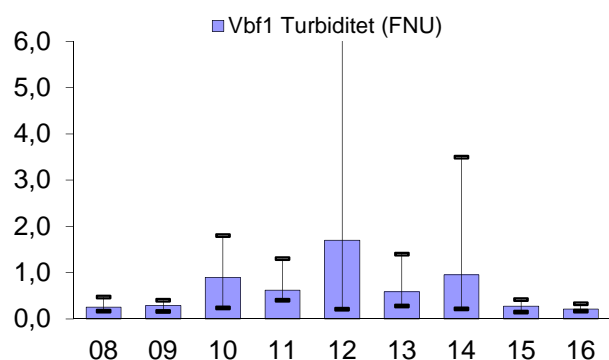
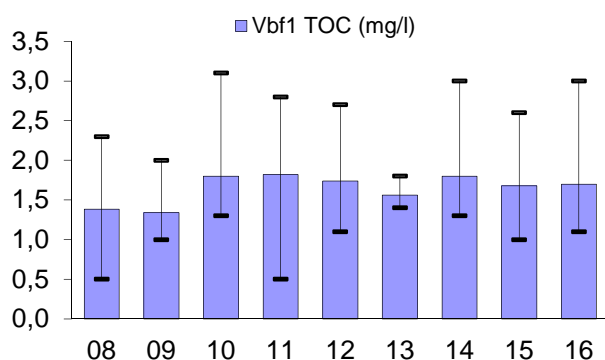
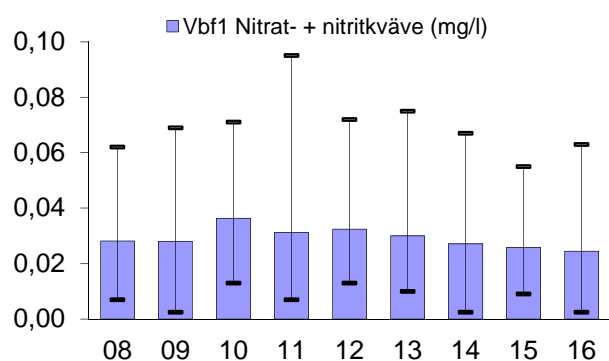
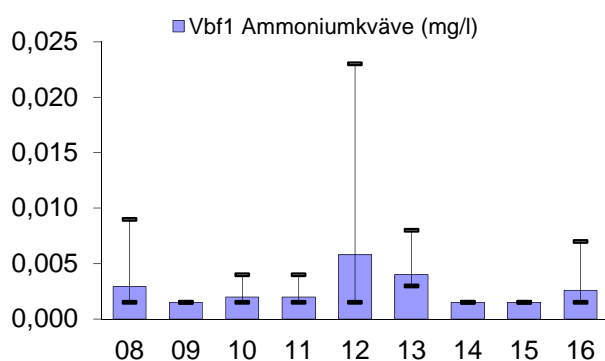
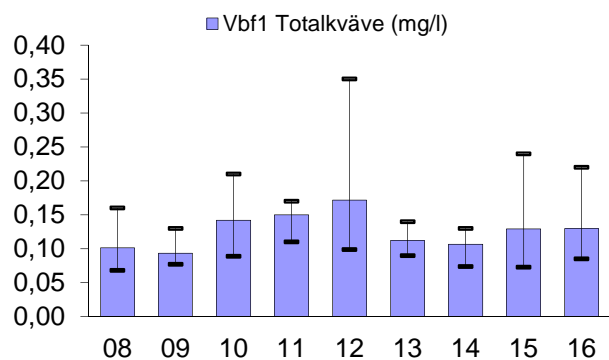
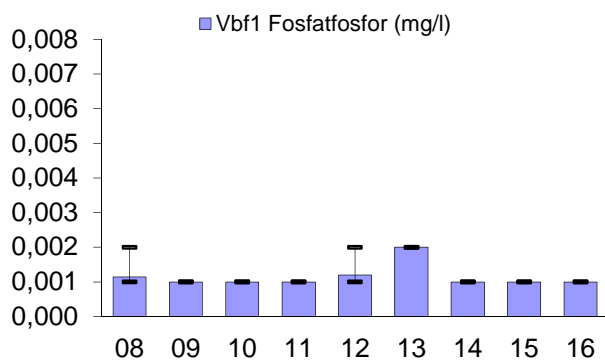
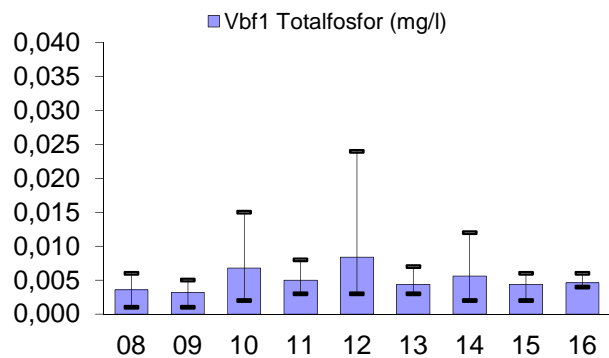
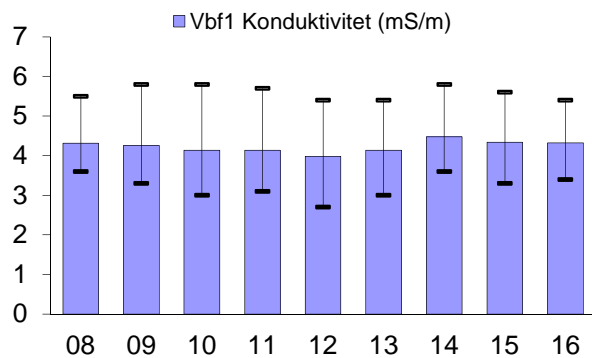
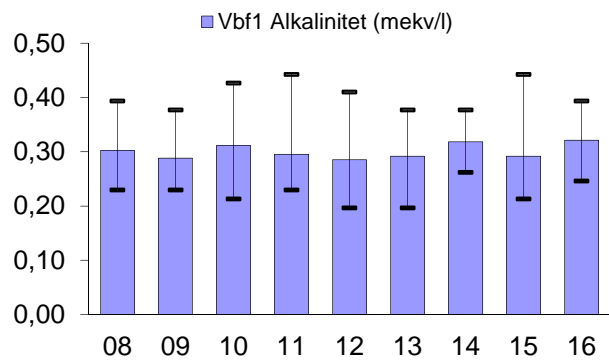
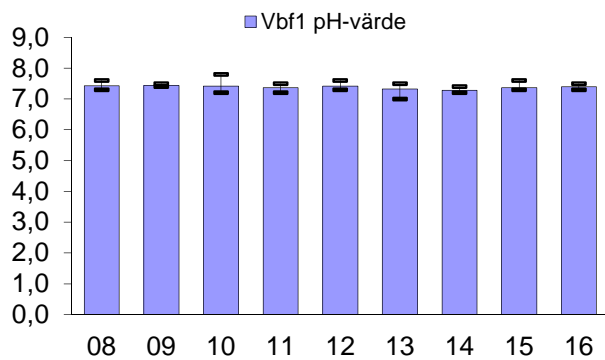




