

NORDJYLLANDS AMT

**MIKE 12 Modelling af Skive Fjord
2002**

**Notat
Maj 2003**

MIKE 12 Modelling af Skive Fjord 2002

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Nordjyllands Amt					3
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1. Indledning

Nærværende projektarbejde udført af DHI på vegne af Nordjyllands Amt omhandler gennemførelse af MIKE 12 beregning for år 2002 for Skive Fjord, beregning af massebalancer samt overførsel af resultater.

Modelberegninger er foretaget med den eksisterende (zeroficeret) MIKE 12 model for Skive Fjord kalibreret for år 2001.

Data til modelafvikling og målinger til sammenligning er leveret af Nordjyllands Amt.

Nærværende notat indeholder en kort præsentation af resultater fra modelkørslen for år 2002.

2. Modelopsætning år 2002

Modelopsætningen for år 2002 med MIKE 12 modellen Skive Fjord er baseret på data modtaget elektronisk fra Nordjyllands Amt omhandlende:

- Vandstandsvariation, beliggenhed af skilleflade
- Salinitet og temperatur
- Ferskvandstilførsel
- Vind
- Belastning vandløb, punktkilder og diffuse kilder (samlet i vandløbsbelastning)
- Lysindstråling
- Målinger fra stationerne 3727 og 3728 (til sammenligninger mellem målte og beregnede værdier)

Diverse drivdata til modellen i form af MIKE Zero og MIKE 12 system filer er blevet oprettet, så perioden 1/1-31/12 2002 dækkes af samtlige drivdata. Systematik og navngivning er som for modelopsætningen for 2001 beskrevet i /1/.

Følgende bemærkninger kan knyttes til arbejdet udført i forbindelse med år 2002 opsætningen:

- Hvalpsund randen: Temperatur, salt og ilt for top og bund er valgt ud fra datasættet modtaget i "profilmålinger 2002.xls"
- Hvalpsund randen: Værdier til øvrige modelkomponenter i vandfasen er hentet fra "vandkemi 2002.xls", station 3726-1
- NO₃-N og NH₄-N ved Virksund randen er sat til 96% og 4% af uorganisk N
- Øvrige rande: Baseret på data hentet fra "belastningdata 2002.xls"
- Målinger til sammenligning mod modelresultater: Hentet fra "vandkemi 2002.xls", Skive Fjord og Lovns Bredning

Modelopsætningen for år 2002 leveres digitalt til Nordjyllands Amt sammen med nærværende notat.

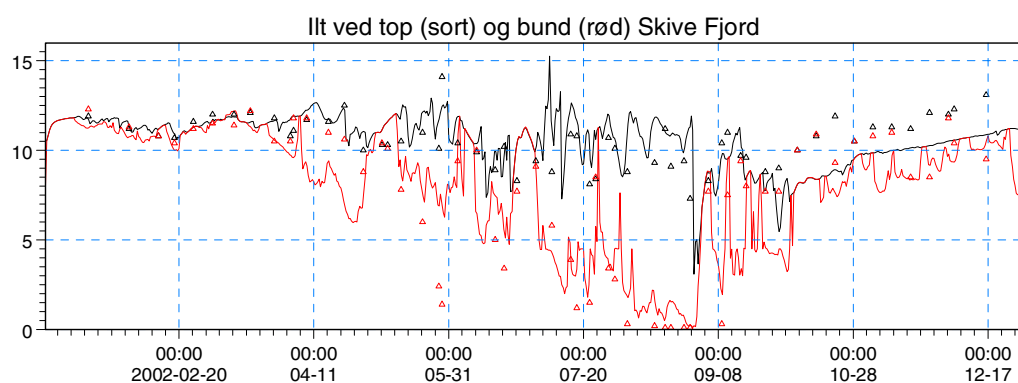
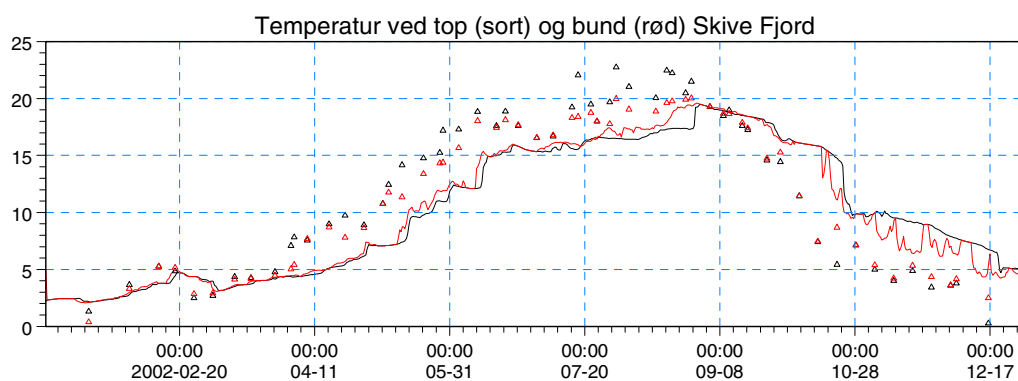
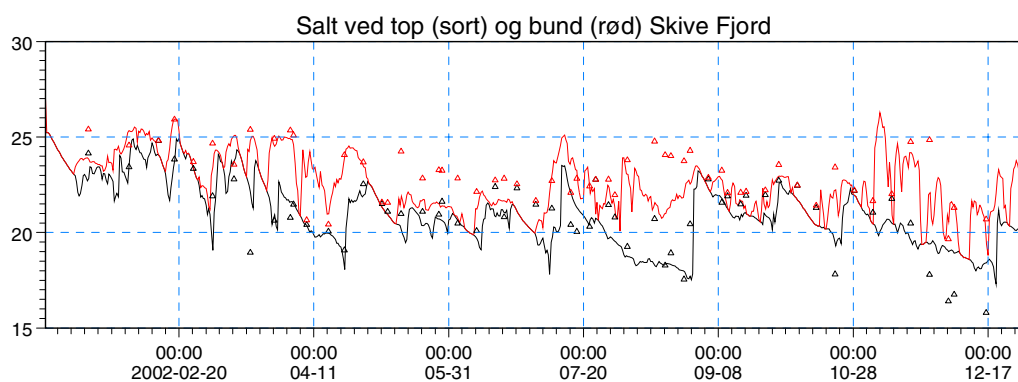


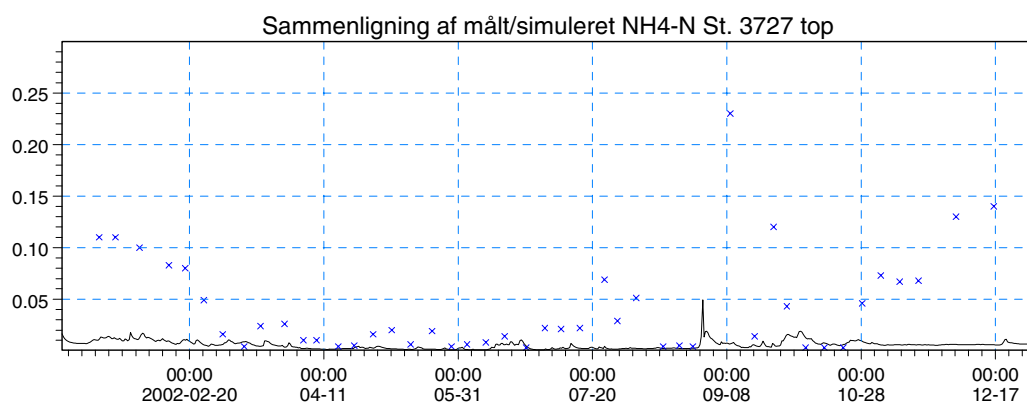
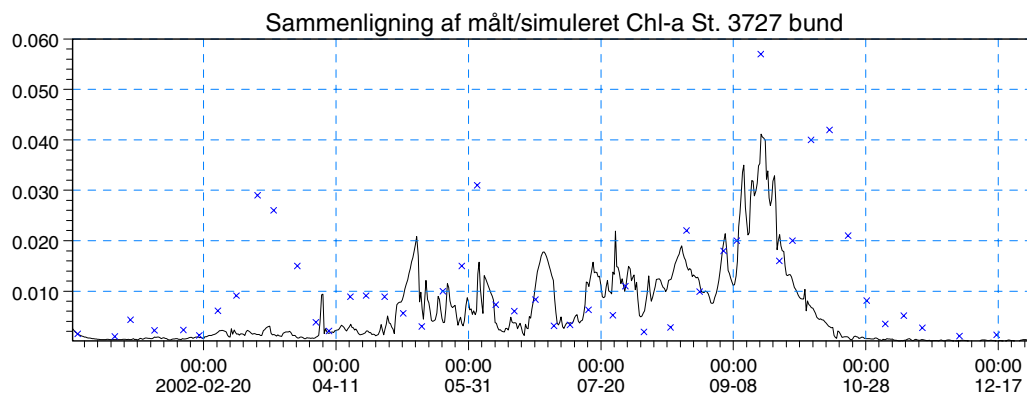
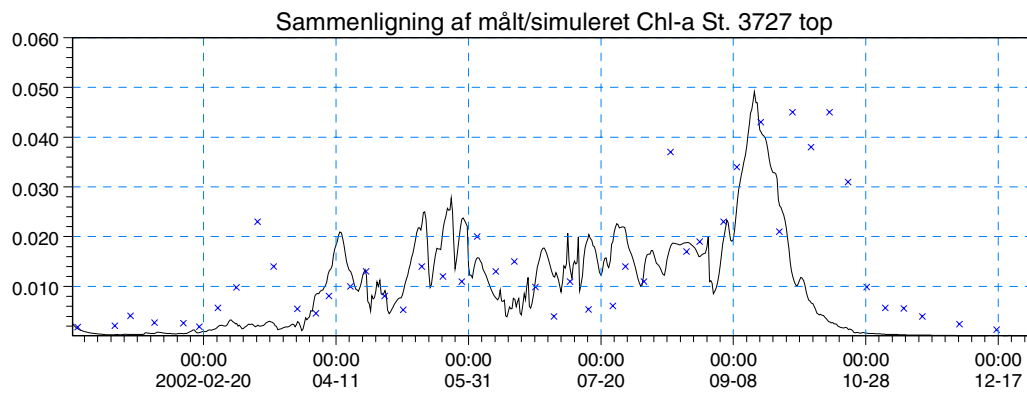
3. Resultater

Afvikling af modellen er baseret på indlæggelse af ovenstående drivdata for år 2002 uden ændringer i modelparametre, initialbetingelser osv.

Plot præsenteret i det efterfølgende, der viser sammenligninger mellem målte og beregnede værdier for station 3727 (Skive Fjord) og 3728 (Lovns Bredning), kan således betragtes som en validering af modelkalibreringen baseret på 2001 data.

