

0-76129

OVERVÅKING AV FORURENSNINGER I  
GRENLANDSFJORDENE OG SKIENSELVA

Hydrokjemiske data 1977 - 1979.

Brekke, 18. september 1980

Prosjektleder: Brage Rygg

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Instituttssjef Kjell Baalsrud

# NIVA - RAPPORT

Norsk institutt for vannforskning  NIVA

Norges Teknisk-Naturvitenskapelige Forskningsråd

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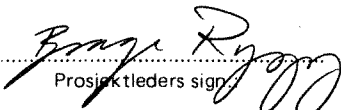
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Ekstrakt: EDB-utskrifter av hydrokjemidata fra Grenlandsfjordene og Skienselva for tidsrommet mai 1977 - november 1979.
-------------------------------------------------------------------------------------------------------------------------------

4 emneord, norske:
1. Grenlandsfjordene
2. Miljøovervåking
3. Vannforurensning
4. Hydrokjemidata

4 emneord, engelske:
1.
2.
3.
4.

  
Prosjektleders sign.

  
Seksjonsleders sign.

  
Instituttsefs sign.

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F O R O R D

Foreliggende datarapport gjengir hydrokjemiske måleresultater fra Grenlandsfjordene og Skienselva for tidsrommet 1977 - 79. Materialet er innsamlet av Norsk institutt for vannforskning (NIVA) som en del av overvåkingsprogrammet for dette området.

Dataene fra 1977 og 1978 er tidligere blitt vurdert i to årsrapporter, mens dataene for 1979 blir drøftet i en egen rapport som vil foreligge i løpet av 1980.

Ved instituttet har nat.kand. Pirkko Rygg arbeidet med tilretteleggelse og utlisting av dataene.

Brekke, 18. september 1980

  
Jarle Molvær

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## 1. INNLEDNING

Som et ledd i overvåkingsprogrammet har NIVA i tidsrommet 1977 - 79 innsamlet 11 prøveserier fra Skienselva og Grenlandsfjordene. Tidspunktene for toktene framgår av INNHOLDSFORTEGNELSEN, under kap. 3. Stasjonsnettets framgår av figur 1.

Stasjonene AAl og AB1 i Vollsfjorden inngikk i overvåkingsprogrammet fra juni 1979, etter at basisundersøkelsen av dette området var avsluttet.

Ved NIVA har de innsamlede hydrokjemiske måleresultater for hvert tokt blitt tilrettelagt for EDB og listet ut stasjon for stasjon. Samtidig er det utført noen enkle beregninger som er til nytte under vurderingen og bruken av tallmaterialet.

Av hensyn til at dataene skal inngå i en nasjonal databank ved Norsk Oseanografisk Datasenter i Bergen, hvor utveksling av data med utenlandske institusjoner foregår, er tabellteksten på engelsk.

Av praktiske grunner er ikke analyseresultatene for metaller tatt med i denne rapporten. Dette materialet er imidlertid allerede presentert i årsrapporter (se referansene 1, 2 og 3). Det samme er tilfelle for målingene av suspendert tørrstoff og gløderest.

Tabell 1 gir en kortfattet oversikt over parametre, analysemetoder, samt presisjon og deteksjonsgrense ved sjøvannsanalysene. Temperatur og saltholdighet er vanligvis målt på stedet med en CTD-sonde.

Resultatene er listet ut kronologisk tokt for tokt, med 9 - 11.5.1977 som tidspunkt for første tokt og 27 - 28.11.1979 som siste tokt.