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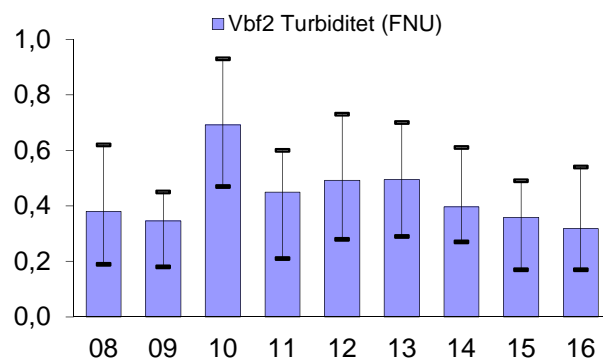
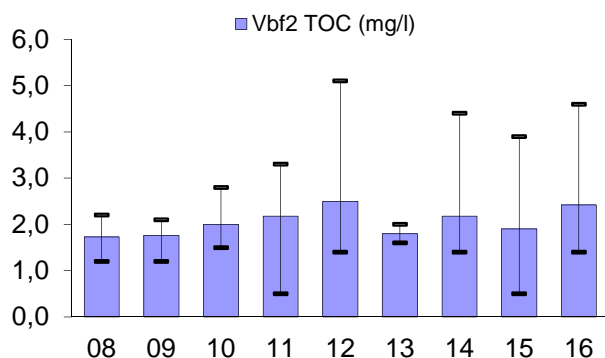
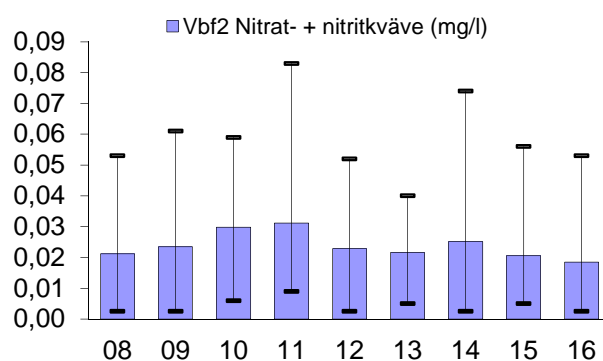
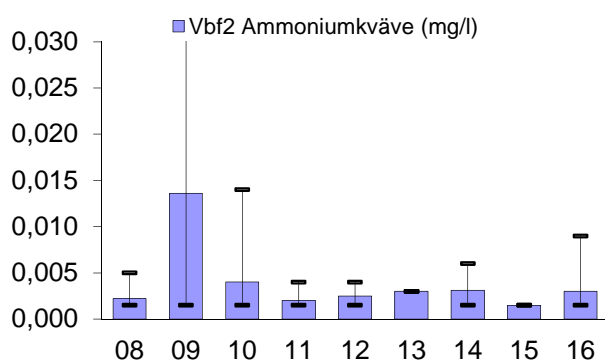
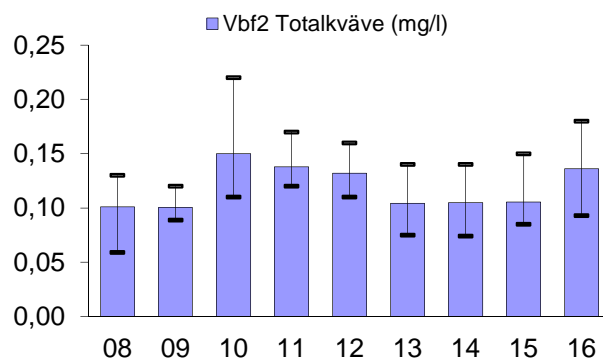
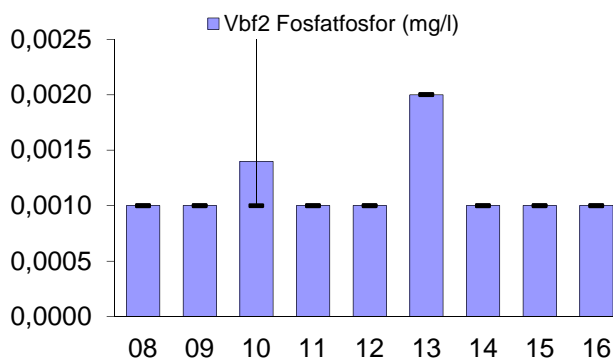
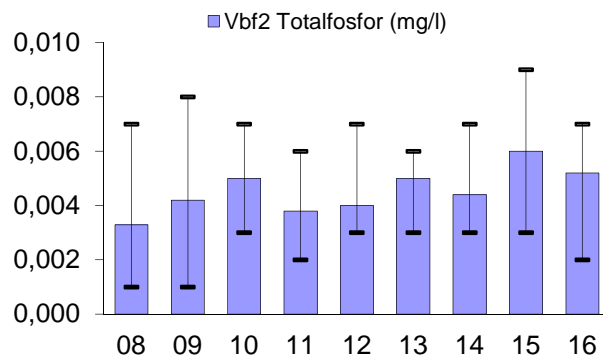
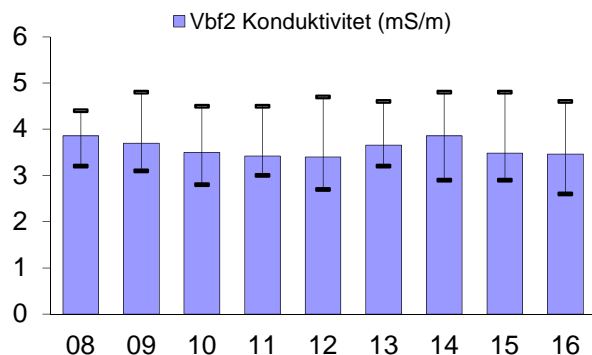
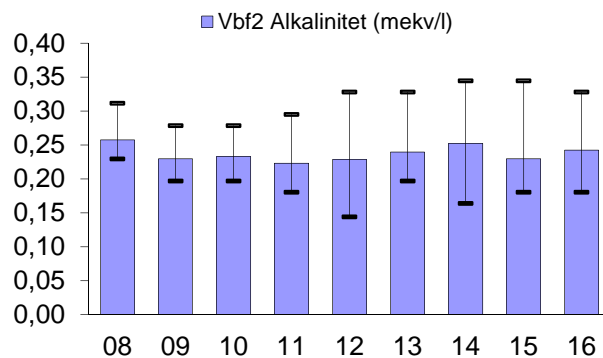
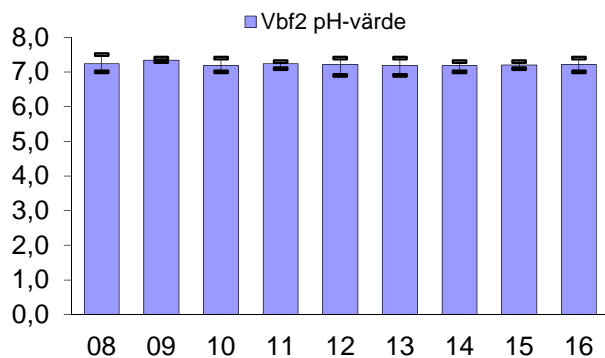