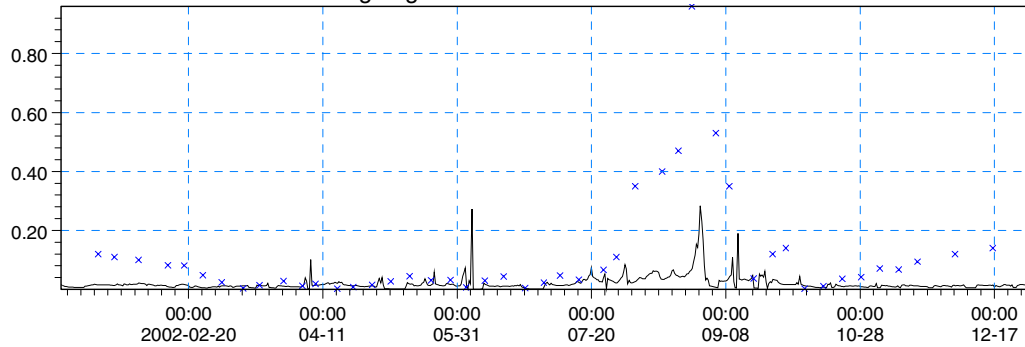
Skive Fjord Station 3727



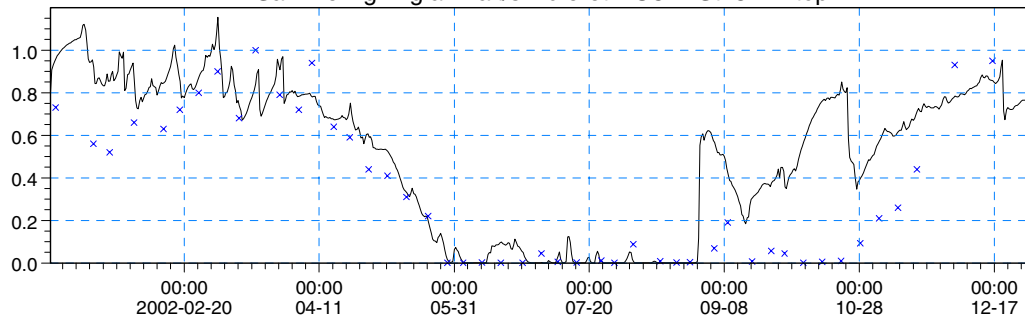




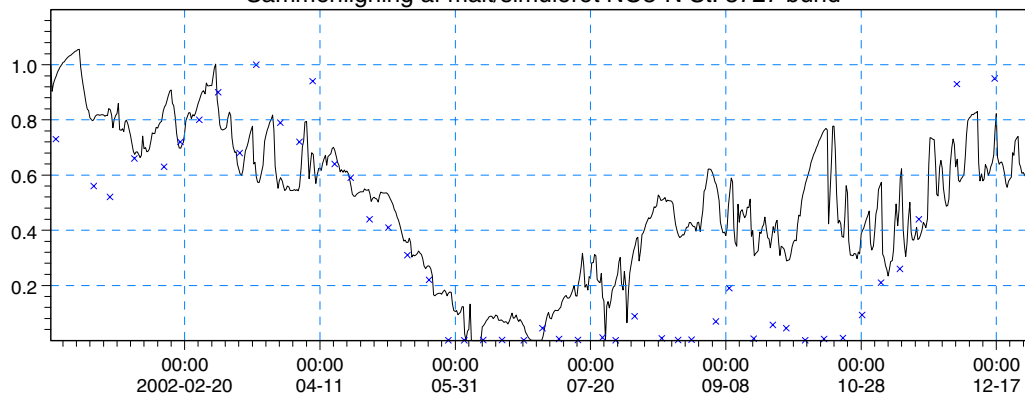
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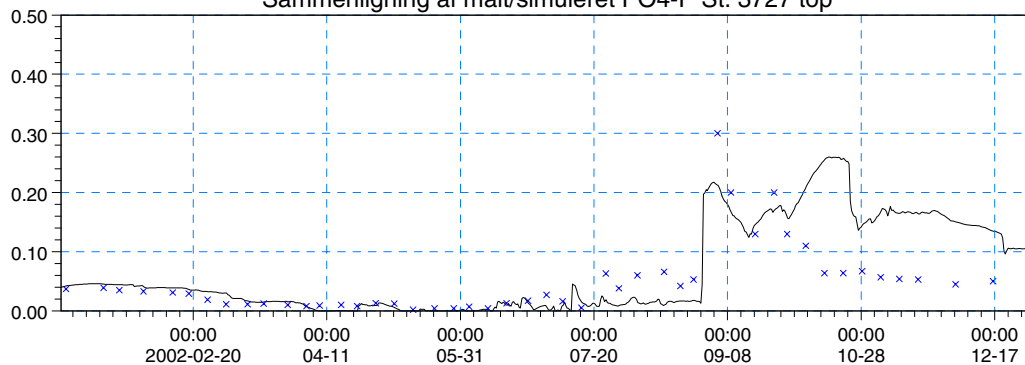
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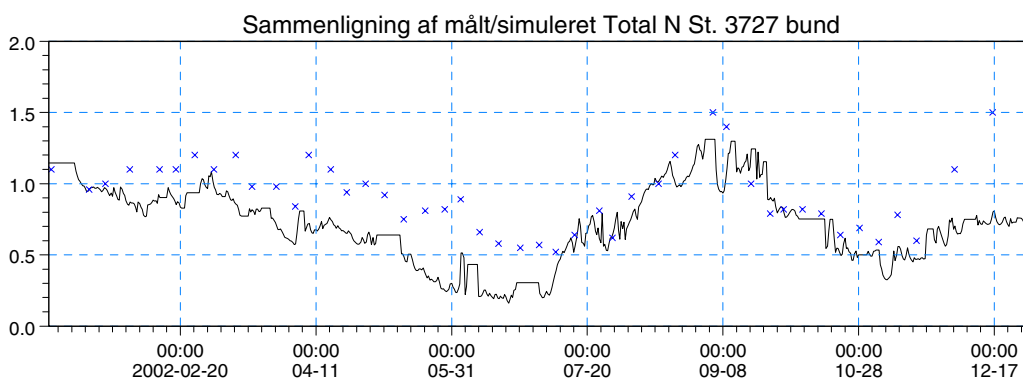
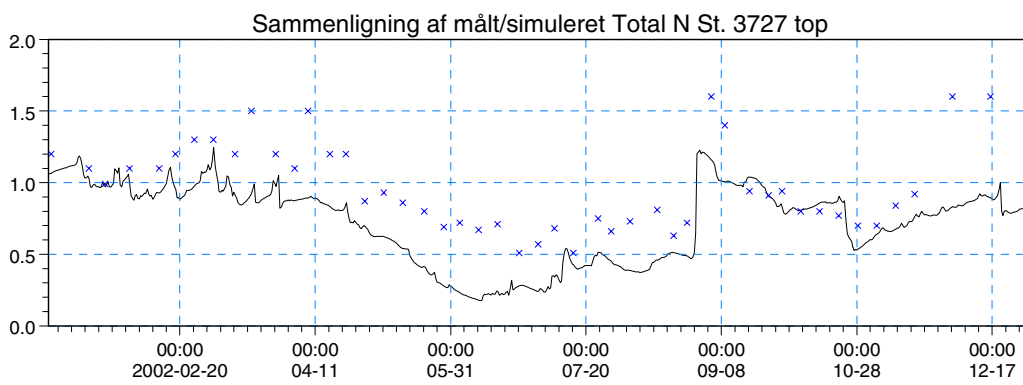
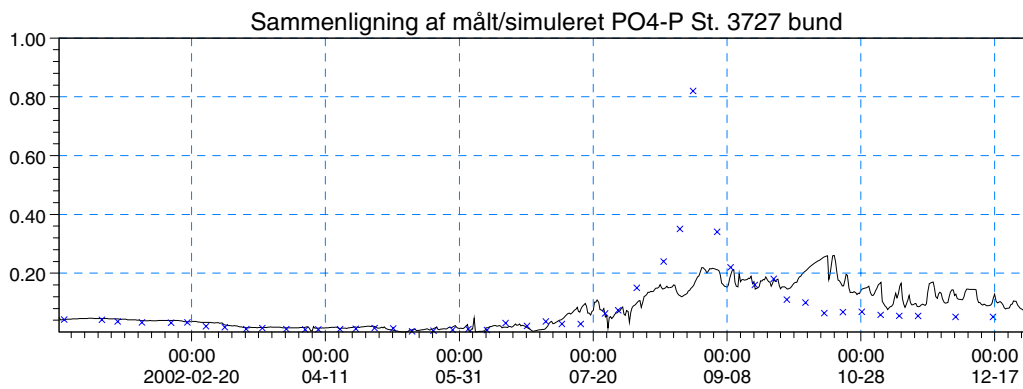


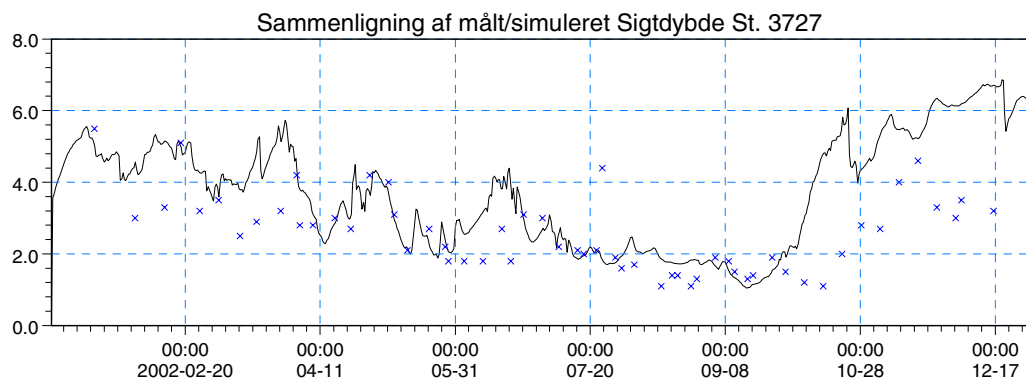
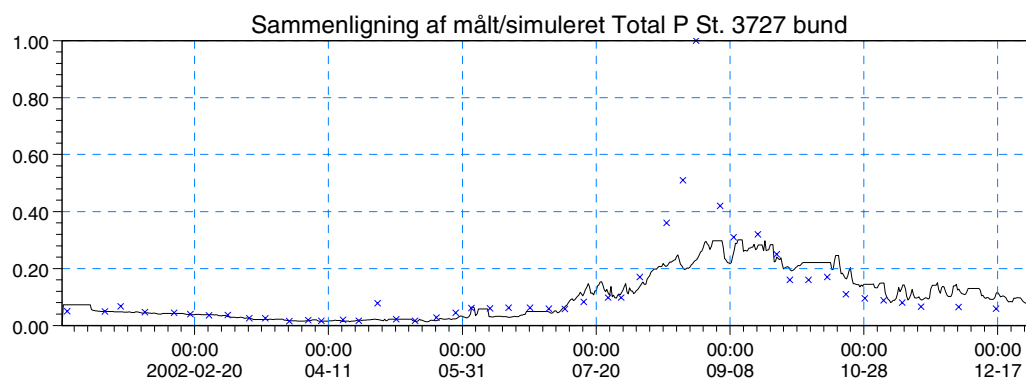
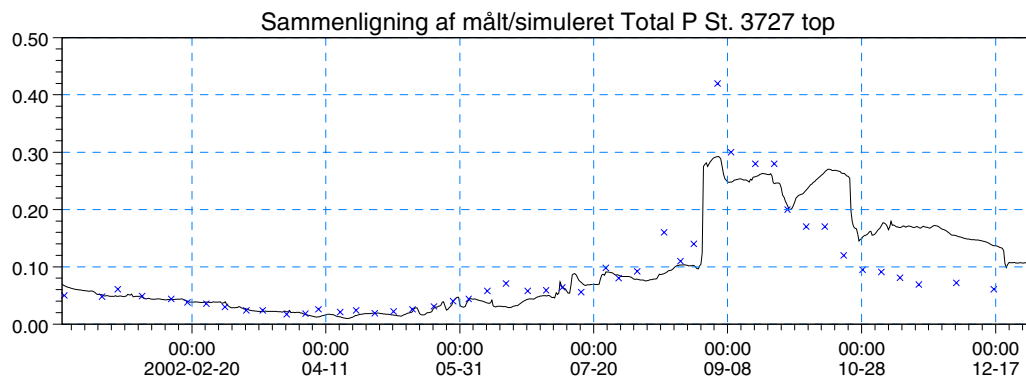
Sammenligning af målt/simuleret NO3-N St. 3727 bund