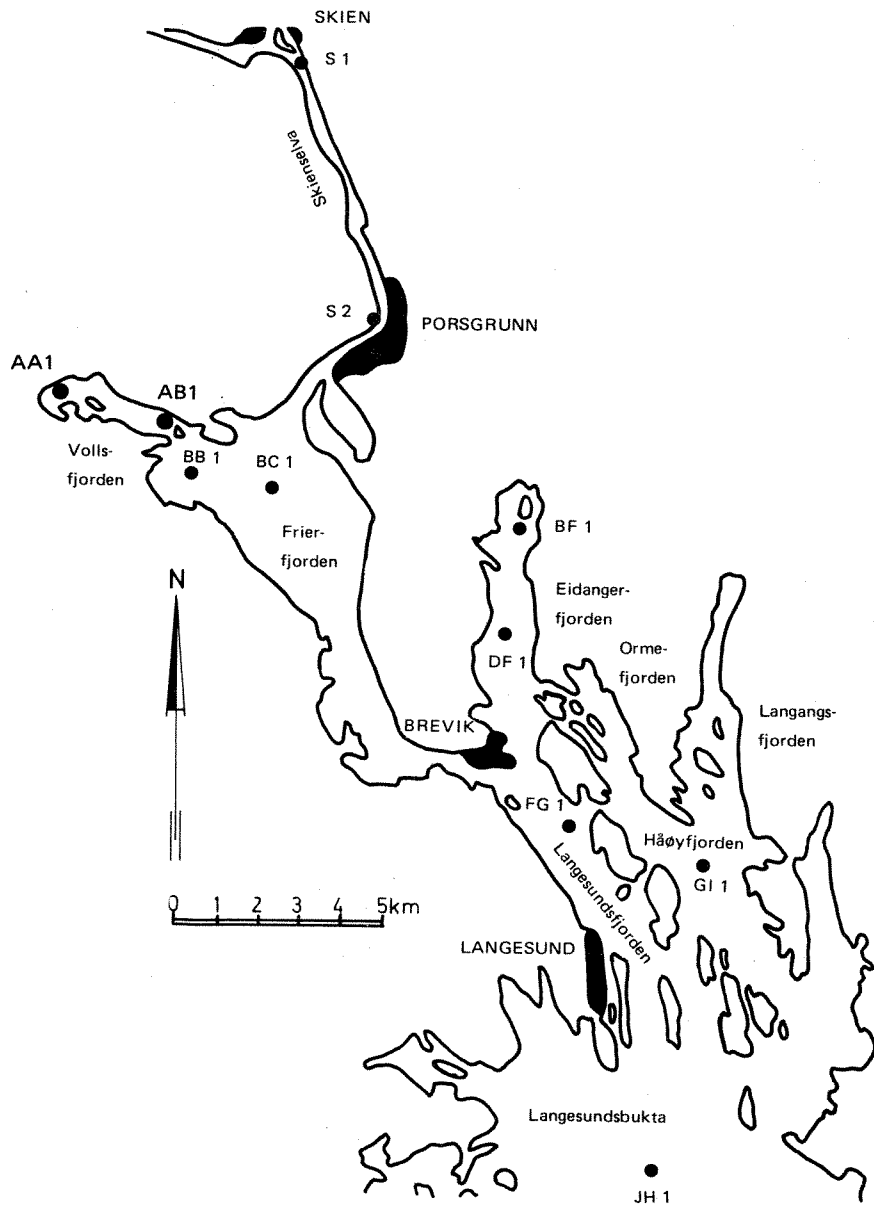


Fig. 1. Hydrokjemistasjoner i Skienselva og Grenlandsfjordene.

TABELL 1 OVERSIKT OVER PARAMETRE OG ANALYSEMETODE, SAMT DETEKSJONSGRENSER OG ANTATT PREVISJON VED ANALYSE AV SJØVANNSPRØVER\*

Parameter	Analysemetode	Presisjon	Deteksjons- grense	Littera- tur nr.
Temperatur (TEMP)	- Vendetermometer avlest med lupe	+ 0.01°C	-	
	- Målt med CTD-sonde	+ 0.04°C	-	
Saltholdighet (SAL)	- Konduktivitetsmålinger ved labora- toriesalinometer (Industrial Man)	+ 0.003 ‰	-	4 og 5
	- Målt med CTD-sonde	+ 0.01 ‰	-	
Oksygen/hydrogensulfid (O <sub>2</sub> /H <sub>2</sub> S)	Jodometrisk titrering. Modifisert Winklermetode	+ 2-4%	-	6
Ortofosfat (PO <sub>4</sub> -P)	Autoanalysator	+ 2 µg/l	2 µg/l	7, 8 og 9
Totalfosfor (TOT-P)	UV-oksydasjon. Bestemmelse som ortofosfat	+ 2 "	2 "	7, 8 og 9
Nitrat+nitritt (NO <sub>3</sub> -N)	Autoanalysator. Red. (Cd/Cu) til og best. som nitritt	+ 10 "	10 "	7 og 8
Ammonium (NH <sub>4</sub> -N)	Autoanalysator Indofenolblåttmetoden	+ 5 "	10 "	10
Totalnitrogen (TOT-N)	UV-oksydasjon. Bestemmelse som nitrat/nitritt	+ 10 "	10 "	7 og 8
Total organisk karbon (TOC)	Persulfatoksydasjon. IR-bestem- melse som CO <sub>2</sub>	+ 0.1 mg/l	0.2 mg/l	11

\* Presisjonen anslått for de konsentrasjonsnivåer som er representative for prøver fra Grenlandsfjordene.