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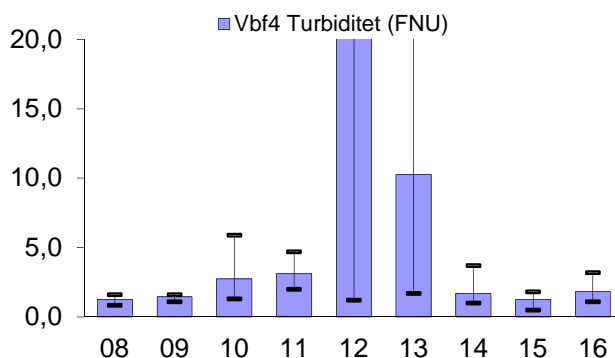
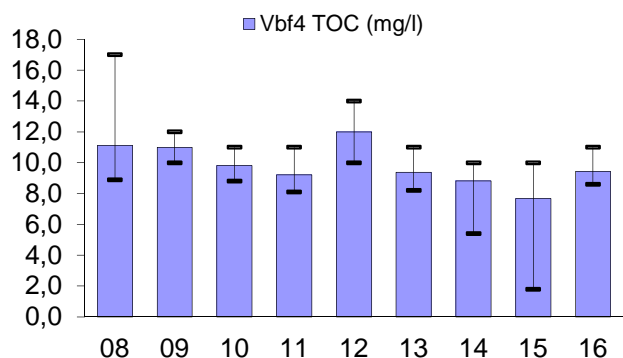
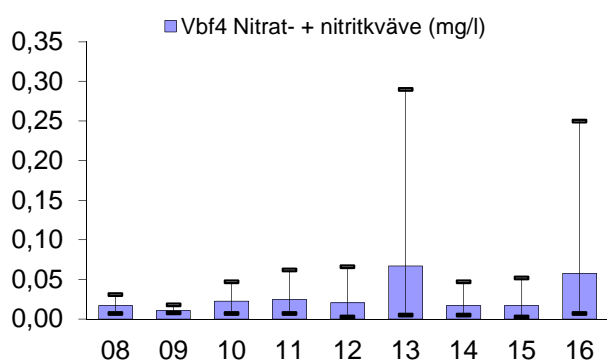
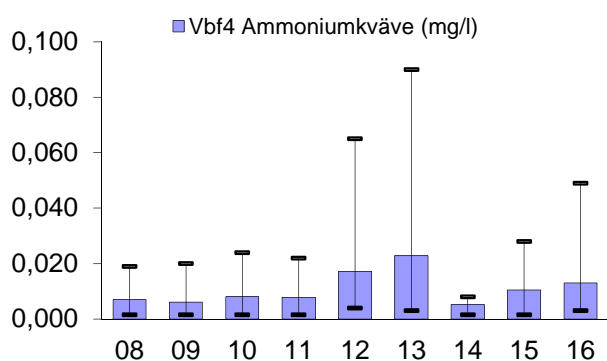
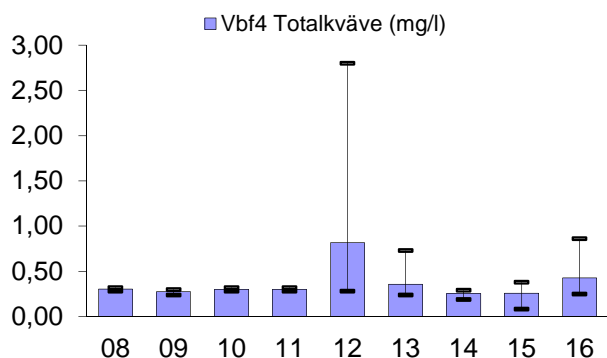
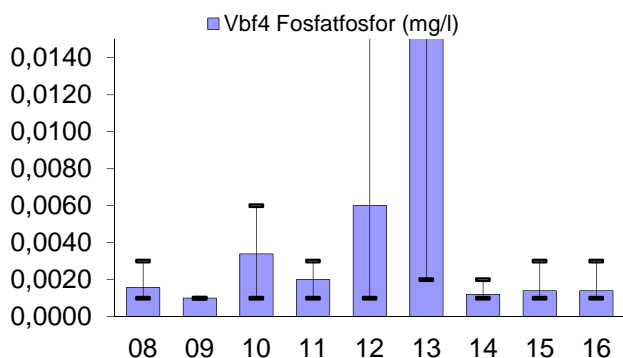
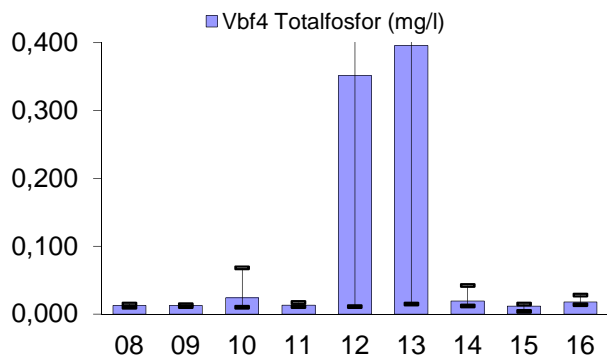
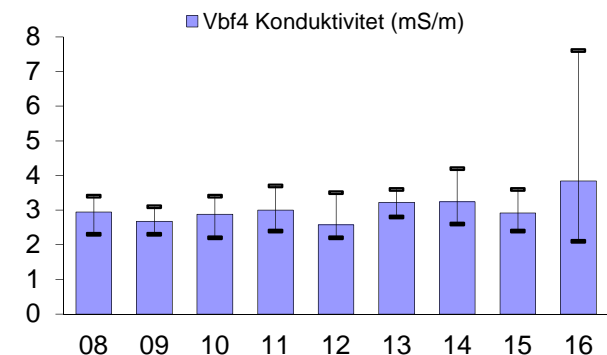
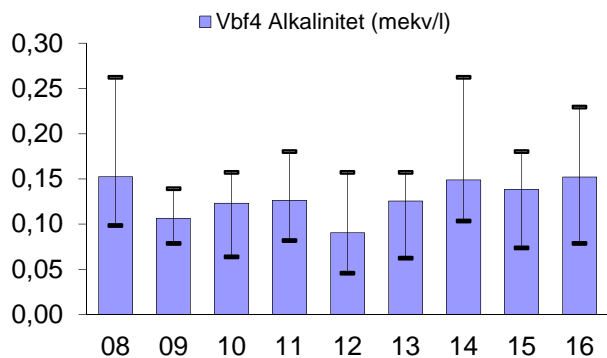