Sammenligning af målt/simuleret PO4-P St. 3727 top

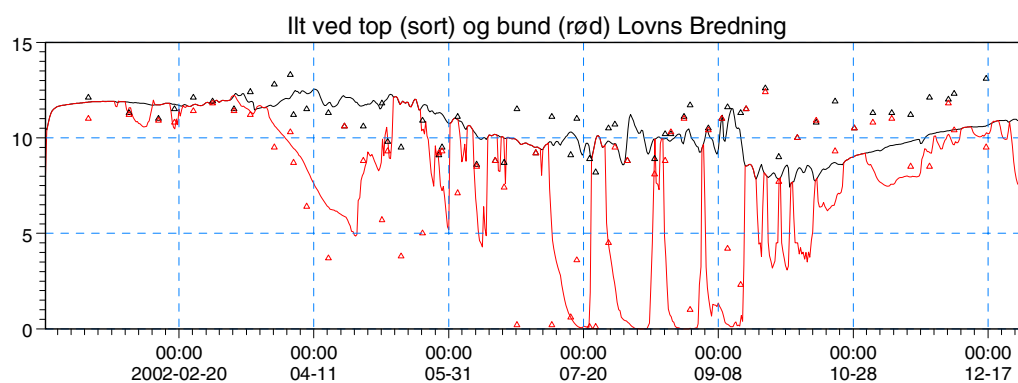
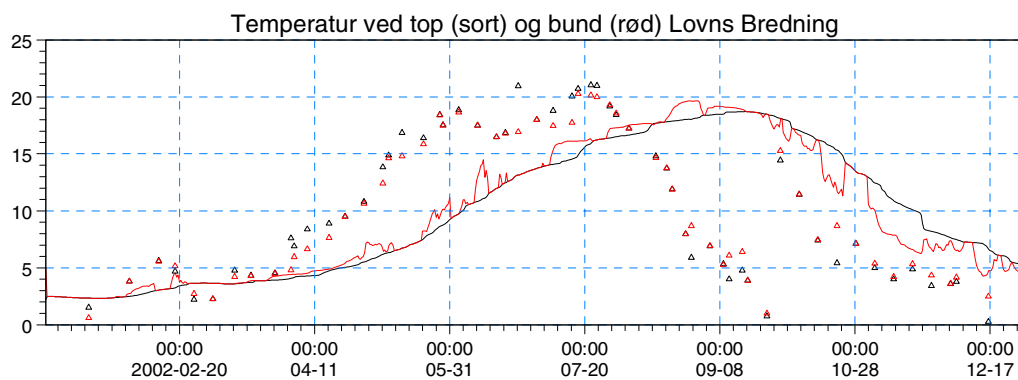
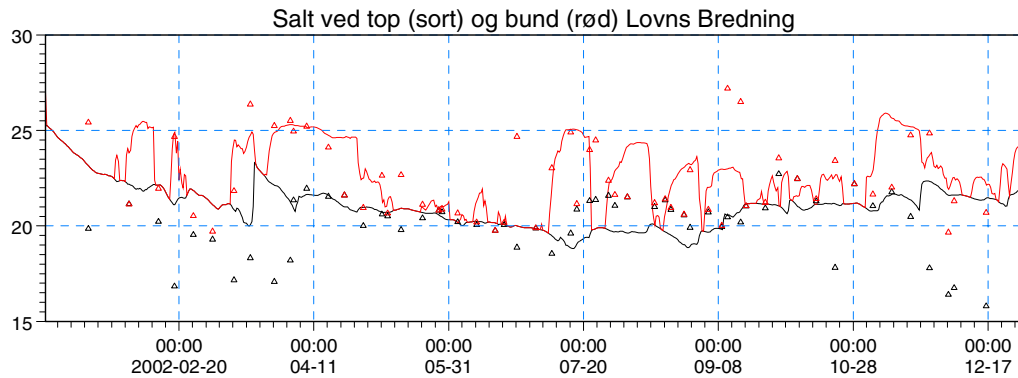


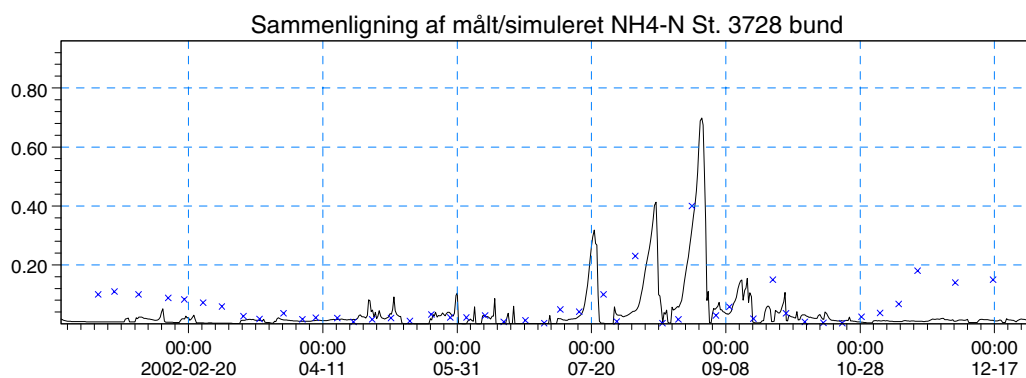
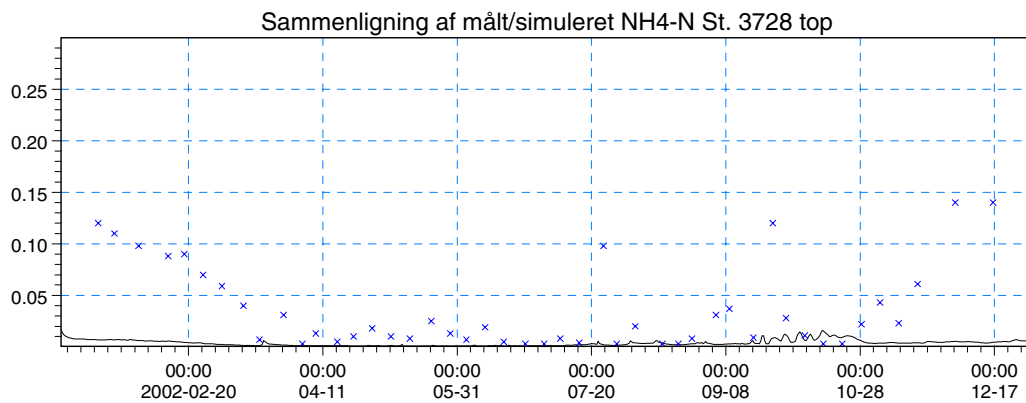
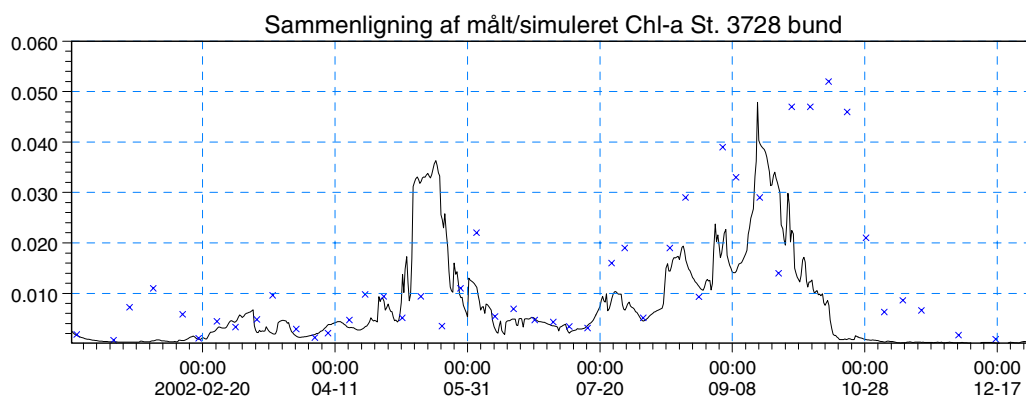
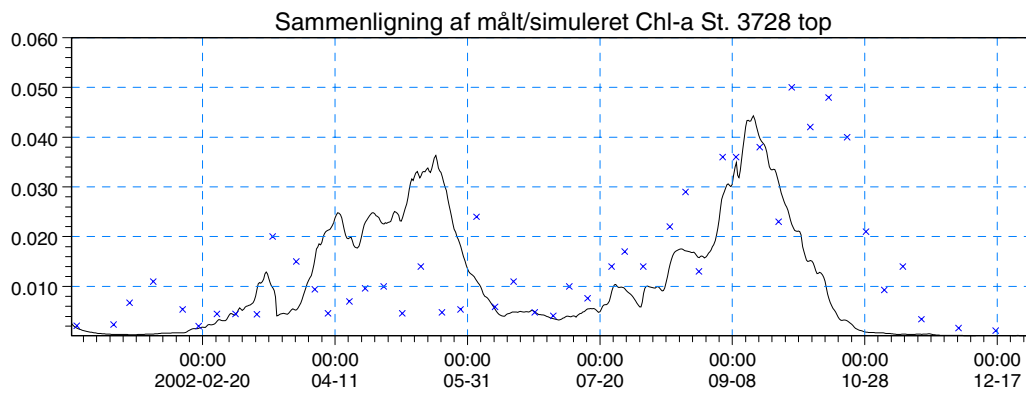