## 2. BESKRIVELSE AV DET UTLISTEDE DATAMATERIALET

En tabellarisk datautskrift av dette omfang må nødvendigvis bli knapp på beskrivende og forklarende tekst. I det etterfølgende skal vi gi en kort forklaring til enkelte av de målte og beregnede størrelser. En detaljert forklaring av forkortelsene som er brukt er gitt i tabell 2.

Vi gjør oppmerksom på at det under COMMENTS ofte er gitt en del tilleggsopplysninger om prøveinnsamlinger på den enkelte stasjon og dermed om resultater som av praktiske grunner ikke er tatt med i tabellene.

En hydrografisk stasjons posisjon er bestemt dels av dens geografiske koordinater (lengde og bredde) og dels av et internt (NIVA) koordinat-system, som er brukt ved beskrivelse av stasjonene på figur 1.

Dypet (DEPTH) angis i meter og er vanligvis en ekkoloddregistrering. Tiden (TIME) er middeleuropeisk tid (European Mean Time), og angir omtrentlig tidspunkt for hydrografien. Vindens hastighet angis i meter pr sekund, og dens retning i dekadgrader (sektorer på 10 grader).

Lufttemperaturen (AIR.TEMP) angis i grader Celsius.

I følge vanlig praksis er skydekket (CLOUDS) angitt ved åttendedeler. Skyfri himmel registreres som 0 (dvs 0/8) og helt overskyet som 8.

Siktedyp (SECCHI-DISC) måles med en hvit skive (25 cm i diameter) i skyggen av båten. Angitt dyp viser på hvilket nivå skiven ikke lenger kan ses. Fargen (COLOUR) avleses når skiven befinner seg på halve siktedypet.

Størrelsene saltholdighet (SAL ‰), tetthet (DENS.SIGMA-T) og oksygenmetning (O2-SAT %) har blitt beregnet etter International Oceanographic tables, National Institute of Oceanography of Great Britain and UNESCO Vol 1 (1966) og Vol 2 (1973). Tettheten (DENS.SIGMA-T) er angitt ved størrelsen  $\sigma_t$  (sigma-t) som er definert som  $\sigma_t = (\rho - 1) \cdot 1000$ , hvor  $\rho$  er vannmassens egenvekt ved atmosfæretrykk.

Alle kjemiske analyser er utført på ufiltrert vann. Fosforprøvene er konserverte i felten med svovelsyre, og nitrogenprøvene (unntatt ammonium) samt total organisk karbonprøvene er konserverte med kvikksølvklorid. Unntatt her er nitrogenprøvene for 0-2 m og 4 m dyp fra Frierfjorden, Eidangerfjorden og Brevikfjorden, som vanligvis har blitt konserverte med svovelsyre.

Beregnete hjelpetørrelser er organisk bundet fosfor (ORG P) og organisk bundet nitrogen (ORG N), hvor ORG P er forskjellen mellom totalfosfor og ortofosfat. ORG N er forskjellen mellom totalnitrogen og øvrige analyserte nitrogenforbindelser ( $\text{NO}_3 + \text{NO}_2 + \text{NH}_4 - \text{N}$ ). I tillegg er det listet en del forholdstall.



Tabell 2. SYMBOLER OG FORKORTELSER BRUKT I DATAUTSKRIFTENE

	General Comments	Generelle kommentarer
CTD	Conductivity - Temperature - Depth recorder	Konduktivitet - temperatur - dyp sonde
NH <sub>4</sub> N	Ammonium NH <sub>4</sub> N	Ammonium NH <sub>4</sub> N
NTR	NuTRients	Næringsalter
SLN	SaLiNoterm	Salinoterm
STA	STAtion	Stasjon
VH	Water sampler	VannHenter
VT	Reversing thermometer	VendeTermometer
	Parameter headings	Parameter overskrifter
DENS	DENSity Sigma-t ( $\sigma_t$ )	tetthet, sigma-t ( $\sigma_t$ )
H <sub>2</sub> S	Hydrogen Sulphide (H <sub>2</sub> S)	hydrogensulfid (H <sub>2</sub> S)
M	Meter	meter
MG/L	MilliGram/liter, mg/l	mg/l
ML/L	MilliLiter/liter (ml/l)	ml/l
MYG/L	Microgram/Liter ( $\mu$ g/l)	$\mu$ g/l
NO <sub>3</sub> N	Nitrate NO <sub>3</sub> N	nitrat NO <sub>3</sub> N
O <sub>2</sub>	Molecular oxygen O <sub>2</sub>	molekylær oksygen-O <sub>2</sub>
O <sub>2</sub> -SAT%	Oxygen-SATuration %	oksygenmetning %
ORG N	ORGanic Nitrogen	organisk nitrogen
ORG P	ORGanic Phosphate	organisk fosfat
PO <sub>4</sub> P	Ortophosphate PO <sub>4</sub> P	ortofosfat PO <sub>4</sub> P
SAL	SALinity	saltholdighet