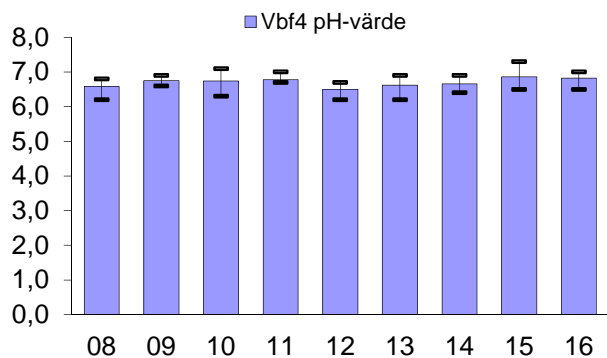
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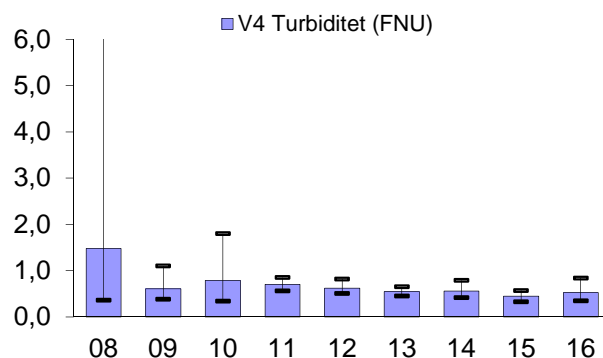
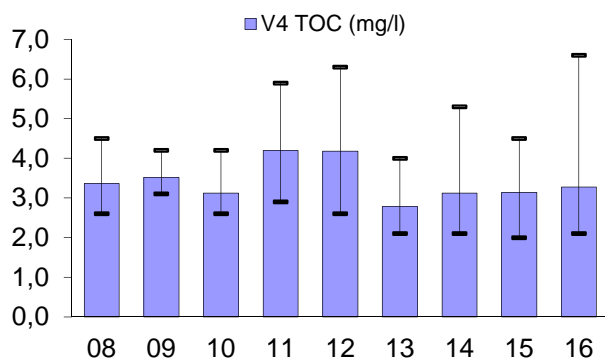
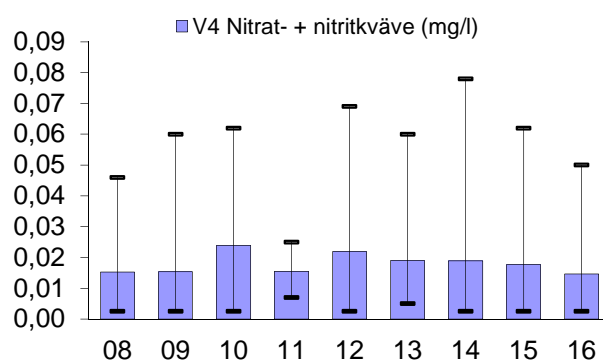
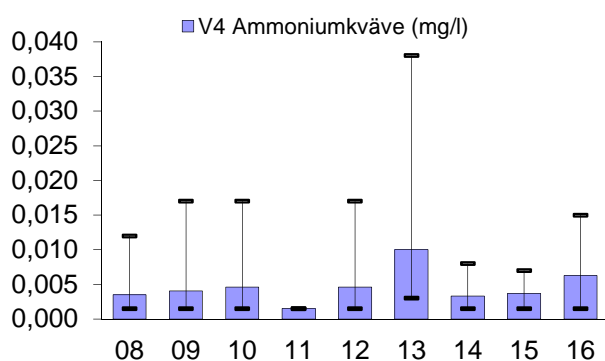
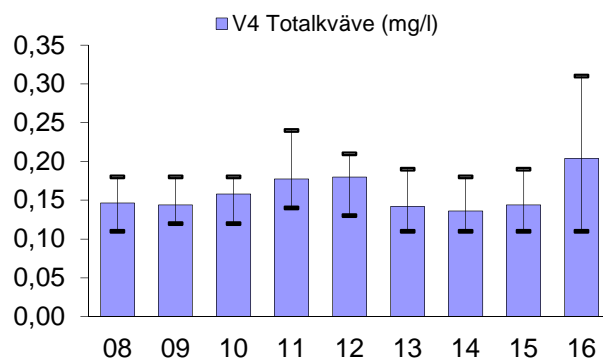
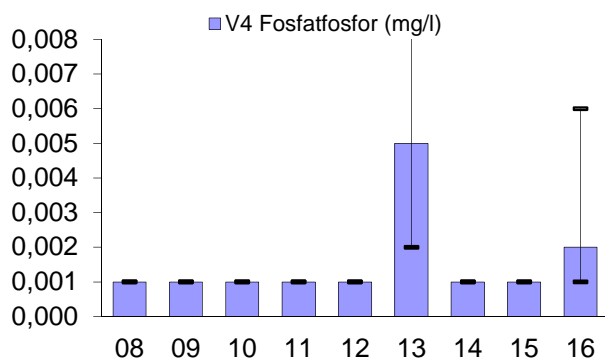
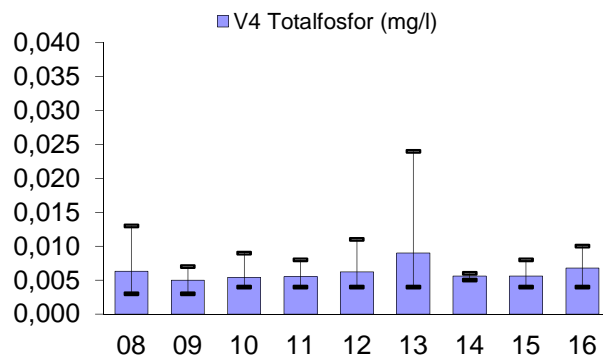
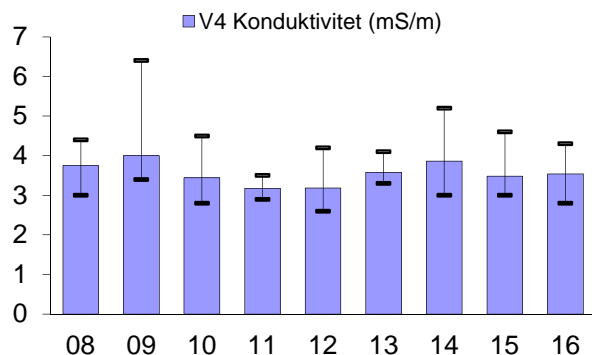
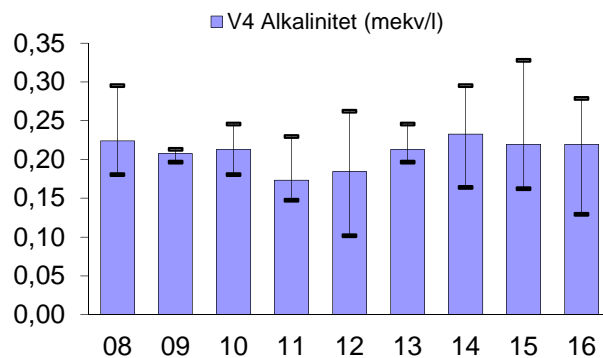