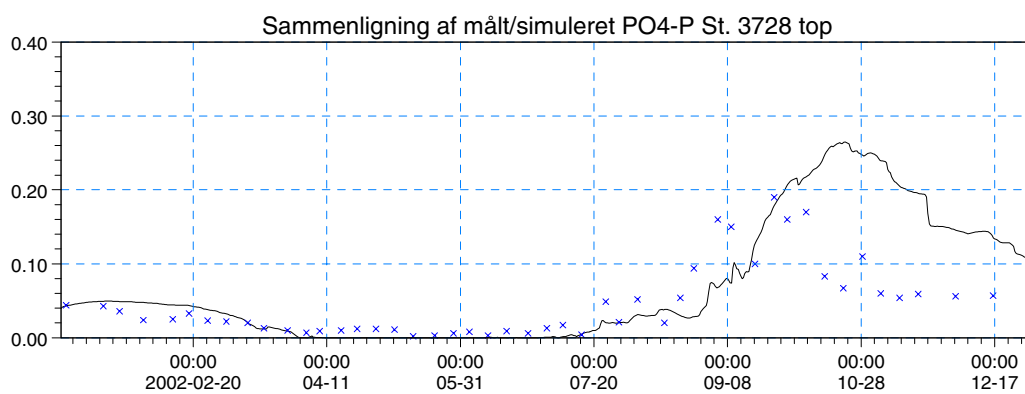
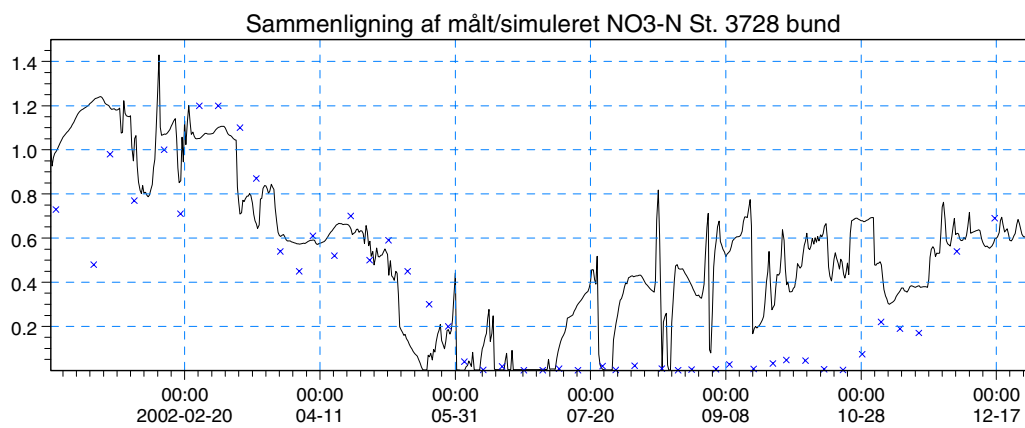
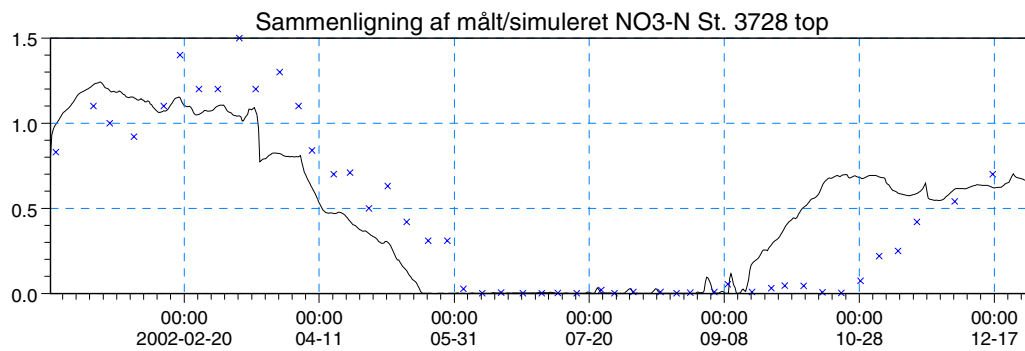


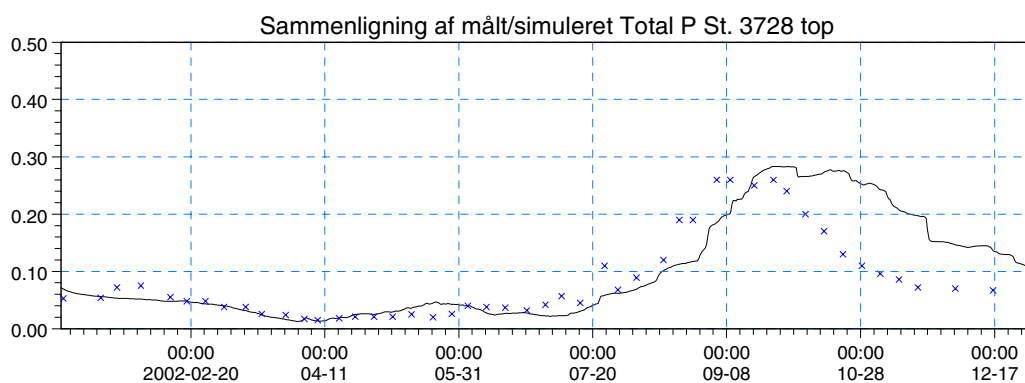
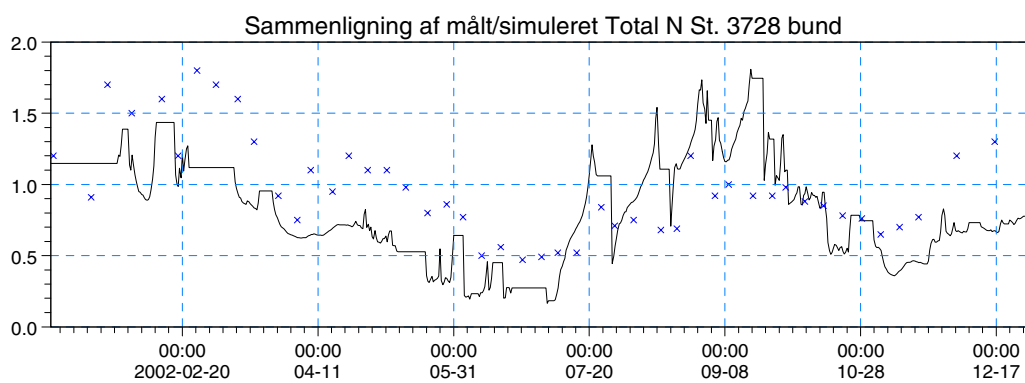
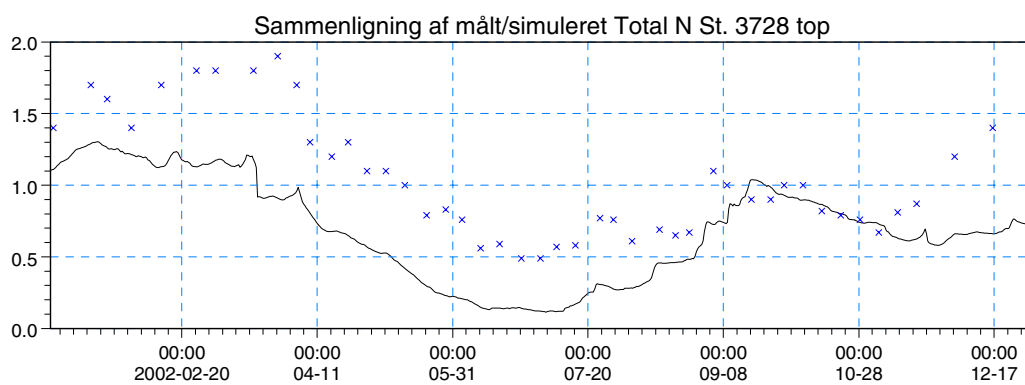
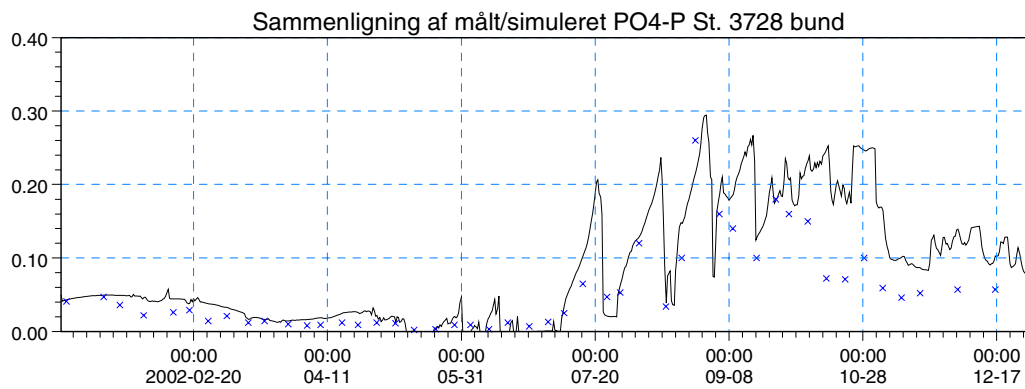


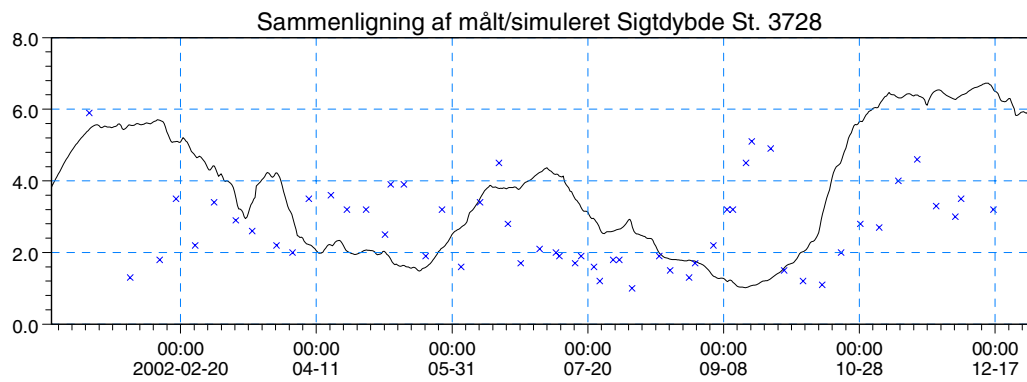
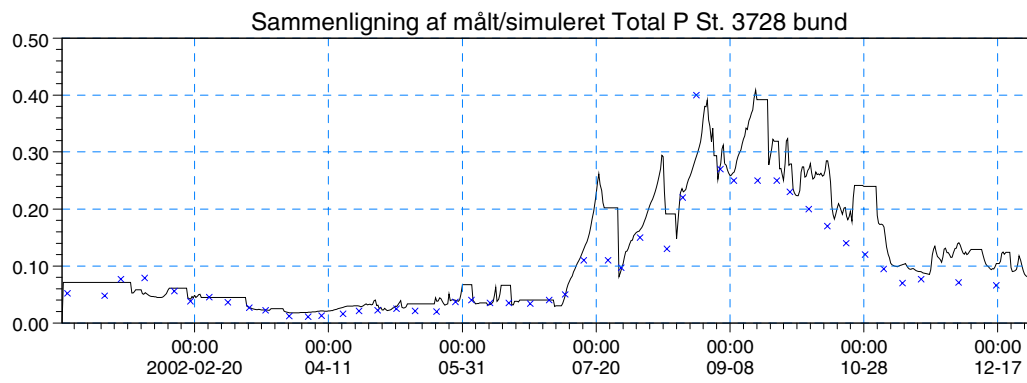
Lovns Bredning Station 3728













4. Massebalance og kommentarer

Kvælstof- og fosforbelastning til modelområdet er baseret på data modtaget fra Nordjyllands Amt. Belastningen fordelt på en række kilder og komponenter er beskrevet i /1/.

Efterfølgende er samtlige tidsserier for belastning summeret op via et ekstraktionsprogram beskrevet i /2/. I tabellerne herunder præsenteres denne opgørelse.