forts. tabell 2

	Parameter Headings	Parameter overskrifter
TEMP	TEMPerature	<i>temperatur</i>
TOC	Total Organic Carbon	<i>total organisk karbon</i>
TOT N	TOTAL Nitrogen	<i>total nitrogen</i>
TOT P	TOTAL Phosphate	<i>total fosfat</i>
	Data flags	Dataflagg
<	less than	<i>mindre enn</i>
>	greater than	<i>større enn</i>
(*)	uncertain value	<i>usikker verdi</i>
ca.	approximate value	<i>cirka verdi</i>
OT	Over-Titrated value	<i>over-titrent verdi</i>
R	Repeated analysis	<i>reanalysert prøve</i>
S	Spoiled or damaged sample	<i>ødelagt prøve</i>

**3. Hydrokjemiske data for  
tidsrommet mai 1977 – november 1979**

### **3.1 Hydrokjemiske data for 1977**

Tokt 9. – 11.5 1977

MARINE HYDROGRAPHIC DEPTH STATION

CONTROLLED DATA

80.1.14-11:40:14 PAGE:14

```

*****
COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ NORWAY * NIVA * HIGRAN * 0-120/76 * SKIENSELV * S-1 * 50.11.8 * 9.37.1 * 22 * 770511 * 10 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
WIND * AIR TEMP. * SFCCHI-DISC * WEATHER * CLOUDS
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ SPEED * DIRECTION * DRY * WET * DEPTH * M * 4.8 * YELLOW-GREEN * PARTLY CLOUDY * 2/8 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ SEA * WAVES * 0.0M * ICE * NO * CALM * WAVES * 0.0M * ICE * NO *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ COMMENT1 * COMMENT2
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ CTD-TEMP+SAL 0-20M, SRF NTR 0-2M
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

```

*****
+ DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * O/O * TOTP * P04P * NUTRIFN1S * MICROCR./L * TOC * FE *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 0 * 3.40 * 0.000 * 1.88 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 4 * 3.34 * 0.000 * 1.87 * 8.81 * 94.5 * 7 * 3 * 4 * 795 * 490 * 40 * 265 * 3.60 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 8 * 3.34 * 0.000 * 1.87 * 8.81 * 94.5 * 5 * 3 * 2 * 620 * 480 * <10 * >130 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 12 * 3.33 * 0.000 * 1.87 * 8.78 * 94.1 * 4 * 4 * 0 * 610 * 480 * 10 * 120 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 16 * 3.35 * 0.000 * 1.87 * 8.85 * 94.9 * 4 * 4 * 0 * 660 * 480 * 20 * 160 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 20 * 3.34 * 0.000 * 1.87 * 8.74 * 93.7 * 6 * 4 * 2 * 660 * 470 * <10 * >180 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

```

*****
+ DEPTH * RATIO5 * MOL/MOL * TOC/ * TOTN/ * HG * PB * CU * ZN * NI * CR * F *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 0 * 361 * 5 * 1326 * 251 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 * 0.00 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 4 * 354 * 274 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 8 * 265 * 337 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 12 * 265 * 365 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 16 * 346 * 292 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+ M * 20 * 260 * 243 *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
< :LESS THAN VALUE > :GREATER THAN VALUE

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MARINE HYDROGRAPHIC DEPTH STATION

CONTROLLED DATA

NO. 1.14-11:40:15 PAGE:15

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*****
COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HIGRAN * 0-129/76 * SKIENSFLV * S-2 * 59.8.5 * 0.38.7 * 20 * 770511 * 9 *
WIND * DIRECTION * DEG.CELS * AIR TEMP. * WEATHER * CLOUDS *
* (0-36) * DRY * WET * M * * * *
* O.0 * * * * *
SEA * WAVES 0.0-0.1M * ICE * PARTLY CLOUDY * 5/8 *
* RIPPLED * * * * *
COMMENT1 * * * * *
* CTD-TEMP+SAL 0-16M, SRF NTR 0-2M * COMMENT2 *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L. * TOC *
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * O/O * TOTP * P04P * ORGP * TOTN * NO3N * NH4M * ORGN * MG/L. * FE *
0 * 3.30 * 0.000 * .187 * 8.78 * 94.1 * 7 * 10 * 6 * 4 * 695 * 490 * 25 * 180 * 3.70 *
4 * 3.30 * .040 * .219 * 5.62 * 77.2 * 19 * 10 * 3 * 4 * 555 * 480 * <10 * >65 *
8 * 5.51 * 24.880 * 19.669 * 5.48 * 75.4 * 27 * 15 * 5 * 14 * 425 * 240 * 110 * 75 *
12 * 5.69 * 28.490 * 22.495 * 5.48 * * * * * 12 * 13 * 310 * 90 * 115 * 105 *
16 * 5.70 * 28.640 * 22.612 * * * * * 17 * 13 * 320 * 90 * 135 * .95.
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* M * NO3/ * TOC/ * TOTN/ * HG * PR * CU * ZN * NI * CR * F *
* * P04 * TOTN * TOTP * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
0 * 181 * 6 * 954 * 154 * 175 * * * * * * * *
4 * 354 * * * * * * * * * * * *
8 * 106 * * * * * * * * * * * *
12 * 13 * * * * * * * * * * * *
16 * 12 * * * * * * * * * * * *
*****
< * LESS THAN VALUE
> * GREATER THAN VALUE
*****