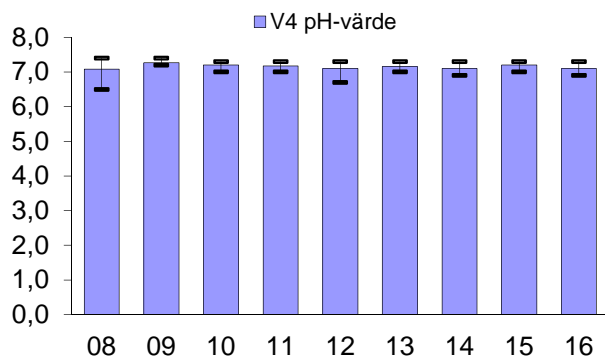
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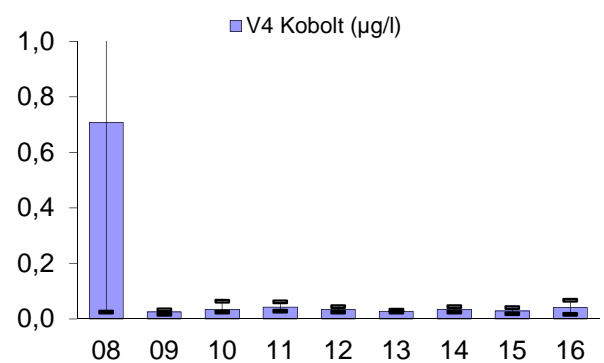
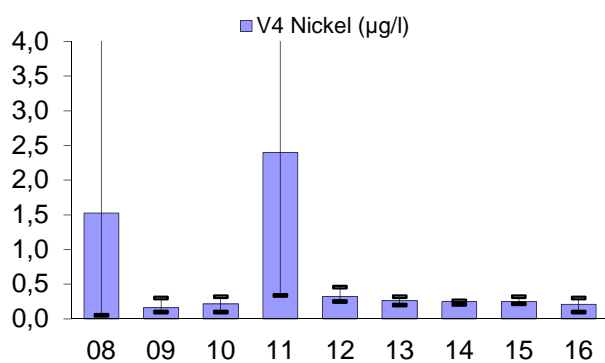
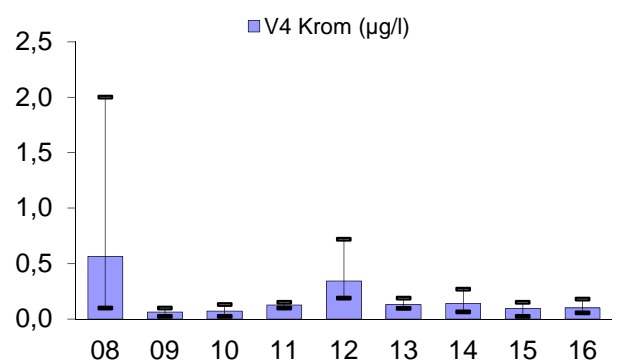
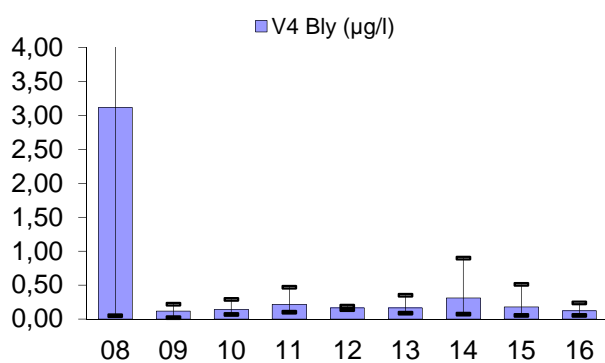
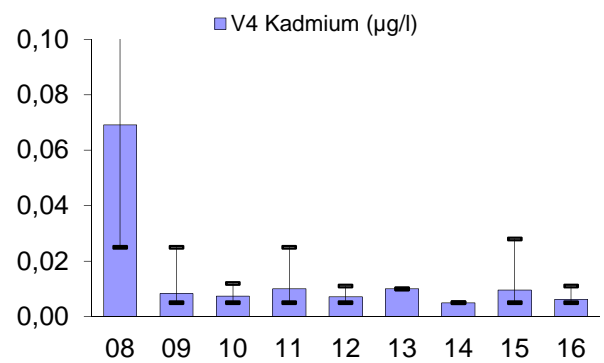
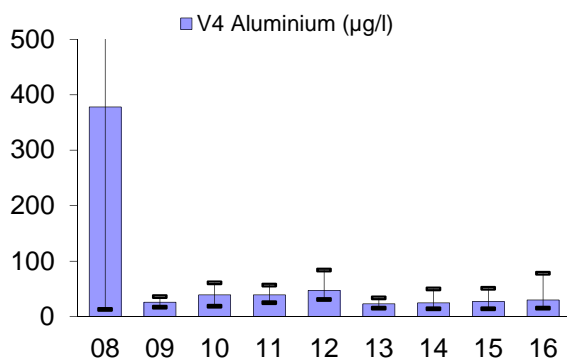
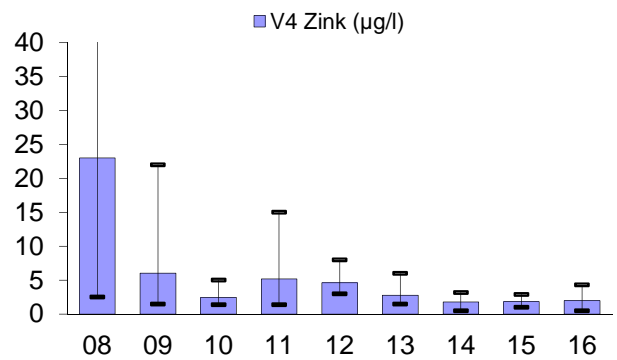
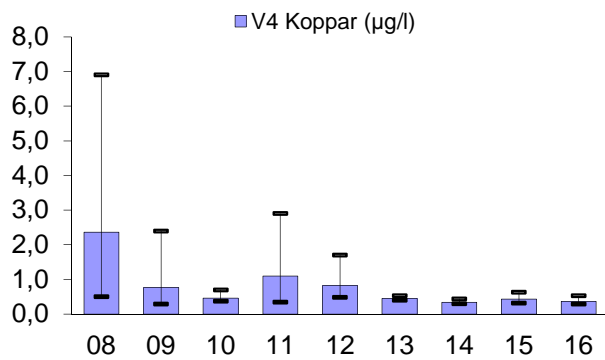