Tabel 4.1 N belastning år 2002 medtaget i modelberegning

SKIVE	N LOAD 2002												
Component (unit)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
4 (t)	3.7	3.9	6.6	5	5.8	8.5	8.5	21.5	13.4	11.6	4.3	1.2	94
9 (t)	52.1	70.8	52.3	30.2	38.1	41	51.3	40	45.5	27	34.7	23.1	506
11 (t)	13.7	12.5	12.6	6.9	4.9	2.8	2.2	1	2.2	4	7	7.3	77.1
12 (t)	350.9	346.5	360.6	180.3	148.3	110.3	127.8	96.1	98.4	128.9	171.4	152.2	2271.6
Total (t)	420.4	433.6	432.1	222.4	197.1	162.6	189.9	158.5	159.5	171.5	217.3	183.7	2948.8

Tabel 4.2 P belastning år 2002 medtaget i modelberegning

SKIVE	P_LOAD 2002												
Component (unit)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
5 (kg)	504.2	532.3	900	675.2	780.8	1140.8	1134.5	2867.9	1799.3	1556.7	580.9	166.3	12638.9
10 (t)	7.8	6.4	6.1	3.7	4.2	3.7	4.6	4.3	3.6	1.9	2.6	3	51.8
13 (t)	5.7	6.5	5.2	1.9	1.9	2.2	3.7	4.1	9.9	3.1	3.9	2	50
Total (t)	14	13.4	12.2	6.3	6.8	7	9.4	11.2	15.3	6.6	7.1	5.2	114.4

Som en valgmulighed genererer modellen ud over koncentrationsfordelinger også en opgørelse over brutto- og nettotransporter af vand, N og P samt akkumulerede procesrater for forskellige modelpunkter. En beskrivelse af dette findes i /2/.

Herunder i tabel 4.3 vises den modelberegnete massebalance for vand, N og P for hele modelområdet.

Tabel 4.3 Modelberegnet massebalance år 2002

Total Balance 2002										
Month	Q (mio. m3)		N (tonnes)				P (tonnes)			
	Bound In	Bound Out	In	Out	dif	% of In	In	Out	dif	% of In
jan-02	80	44	420	190	230	55	14	9	5	33
feb-02	87	101	434	195	238	55	13	8	5	38
mar-02	97	216	432	347	85	20	12	8	5	37
apr-02	56	-1	222	-31	254	114	6	-1	7	109
maj-02	69	105	197	27	170	86	7	2	4	63
jun-02	67	95	163	-25	188	115	7	1	6	85
jul-02	83	128	190	-16	206	109	9	10	-1	-8
aug-02	75	4	159	-10	169	106	11	3	8	70
sep-02	74	131	160	195	-35	-22	15	62	-47	-307
okt-02	53	62	172	100	71	41	7	46	-39	-591
nov-02	64	113	217	61	156	72	7	37	-30	-428
dec-02	43	49	184	-22	205	112	5	20	-14	-276
SUM	845	1047	2949	1012	1937	66	115	207	-92	-81

I bilag til nærørende notat vises detaljeret massebudget ind og ud af 3 delområder: Skive Fjord, Lovns Bredning og Risgårde Bredning. Denne opgørelse, beskrevet i /2/, indeholder



brutto+netto flux af Q, N og P samt puljeændringer, begravelse og denitrifikation pr. måned i tabelform for de tre delområder.

Det udførte arbejde i forbindelse med år 2002 beregning med modellen er som nævnt i det foranstående baseret på indlæggelse af drivdata uden nogen form for ændring af modellen i øvrigt.

Resultaterne præsenteret i nærværende notat giver anledning til følgende umiddelbare bemærkninger:

- Det generelle sæsonforløb i målingerne genfindes i modelresultaterne stort set med samme grad af afvigelse som for den kalibrerede model dækkende perioden 2001
- Undtaget er temperaturforløbet målt ved St 37 28 (Lovns Bredning), som afviger markant fra modellens resultater
- Den månedspecifikke massebalance påvirkes af simulerede volumenændringer
- Der simuleres en årlig tilbageholdelse af N på ca. 1900 tons (81% af belastning fra land) og en nettotransport af N ind i fjorden i sommerperioden
- Der simuleres en årlig frigivelse af P på ca. 90 tons (66% af belastning fra land)
- En nærmere analyse af afvigelser, evt. med recalibrering af modellen for 2002, vil forbedre modellens masseopgørelse

5. Referencer

- /1/ *MIKE 12 MODEL FOR SKIVE FJORD - Hydrodynamik og Eutrofiering*, DHI, Rapport, April 2003.
- /2/ *MIKE 12 Træning Randers Fjord - Skive Fjord*, kursusmateriale, DHI 2002



Bilag:
**Månedsspecifik detaljeret massebalance for Skive Fjord (Area 1),
Lovns Bredning (Area 2) og Risgårde Bredning (Area 3)**



**** Monthly Mass Balances ****

Month no 1

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	344.75	-305.22	40.93	-1.8	935.52	-882.09
Q flux downstream (mio. m3)	727.87	-699.51	127.43	-100.46	957.83	-907.71
Q accumulated (mio. m3)	11.17		12.16		3.31	
Gross Q flux upstream (mio. m3)	350.99	5.26	42.54	0.36	1388	95.71
Gross Q flux downstream (mio. m3)	864.96	30.09	637.6	76.7	1448.2	113.46
Sum N flux upstream (tonnes)	142.12		192.26		134.74	
Sum N sources (tonnes)	-72.15		58.48		-14.44	
Sum N losses (tonnes)	35.51		66.8		11.63	
Sum N dmass (tonnes)	-3.15		65.7		-14.25	
Sum N flux downstream (tonnes)	37.61		118.24		122.92	
N flux upstream (tonnes)	452.03	-309.91	190.67	1.59	1010.99	-876.25
N flux downstream (tonnes)	747.37	-709.75	199.2	-80.96	1004.23	-881.31
Gross N flux upstream in (tonnes)	458.79	12.08	193.65	4.26	1480.48	102.98
Gross N flux upstream out (tonnes)	6.76	321.99	2.98	2.67	469.49	979.22
Gross N flux downstream in (tonnes)	145.5	741.6	523.6	175.06	520.56	996.62
Gross N flux downstream out (tonnes)	892.86	31.85	722.8	94.1	1524.79	115.31
Denitrification Water (tonnes)	0.16	0.04	0.62	0.01	0.09	0.05
Denitrification Sediment (tonnes)	6.22	12.11	30.18	6.98	1.05	4.46
Immobilisation N (tonnes)	0.36	3.13	1.84	0.93	0.13	1.25
Sum Eelgrass N loss (tonnes)	0		-0.06		-0.02	
N flux water to sediment (tonnes)	6.56	6.92	22.57	3.72	1.54	3.07
N Water (dmass in tonnes)	-37.56	34.41	71.62	-5.92	0.05	-14.3
Sum P flux upstream (tonnes)	6.81		4.32		6.53	
Sum P sources (tonnes)	-6.25		-6.73		-1.25	
Sum P losses (tonnes)	0.38		0.61		0.12	
Sum P dmass (tonnes)	-2.85		-6.51		-2.57	
Sum P flux downstream (tonnes)	3.03		3.49		7.73	
P flux upstream (tonnes)	22.33	-15.52	4.36	-0.04	49.18	-42.65
P flux downstream (tonnes)	37.61	-34.57	7.72	-4.24	49.98	-42.25
Gross P flux upstream in (tonnes)	22.85	0.84	4.58	0.08	74.59	5.42
Gross P flux upstream out (tonnes)	0.52	16.36	0.22	0.12	25.41	48.07
Gross P flux downstream in (tonnes)	7.96	36.28	27.81	8.74	26.12	48.72
Gross P flux downstream out (tonnes)	45.57	1.7	35.53	4.51	76.09	6.47
Immobilisation P (tonnes)	0.03	0.07	0.12	0.03	0.01	0.03
Sum Eelgrass P loss (tonnes)	0		-0.01		0	
P flux water to sediment (tonnes)	0.27	0	0.48	-0.01	0.07	0.03
P Water (dmass in tonnes)	-4.47	1.62	-5.55	-0.96	-1.01	-1.57



**** Monthly Mass Balances ****

Month no 2

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	371.55	-324.73	46.71	-6.84	1022.25	-921.21
Q flux downstream (mio. m3)	774.42	-727.54	171.03	-116.39	991.96	-891.75
Q accumulated (mio. m3)	-0.05		-14.76		0.83	
Gross Q flux upstream (mio. m3)	376.53	6.92	52.66	7.09	1369.57	114.38
Gross Q flux downstream (mio. m3)	886.48	29.76	675.67	158.5	1433.07	136.76
Sum N flux upstream (tonnes)	161.93		162.98		144.69	
Sum N sources (tonnes)	-77.58		31.3		-12.82	
Sum N losses (tonnes)	34.42		72.21		11.05	
Sum N dmass (tonnes)	17.85		-16.76		9.31	
Sum N flux downstream (tonnes)	32.08		138.84		111.51	
N flux upstream (tonnes)	465.88	-303.95	171.31	-8.33	1033.84	-889.15
N flux downstream (tonnes)	735.89	-703.82	244.88	-106.04	982.56	-871.05
Gross N flux upstream in (tonnes)	470.4	13.32	179.52	9.6	1387.24	108.06
Gross N flux upstream out (tonnes)	4.52	317.27	8.21	17.92	353.39	997.21
Gross N flux downstream in (tonnes)	113.48	730.89	489.87	261.37	497.27	991.2
Gross N flux downstream out (tonnes)	849.38	27.07	734.75	155.33	1479.82	120.16
Denitrification Water (tonnes)	0.15	0.04	0.47	0.04	0.08	0.06
Denitrification Sediment (tonnes)	5.17	12.31	21.33	17.79	1.17	4.27
Immobilisation N (tonnes)	0.34	3.47	1.42	2.22	0.16	1.18
Sum Eelgrass N loss (tonnes)	0		0.02		-0.01	
N flux water to sediment (tonnes)	5.88	7.06	18.78	10.15	1.39	2.75
N Water (dmass in tonnes)	29.48	-11.63	5.57	-22.34	33.62	-24.31
Sum P flux upstream (tonnes)	5.04		4.99		7.46	
Sum P sources (tonnes)	-3.57		-2.62		-0.76	
Sum P losses (tonnes)	0.07		0.24		0.05	
Sum P dmass (tonnes)	-1.02		-3.28		-0.91	
Sum P flux downstream (tonnes)	2.42		5.41		7.56	
P flux upstream (tonnes)	19.47	-14.44	5.36	-0.37	45.38	-37.92
P flux downstream (tonnes)	33.41	-30.98	9.8	-4.39	44.01	-36.45
Gross P flux upstream in (tonnes)	19.78	0.52	5.8	0.47	59.72	4.93
Gross P flux upstream out (tonnes)	0.31	14.96	0.44	0.84	14.34	42.84
Gross P flux downstream in (tonnes)	4.53	32.23	20.8	11.5	18.15	41.77
Gross P flux downstream out (tonnes)	37.93	1.25	30.6	7.11	62.16	5.32
Immobilisation P (tonnes)	0.01	0.07	0.06	0.05	0	0.02
Sum Eelgrass P loss (tonnes)	0		0		0	
P flux water to sediment (tonnes)	0.05	-0.06	0.21	-0.07	0.04	-0.02
P Water (dmass in tonnes)	0.11	-1.14	-2.06	-1.22	0.66	-1.57



**** Monthly Mass Balances ****

Month no 3

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	241.55	-189.67	51.42	-4.34	1342.86	-1147.35
Q flux downstream (mio. m3)	759.86	-681.88	459.47	-345.12	1422.53	-1221.44
Q accumulated (mio. m3)	-26.09		-67.27		-5.58	
Gross Q flux upstream (mio. m3)	245.26	6.59	60.03	9.39	1578.57	193.64
Gross Q flux downstream (mio. m3)	878.45	100.5	820.17	122.67	1666.56	250.66
Sum N flux upstream (tonnes)	180.87		187.32		238.55	
Sum N sources (tonnes)	-117.53		-70.82		-25.31	
Sum N losses (tonnes)	39.15		83.84		12.8	
Sum N dmass (tonnes)	-59.77		-148.54		-28.52	
Sum N flux downstream (tonnes)	83.96		181.2		228.96	
N flux upstream (tonnes)	352.54	-171.67	191.47	-4.15	1341.24	-1102.7
N flux downstream (tonnes)	748.66	-664.7	494.4	-313.2	1413.81	-1184.85
Gross N flux upstream in (tonnes)	357.37	20.18	205.76	13.05	1565.68	164.77
Gross N flux upstream out (tonnes)	4.82	191.85	14.29	17.2	224.43	1267.47
Gross N flux downstream in (tonnes)	114.47	746.42	340.52	425.55	269.29	1394.8
Gross N flux downstream out (tonnes)	863.13	81.73	834.91	112.35	1683.1	209.95
Denitrification Water (tonnes)	0.13	0.04	0.4	0.05	0.05	0.08
Denitrification Sediment (tonnes)	4.69	13.55	19.71	20.28	0.23	5.05
Immobilisation N (tonnes)	0.38	5.18	1.9	4.04	0.02	1.92
Sum Eelgrass N loss (tonnes)	0.02		0		-0.01	
N flux water to sediment (tonnes)	7.14	8.03	24.73	12.73	1.69	3.78
N Water (dmass in tonnes)	-57.27	-2.5	-197.65	49.11	-43.35	14.83
Sum P flux upstream (tonnes)	6.25		4.15		5.78	
Sum P sources (tonnes)	-6.8		-10.02		-1.23	
Sum P losses (tonnes)	0.24		1.11		0.17	
Sum P dmass (tonnes)	-3.2		-10.86		-1.99	
Sum P flux downstream (tonnes)	2.41		3.89		6.36	
P flux upstream (tonnes)	11.15	-4.9	4.27	-0.12	37.56	-31.79
P flux downstream (tonnes)	22.08	-19.67	12.38	-8.48	40.15	-33.79
Gross P flux upstream in (tonnes)	11.3	0.72	4.6	0.35	43.71	4.64
Gross P flux upstream out (tonnes)	0.15	5.62	0.32	0.47	6.15	36.42
Gross P flux downstream in (tonnes)	2.9	21.91	9.74	11.82	6.37	39.56
Gross P flux downstream out (tonnes)	24.98	2.24	22.11	3.34	46.52	5.77
Immobilisation P (tonnes)	0.02	0.13	0.1	0.11	0	0.04
Sum Eelgrass P loss (tonnes)	0		0		0	
P flux water to sediment (tonnes)	0.17	-0.08	0.97	-0.07	0.13	0
P Water (dmass in tonnes)	-2.84	-0.36	-12.14	1.28	-2.13	0.15



**** Monthly Mass Balances ****

Month no 4

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	119.57	-88.28	25.56	-1.74	190.73	-180.68
Q flux downstream (mio. m3)	179.12	-164.35	22.69	-25.38	166.59	-160.04
Q accumulated (mio. m3)	16.53		26.51		3.5	
Gross Q flux upstream (mio. m3)	126.74	8.3	37.64	13.56	732.95	336.48
Gross Q flux downstream (mio. m3)	389.22	138.93	515.31	200.56	707.85	470.03
Sum N flux upstream (tonnes)	106.48		74.37		-64.15	
Sum N sources (tonnes)	-74.17		-78.6		-17.52	
Sum N losses (tonnes)	39.85		104.68		13.61	
Sum N dmass (tonnes)	-4.57		-71.89		-7.72	
Sum N flux downstream (tonnes)	-2.98		-37.02		-87.56	
N flux upstream (tonnes)	150.55	-44.07	77.71	-3.34	120.22	-184.37
N flux downstream (tonnes)	137.65	-140.63	-9.39	-27.63	97.4	-184.95
Gross N flux upstream in (tonnes)	156.68	20.84	89.6	12.72	543.24	224.89
Gross N flux upstream out (tonnes)	6.12	64.91	11.89	16.06	423.02	409.26
Gross N flux downstream in (tonnes)	158.08	229.64	385.66	164.24	472.27	494.41
Gross N flux downstream out (tonnes)	295.73	89.01	376.27	136.61	569.67	309.46
Denitrification Water (tonnes)	0.07	0.03	0.19	0.05	0.05	0.09
Denitrification Sediment (tonnes)	3.98	15.63	8.34	35.55	0.3	5.57
Immobilisation N (tonnes)	0.28	2.54	1.21	3.01	0.02	1.42
Sum Eelgrass N loss (tonnes)	0.03		0.05		-0.01	
N flux water to sediment (tonnes)	10.36	6.94	38.86	17.42	3.14	3.05
N Water (dmass in tonnes)	11.27	-15.84	-38.48	-33.41	14.33	-22.05
Sum P flux upstream (tonnes)	3.87		0.8		1.43	
Sum P sources (tonnes)	-276200.78		7.88		0.14	
Sum P losses (tonnes)	-276196.62		2.33		0.14	
Sum P dmass (tonnes)	0.35		4.19		0.35	
Sum P flux downstream (tonnes)	-0.63		2.17		1.08	
P flux upstream (tonnes)	5.19	-1.32	0.9	-0.09	3.77	-2.34
P flux downstream (tonnes)	3.34	-3.97	0.5	1.66	2.94	-1.86
Gross P flux upstream in (tonnes)	5.4	0.85	1.28	0.49	12.15	7.2
Gross P flux upstream out (tonnes)	0.21	2.16	0.38	0.58	8.38	9.54
Gross P flux downstream in (tonnes)	3.23	6.36	8.21	3.64	8.55	10.26
Gross P flux downstream out (tonnes)	6.57	2.38	8.71	5.31	11.49	8.4
Immobilisation P (tonnes)	0.02	0.07	0.08	0.12	0	0.02
Sum Eelgrass P loss (tonnes)	0		0.01		0	
P flux water to sediment (tonnes)	0.54	-276197.26	2.79	-0.67	0.25	-0.13
P Water (dmass in tonnes)	0.71	-0.36	4.89	-0.7	0.78	-0.43



**** Monthly Mass Balances ****

Month no 5

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	178.99	-147.97	47.98	-9.49	424.7	-326.01
Q flux downstream (mio. m3)	372.66	-335.15	118.63	-58.39	421.25	-320.98
Q accumulated (mio. m3)	-6.48		-21.76		-1.59	
Gross Q flux upstream (mio. m3)	182.8	3.89	61.17	18.54	926.36	137.16
Gross Q flux downstream (mio. m3)	518.05	36.7	558.78	82.81	915.49	243.4
Sum N flux upstream (tonnes)	86.25		65.89		-84.74	
Sum N sources (tonnes)	-114.85		-131.02		-28.29	
Sum N losses (tonnes)	42.98		93.21		17.39	
Sum N dmass (tonnes)	-50.81		-121.76		-29.1	
Sum N flux downstream (tonnes)	-20.78		-36.57		-101.32	
N flux upstream (tonnes)	136.36	-50.12	72.87	-6.98	152.83	-237.56
N flux downstream (tonnes)	167.18	-187.97	8.57	-45.15	154.44	-255.76
Gross N flux upstream in (tonnes)	138.09	10.16	77.04	8.68	398.76	62.57
Gross N flux upstream out (tonnes)	1.73	60.27	4.17	15.66	245.93	300.14
Gross N flux downstream in (tonnes)	67.83	203.9	215.36	87.8	356	377.85
Gross N flux downstream out (tonnes)	235.01	15.93	223.94	42.65	510.44	122.09
Denitrification Water (tonnes)	0.05	0.01	0.06	0.01	0.03	0.05
Denitrification Sediment (tonnes)	7.61	14.6	13.67	22.08	1.33	7.48
Immobilisation N (tonnes)	0.66	3.64	3.16	-0.88	0.19	2
Sum Eelgrass N loss (tonnes)	-0.07		-0.07		-0.01	
N flux water to sediment (tonnes)	13.51	2.97	46.32	8.85	4.44	1.9
N Water (dmass in tonnes)	-47.72	-3.08	-98.15	-23.61	-25.22	-3.87
Sum P flux upstream (tonnes)	2.54		2.5		7.29	
Sum P sources (tonnes)	1.79		12.34		-0.43	
Sum P losses (tonnes)	0.07		4.66		0	
Sum P dmass (tonnes)	1.55		5.13		1.88	
Sum P flux downstream (tonnes)	2.71		5.04		4.99	
P flux upstream (tonnes)	5.69	-3.15	3.29	-0.79	16.17	-8.88
P flux downstream (tonnes)	13.05	-10.34	4.4	0.65	13.54	-8.55
Gross P flux upstream in (tonnes)	5.9	0.42	3.94	0.72	30.55	3.87
Gross P flux upstream out (tonnes)	0.21	3.57	0.65	1.51	14.38	12.76
Gross P flux downstream in (tonnes)	4.71	11.21	14.29	3.04	12.8	13.75
Gross P flux downstream out (tonnes)	17.76	0.87	18.68	3.69	26.34	5.2
Immobilisation P (tonnes)	0.05	0.24	0.26	0.26	0.01	0.08
Sum Eelgrass P loss (tonnes)	-0.01		-0.01		0	
P flux water to sediment (tonnes)	0.73	-0.94	4.94	-0.8	0.36	-0.44
P Water (dmass in tonnes)	0.83	0.72	5.63	-0.5	1.56	0.32