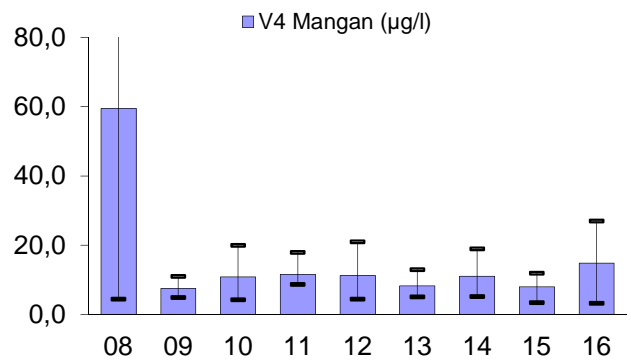
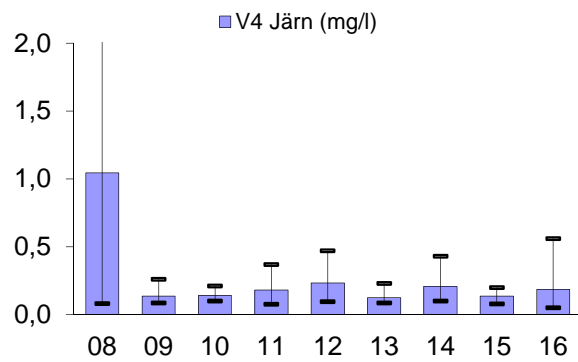


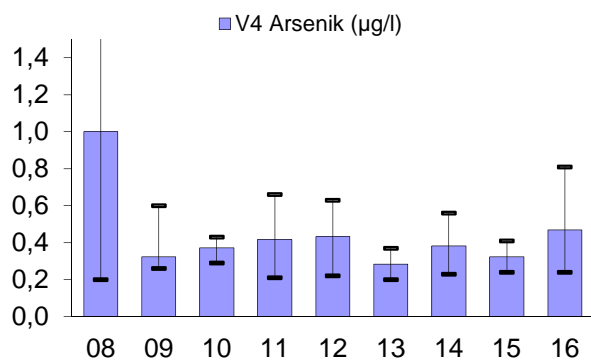
TREND STATISTICS

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Time series	First year	Last Year	n	Mann-Kendall trend			Sen's slope estimate						
				Test S	Test Z	Signific.	Q	Qmin99	Qmax99	Qmin95	Qmax95	B	Bmin99
V4 PH	2008	2016	9	-6			-0,009					7,20	
V4 ALK	2008	2016	9	8			0,001					0,21	