**** Monthly Mass Balances ****

Month no 6

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	154.87	-126.2	40.95	-2.59	633.3	-542.42
Q flux downstream (mio. m3)	502.32	-468.35	105.69	-49.36	628.06	-536.15
Q accumulated (mio. m3)	-5.29		-17.97		-1.03	
Gross Q flux upstream (mio. m3)	158.27	4.3	46.76	6.57	1030.7	86.64
Gross Q flux downstream (mio. m3)	611.64	35.01	536.54	97.56	1045.46	125.55
Sum N flux upstream (tonnes)	76.77		47.91		-119.82	
Sum N sources (tonnes)	-89.82		-64.49		-19.37	
Sum N losses (tonnes)	32.38		73.95		14.6	
Sum N dmass (tonnes)	-2.93		-35.3		-7.28	
Sum N flux downstream (tonnes)	-42.49		-55.24		-146.51	
N flux upstream (tonnes)	95.72	-18.95	50.09	-2.19	120.07	-239.89
N flux downstream (tonnes)	124.27	-166.77	-16.46	-38.77	115.48	-261.99
Gross N flux upstream in (tonnes)	97.15	9.77	50.36	2.06	221.57	22.2
Gross N flux upstream out (tonnes)	1.43	28.71	0.26	4.25	101.5	262.09
Gross N flux downstream in (tonnes)	25.14	176.36	112.48	62.91	188.98	304.93
Gross N flux downstream out (tonnes)	149.42	9.59	96.01	24.13	304.46	42.94
Denitrification Water (tonnes)	0.01	0.01	0	0	0	0.01
Denitrification Sediment (tonnes)	19.06	20.2	39.76	19.3	5.64	10.49
Immobilisation N (tonnes)	1.28	3.42	4.72	0.05	0.55	1.85
Sum Eelgrass N loss (tonnes)	-0.07		-0.1		-0.01	
N flux water to sediment (tonnes)	-5.28	-6.24	11.53	-1.31	-1.83	-2.09
N Water (dmass in tonnes)	7.53	-10.46	-32.73	-2.57	-0.19	-7.09
Sum P flux upstream (tonnes)	2.68		3.18		-0.4	
Sum P sources (tonnes)	-4.44		-14.63		-1.77	
Sum P losses (tonnes)	-5.62		-3.41		-2.16	
Sum P dmass (tonnes)	2.08		-6.06		-0.04	
Sum P flux downstream (tonnes)	1.77		-1.98		0.03	
P flux upstream (tonnes)	6.95	-4.27	3.56	-0.38	21.28	-21.68
P flux downstream (tonnes)	19.86	-18.09	0.04	-2.01	21.2	-21.17
Gross P flux upstream in (tonnes)	7.23	0.37	3.67	0.31	35.47	3.43
Gross P flux upstream out (tonnes)	0.28	4.64	0.11	0.69	14.2	25.1
Gross P flux downstream in (tonnes)	3.74	19.45	16.7	5.89	16.52	25.32
Gross P flux downstream out (tonnes)	23.59	1.36	16.74	3.87	37.72	4.15
Immobilisation P (tonnes)	0.11	0.27	0.37	0.18	0.04	0.09
Sum Eelgrass P loss (tonnes)	-0.01		-0.01		0	
P flux water to sediment (tonnes)	-2.88	-3.1	-1.84	-2.11	-0.97	-1.32
P Water (dmass in tonnes)	3.08	-1	-5.69	-0.37	0.56	-0.6



**** Monthly Mass Balances ****

Month no 7

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	111.65	-80.13	52.64	-0.85	450.17	-329.41
Q flux downstream (mio. m3)	237.36	-196.74	187.4	-108.31	509.09	-386.49
Q accumulated (mio. m3)	-9.09		-27.3		-1.85	
Gross Q flux upstream (mio. m3)	120.93	12.18	55	6.74	895.29	303.52
Gross Q flux downstream (mio. m3)	408.17	154.32	590.79	199.58	970.68	335.04
Sum N flux upstream (tonnes)	77.42		57.8		-40.55	
Sum N sources (tonnes)	-42.77		27.61		10.38	
Sum N losses (tonnes)	1.34		63.18		3.46	
Sum N dmass (tonnes)	16.56		77.76		17.87	
Sum N flux downstream (tonnes)	16.75		-55.54		-51.5	
N flux upstream (tonnes)	110.65	-33.23	57.53	0.27	93.39	-133.93
N flux downstream (tonnes)	103.4	-86.65	-21.52	-34.02	112.63	-164.13
Gross N flux upstream in (tonnes)	117.29	14.96	58.21	6.56	274.16	214.25
Gross N flux upstream out (tonnes)	6.64	48.19	0.68	6.29	180.77	348.18
Gross N flux downstream in (tonnes)	51.92	186.63	160.45	173.44	228.81	397.35
Gross N flux downstream out (tonnes)	155.32	99.98	138.93	139.42	341.44	233.22
Denitrification Water (tonnes)	0.01	0.14	0	1	0.01	0.56
Denitrification Sediment (tonnes)	16.94	58.97	56.11	45.99	1.22	12.97
Immobilisation N (tonnes)	1.12	-42.77	4.03	0.33	0.09	1.08
Sum Eelgrass N loss (tonnes)	-0.14		-0.15		-0.01	
N flux water to sediment (tonnes)	-1.32	-31.6	-19.24	-24.88	-3.95	-8.52
N Water (dmass in tonnes)	13.15	3.41	23.64	54.12	-9.7	27.57
Sum P flux upstream (tonnes)	2.25		5.38		14.07	
Sum P sources (tonnes)	-5.63		-6.75		1	
Sum P losses (tonnes)	-15.69		-21.52		-3.76	
Sum P dmass (tonnes)	3.33		16.72		3.38	
Sum P flux downstream (tonnes)	8.99		3.43		15.46	
P flux upstream (tonnes)	9.72	-7.47	5.31	0.08	24.01	-9.93
P flux downstream (tonnes)	19.73	-10.74	2.49	0.94	27.27	-11.81
Gross P flux upstream in (tonnes)	11.16	1.92	5.49	1.18	49.3	41.28
Gross P flux upstream out (tonnes)	1.44	9.39	0.18	1.1	25.29	51.22
Gross P flux downstream in (tonnes)	8.32	29.57	24.2	26.34	27.97	54.14
Gross P flux downstream out (tonnes)	28.05	18.83	26.69	27.28	55.24	42.33
Immobilisation P (tonnes)	0.08	0.28	0.28	0.13	0.01	0.05
Sum Eelgrass P loss (tonnes)	-0.01		-0.02		0	
P flux water to sediment (tonnes)	-3.02	-13.02	-10.62	-11.29	-0.82	-3
P Water (dmass in tonnes)	2.75	0.58	7.31	9.41	-0.65	4.03



**** Monthly Mass Balances ****

Month no 8

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	66.42	-41.38	48.96	-0.68	250.75	-232.95
Q flux downstream (mio. m3)	225.91	-219.52	0.16	13.71	260.12	-246.67
Q accumulated (mio. m3)	18.65		34.41		4.35	
Gross Q flux upstream (mio. m3)	73.71	3.93	53.58	13.66	802.93	413.68
Gross Q flux downstream (mio. m3)	416.82	132.54	557.47	314.75	801.92	509.99
Sum N flux upstream (tonnes)	37.7		50.17		22.55	
Sum N sources (tonnes)	-444.73		112.5		38.68	
Sum N losses (tonnes)	-447.77		-60.73		-16.89	
Sum N dmass (tonnes)	108.65		139.91		42.21	
Sum N flux downstream (tonnes)	-67.92		83.49		35.9	
N flux upstream (tonnes)	105.11	-67.42	48.21	1.96	104.37	-81.83
N flux downstream (tonnes)	158.24	-226.16	-71.14	154.63	108.72	-72.82
Gross N flux upstream in (tonnes)	110.83	10.49	50.82	27	398.71	469.53
Gross N flux upstream out (tonnes)	5.72	77.91	2.62	25.04	294.34	551.36
Gross N flux downstream in (tonnes)	85.38	361.78	314.11	251.49	336.08	554.95
Gross N flux downstream out (tonnes)	243.62	135.62	242.98	406.12	444.81	482.13
Denitrification Water (tonnes)	0.1	1.76	0.01	9.85	0.01	2.89
Denitrification Sediment (tonnes)	17.22	132.39	48.36	109.33	0.48	11.7
Immobilisation N (tonnes)	1.26	-449.13	3.33	-6.55	0.02	0.47
Sum Eelgrass N loss (tonnes)	-0.29		-0.28		-0.01	
N flux water to sediment (tonnes)	-9.04	-142.04	-62.22	-162.57	-11.06	-21.39
N Water (dmass in tonnes)	93.88	14.77	173.42	-33.52	23.87	18.34
Sum P flux upstream (tonnes)	-3.68		8.8		17.9	
Sum P sources (tonnes)	-32.98		-1.58		5.09	
Sum P losses (tonnes)	-48.04		-61.82		-7.22	
Sum P dmass (tonnes)	26.56		37.32		12	
Sum P flux downstream (tonnes)	-15.18		31.72		18.21	
P flux upstream (tonnes)	13.38	-17.06	8.27	0.53	31.1	-13.2
P flux downstream (tonnes)	34.29	-49.48	-6.62	38.35	30.99	-12.79
Gross P flux upstream in (tonnes)	14.83	1.32	9.15	5.62	85.74	97.18
Gross P flux upstream out (tonnes)	1.46	18.37	0.88	5.1	54.64	110.38
Gross P flux downstream in (tonnes)	17.45	76.49	62.17	48.77	55.94	107.94
Gross P flux downstream out (tonnes)	51.74	27.01	55.55	87.12	86.94	95.15
Immobilisation P (tonnes)	0.1	-0.14	0.24	0.24	0	0.03
Sum Eelgrass P loss (tonnes)	-0.03		-0.03		0	
P flux water to sediment (tonnes)	-5.16	-42.8	-19.09	-43.18	-1.73	-5.51
P Water (dmass in tonnes)	23.01	3.55	42.07	-4.76	5.84	6.16



**** Monthly Mass Balances ****

Month no 9

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	114.02	-89.95	52	-1.73	721.31	-600.68
Q flux downstream (mio. m3)	354.66	-318.78	239.95	-156.71	806.84	-683.53
Q accumulated (mio. m3)	-11.82		-32.97		-2.68	
Gross Q flux upstream (mio. m3)	120.74	2.98	56.53	10.24	1045.93	236.21
Gross Q flux downstream (mio. m3)	528.86	107.67	610.91	156.23	1137.21	223.56
Sum N flux upstream (tonnes)	53.44		64.67		317.28	
Sum N sources (tonnes)	-109.49		12.02		12.2	
Sum N losses (tonnes)	-127.78		-105.67		-17.03	
Sum N dmass (tonnes)	-63.42		35.87		-16.62	
Sum N flux downstream (tonnes)	135.15		146.49		363.13	
N flux upstream (tonnes)	144.07	-90.63	67.33	-2.66	694.35	-377.07
N flux downstream (tonnes)	373.56	-238.42	184.61	-38.12	782.7	-419.57
Gross N flux upstream in (tonnes)	154.76	8.52	74.43	20.15	993.58	290.08
Gross N flux upstream out (tonnes)	10.7	99.15	7.1	22.81	299.23	667.15
Gross N flux downstream in (tonnes)	162.91	368.72	360.84	250.2	255.01	635.56
Gross N flux downstream out (tonnes)	536.47	130.3	545.44	212.08	1037.71	215.99
Denitrification Water (tonnes)	0.42	0.51	0.5	4.25	0.11	0.41
Denitrification Sediment (tonnes)	27.51	161.12	67.26	151.23	2.38	18.67
Immobilisation N (tonnes)	1.91	-68.78	5.46	-27.05	0.23	-0.01
Sum Eelgrass N loss (tonnes)	-0.14		-0.22		0	
N flux water to sediment (tonnes)	-49.24	-201.1	-91.61	-215.5	-20.69	-18.12
N Water (dmass in tonnes)	-80.13	16.71	30.8	5.07	-9.66	-6.96
Sum P flux upstream (tonnes)	1.09		13.29		96.57	
Sum P sources (tonnes)	-39.62		-25.27		0.75	
Sum P losses (tonnes)	-66.94		-85.83		-9.23	
Sum P dmass (tonnes)	-12.54		26.24		-2.24	
Sum P flux downstream (tonnes)	40.95		47.61		108.79	
P flux upstream (tonnes)	25.01	-23.92	13.89	-0.6	181.14	-84.57
P flux downstream (tonnes)	95.94	-54.99	54.69	-7.08	201.49	-92.71
Gross P flux upstream in (tonnes)	29.35	0.66	15.94	4.52	254.53	67.28
Gross P flux upstream out (tonnes)	4.35	24.58	2.05	5.13	73.39	151.85
Gross P flux downstream in (tonnes)	39.65	85.54	88.39	57.1	59.09	141.57
Gross P flux downstream out (tonnes)	135.6	30.55	143.08	50.02	260.58	48.86
Immobilisation P (tonnes)	0.18	0.56	0.5	0.45	0.02	0.12
Sum Eelgrass P loss (tonnes)	-0.01		-0.02		0	
P flux water to sediment (tonnes)	-16.93	-50.73	-34.69	-52.06	-4.7	-4.67
P Water (dmass in tonnes)	-17.18	4.64	24.1	2.14	-1.12	-1.12