V4 KOND	2008	2016	9	-2			-0,020					3,68	
V4 TOTP	2008	2016	9	13			0,000					0,01	
V4 PO4P	2008	2016	9	9			0,000					0,00	
V4 TOTN	2008	2016	9	3			0,002					0,15	
V4 NH4N	2008	2016	9	9			0,000					0,00	
V4 NO32N	2008	2016	9	-2			0,000					0,02	
V4 TOC	2008	2016	9	-5			-0,026					3,37	
V4 TURB	2008	2016	9	-26		**	-0,058					0,88	
V4 FE	2008	2016	9	-4			-0,002					0,188	
V4 MN	2008	2016	9	-2			-0,125					11,78	
V4 CU	2008	2016	9	-24		*	-0,114					1,2303	
V4 ZN	2008	2016	9	-24		*	-0,759					7,1313	
V4 ALU	2008	2016	9	-8			-2,125					43,25	
V4 CD	2008	2016	9	-15			0,000					0,0101	
V4 PB	2008	2016	9	-2			-0,002					0,1724	
V4 CR	2008	2016	9	0			-0,002					0,1334	
V4 Ni	2008	2016	9	-9			-0,017					0,35	
V4 COB	2008	2016	9	-4			0,000					0,0349	
V4 AS	2008	2016	9	0			-0,005					0,4105	







TREND STATISTICS

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[illegible]