**** Monthly Mass Balances ****

Month no 10

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	105.55	-77.44	44.12	-19.63	594.57	-532.68
Q flux downstream (mio. m3)	303.46	-273.77	225.24	-192.87	661.09	-599.47
Q accumulated (mio. m3)	-1.58		-7.88		0.27	
Gross Q flux upstream (mio. m3)	114.3	6.18	53.8	6.97	974.32	164.78
Gross Q flux downstream (mio. m3)	491.86	92.04	656.37	101.92	1097.51	271.01
Sum N flux upstream (tonnes)	79.27		52.88		162.33	
Sum N sources (tonnes)	-13.93		46.97		-16.77	
Sum N losses (tonnes)	24.89		52.88		0.41	
Sum N dmass (tonnes)	-23.53		-55.28		-20.65	
Sum N flux downstream (tonnes)	63.98		102.25		165.8	
N flux upstream (tonnes)	116.39	-37.13	64.89	-12.01	470.22	-307.89
N flux downstream (tonnes)	215.38	-151.4	204.05	-101.8	516.58	-350.78
Gross N flux upstream in (tonnes)	123.08	14.31	78.76	10.1	753.07	113.85
Gross N flux upstream out (tonnes)	6.69	51.44	13.87	22.11	282.85	421.73
Gross N flux downstream in (tonnes)	149.89	216.02	322.71	172	294.46	502.91
Gross N flux downstream out (tonnes)	365.27	64.62	526.76	70.2	811.03	152.13
Denitrification Water (tonnes)	0.34	0.07	1.18	0.27	0.12	0.07
Denitrification Sediment (tonnes)	25.87	26.52	55.85	83.38	1.26	9.25
Immobilisation N (tonnes)	0.8	3	2.19	4.25	0.09	2.14
Sum Eelgrass N loss (tonnes)	-0.02		-0.07		0	
N flux water to sediment (tonnes)	-27.25	-4.44	-72.87	-21.3	-12.94	0.44
N Water (dmass in tonnes)	-6.8	-16.73	-33.78	-21.5	-9.08	-11.57
Sum P flux upstream (tonnes)	2.63		2.91		86.5	
Sum P sources (tonnes)	4.86		0.47		-0.69	
Sum P losses (tonnes)	-16.02		-41.79		-4.47	
Sum P dmass (tonnes)	-5.39		-7.84		-4.66	
Sum P flux downstream (tonnes)	28.9		53.01		94.94	
P flux upstream (tonnes)	16.3	-13.67	7.46	-4.55	145.26	-58.77
P flux downstream (tonnes)	60.85	-31.95	73.7	-20.7	158.19	-63.25
Gross P flux upstream in (tonnes)	20.89	1.55	12.44	2.78	227.18	34.24
Gross P flux upstream out (tonnes)	4.59	15.22	4.97	7.33	81.92	93.01
Gross P flux downstream in (tonnes)	44.67	51.27	92.74	41.76	64.98	104.73
Gross P flux downstream out (tonnes)	105.53	19.31	166.44	21.07	223.17	41.48
Immobilisation P (tonnes)	0.06	0.14	0.16	0.28	0	0.11
Sum Eelgrass P loss (tonnes)	0		-0.01		0	
P flux water to sediment (tonnes)	-12.23	-3.98	-29.45	-12.77	-3.57	-1.01
P Water (dmass in tonnes)	-1.36	-4.03	-2.4	-5.44	-1.53	-3.13



**** Monthly Mass Balances ****

Month no 11

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	54.06	-24.5	51.51	-17.05	328.98	-223.49
Q flux downstream (mio. m3)	48.06	-8.51	301.2	-236.23	318.09	-210.84
Q accumulated (mio. m3)	-9.99		-30.51		-1.76	
Gross Q flux upstream (mio. m3)	61.86	8.66	64.42	15.61	767.35	352.19
Gross Q flux downstream (mio. m3)	289.77	240.88	629.06	101.57	751.41	515.86
Sum N flux upstream (tonnes)	98.7		74.16		80.5	
Sum N sources (tonnes)	-26.65		26.44		-10.05	
Sum N losses (tonnes)	28.77		62.29		5.16	
Sum N dmass (tonnes)	22.44		-38.03		8.62	
Sum N flux downstream (tonnes)	20.84		76.34		56.67	
N flux upstream (tonnes)	91.42	7.28	87.01	-12.85	217.29	-136.78
N flux downstream (tonnes)	38.63	-17.78	188.4	-112.06	207.34	-150.66
Gross N flux upstream in (tonnes)	95.44	22.48	97.03	10	504.37	164.2
Gross N flux upstream out (tonnes)	4.02	15.2	10.02	22.84	287.08	300.98
Gross N flux downstream in (tonnes)	157.19	129.69	222.17	160.21	292.9	399.22
Gross N flux downstream out (tonnes)	195.82	111.91	410.58	48.15	500.24	248.56
Denitrification Water (tonnes)	0.15	0.02	0.29	0.05	0.05	0.04
Denitrification Sediment (tonnes)	8.31	12.64	19.63	33.21	0.27	4.45
Immobilisation N (tonnes)	0.19	2.25	0.31	2.73	0.01	1.27
Sum Eelgrass N loss (tonnes)	0		-0.02		0	
N flux water to sediment (tonnes)	0.86	4.35	-4.36	10.44	-3.04	2.12
N Water (dmass in tonnes)	37.39	-14.94	-53.68	15.65	18.28	-9.65
Sum P flux upstream (tonnes)	3.34		3.37		66.67	
Sum P sources (tonnes)	3.41		4.67		-0.08	
Sum P losses (tonnes)	-3.4		-10.54		-1.45	
Sum P dmass (tonnes)	-0.81		-35.36		-2.31	
Sum P flux downstream (tonnes)	10.95		53.94		70.34	
P flux upstream (tonnes)	5.47	-2.14	7.07	-3.7	74.24	-7.57
P flux downstream (tonnes)	5.79	5.16	69.93	-15.99	75.95	-5.61
Gross P flux upstream in (tonnes)	8.71	2.04	11.29	2.41	143.98	36.49
Gross P flux upstream out (tonnes)	3.24	4.17	4.22	6.1	69.74	44.06
Gross P flux downstream in (tonnes)	44.06	19.96	56.25	27.12	47.24	49.14
Gross P flux downstream out (tonnes)	49.85	25.13	126.19	11.13	123.19	43.53
Immobilisation P (tonnes)	0.01	0.06	0.01	0.07	0	0.03
Sum Eelgrass P loss (tonnes)	0		0		0	
P flux water to sediment (tonnes)	-2.87	-0.59	-8.75	-1.87	-1.31	-0.17
P Water (dmass in tonnes)	3.37	-4.17	-37.87	2.51	1.22	-3.52



**** Monthly Mass Balances ****

Month no 12

ITEM	Area 1 (top)	Area 1 (bot)	Area 2 (top)	Area 2 (bot)	Area 3 (top)	Area 3 (bot)
Q flux upstream (mio. m3)	55.78	-27.32	15.83	-1.82	447.94	-398.48
Q flux downstream (mio. m3)	147.3	-118.58	320.35	-299.45	494.81	-445.71
Q accumulated (mio. m3)	-0.27		-6.89		0.36	
Gross Q flux upstream (mio. m3)	61.51	4.11	28.01	10.69	798.02	172.45
Gross Q flux downstream (mio. m3)	335.34	138.91	614.49	55.01	795.69	397.02
Sum N flux upstream (tonnes)	102.52		47.37		-53.03	
Sum N sources (tonnes)	-41.1		10.52		-13.38	
Sum N losses (tonnes)	30.35		66.94		9.7	
Sum N dmass (tonnes)	9.51		40.67		18.4	
Sum N flux downstream (tonnes)	21.56		-49.72		-94.51	
N flux upstream (tonnes)	104.88	-2.37	68.29	-20.92	329.7	-382.74
N flux downstream (tonnes)	143.16	-121.6	194.16	-243.89	356.79	-451.31
Gross N flux upstream in (tonnes)	108.95	19.56	76.24	7.48	584.99	130.39
Gross N flux upstream out (tonnes)	4.07	21.93	7.94	28.4	255.29	513.13
Gross N flux downstream in (tonnes)	132.66	223.24	231.08	287	278.61	743.14
Gross N flux downstream out (tonnes)	275.81	101.64	425.24	43.11	635.4	291.84
Denitrification Water (tonnes)	0.1	0.03	0.23	0.06	0.05	0.08
Denitrification Sediment (tonnes)	7.58	10.62	14.63	27.28	0.6	4.93
Immobilisation N (tonnes)	0.14	2.19	0.22	2.69	0.04	1.39
Sum Eelgrass N loss (tonnes)	0		-0.01		0	
N flux water to sediment (tonnes)	4	5.7	7.23	14.61	-0.66	3.28
N Water (dmass in tonnes)	-5.33	14.84	-0.11	40.78	-13.68	32.08
Sum P flux upstream (tonnes)	2.9		1.59		37.34	
Sum P sources (tonnes)	1.64		3.13		-0.16	
Sum P losses (tonnes)	-1.41		-3.77		-0.99	
Sum P dmass (tonnes)	-5.83		-14.34		-2.67	
Sum P flux downstream (tonnes)	11.79		22.83		40.83	
P flux upstream (tonnes)	5.57	-2.67	4.5	-2.91	61.98	-24.64
P flux downstream (tonnes)	20.38	-8.59	41.9	-19.07	68.53	-27.69
Gross P flux upstream in (tonnes)	7.7	0.95	6.44	1.17	103.62	18.09
Gross P flux upstream out (tonnes)	2.12	3.62	1.94	4.08	41.64	42.74
Gross P flux downstream in (tonnes)	24.01	21.32	38.43	26.16	24.82	58.73
Gross P flux downstream out (tonnes)	44.39	12.73	80.33	7.1	93.34	31.04
Immobilisation P (tonnes)	0.01	0.03	0	0.04	0	0.02
Sum Eelgrass P loss (tonnes)	0		0		0	
P flux water to sediment (tonnes)	-1.3	-0.15	-3.34	-0.48	-0.97	-0.04
P Water (dmass in tonnes)	-6.81	0.98	-16.74	2.4	-3.95	1.28