```



80.1.14-11:40:5 PAGE:2

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
** COUNTRY * NORWAY
** INSTITUTION * NILVA
** SHIP * IBIRAN
** PROJECT * 0-129/76
** LOCATION * FRIFERJORD
** STATION * BC-1
** POSITION * NORTH EAST
** DEPTH * 59.6.4 9.37.1
** DATE * 770509
** TIME * 12
*****
** WIND * M/S
** DIRECTION * (0-36)
** DEPTH * 10
** COLOUR * DRY
** WEATHER * PARTLY CLOUDY
** SFCCHI-DISC * 3.1
** SFCCHI-DISC * YELLOW
** CL01DS * 4/8
*****
** SEA * RIPPLED; WAVES 0.0-0.1M
** COMMENT1 *
** COMMENT2 *
*****

```

DEPTH	TEMP	SAL	DENS	SIGMA-T	H2S	02	02-SAT	TOTP	P04P	ORGP	TOTM	MICROGR./L	NO3N	NH4N	ORGN	TOC	FF
0	6.20	1.400	1.234					9	9	0	2600	640	640	(470)	(1490)		
4	4.48	4.130	3.422	8.26		93.8	10	5	5	5	2000	345	560	(470)	(970)		
8	5.96	27.410	21.616	6.32		86.8	11	11	11	0		70	70	90	185		
12	5.49	30.920	24.433	5.46		75.9	24	24	24	0	355	110	175	70			
16	5.79	32.550	25.685	3.12		44.1	55	54	54	1	295	100	85	110			
20	6.32	33.420	26.306	1.36		19.6	72	71	71	1	280	80	85	115			
25	6.48	33.590	26.419		.79		120	120	120	0	250	<10	135	>105			
30	6.00	33.560	26.457	.83		11.9	77	77	77	0	260	90	35	135			
40	5.37	33.590	26.556	3.95		55.7	48	48	48	0	285	160	<10	>115			
50	5.20	33.647	26.620	4.24		59.6	43	43	43	0	240	150	10	80			
60	5.13	33.635	26.619	4.38		61.4	43	43	43	0	215	140	<10	>65			
70	5.10	33.639	26.626	4.49		62.9	44	44	44	0	230	130	20	80			
80	5.09	33.663	26.646	4.52		63.3	46	46	46	0	215	120	25	70			
90	5.11	33.655	26.637	4.45		62.4	54	54	54	0	225	110	.40	.40			

```

*****
** DEPTH * 0
** MOL/MOL * TOC/ 1003
** RATIOS * TOC/ 2
** NO3N * 157
** P04 * 248
** TOC/ TOTM/ 639
** TOTM/ TOTP 442
*****
** DEPTH * 4
** MOL/MOL * TOC/ 1003
** RATIOS * TOC/ 2
** NO3N * 157
** P04 * 248
** TOC/ TOTM/ 639
** TOTM/ TOTP 442
*****

```

< \*IF LESS THAN VALUE > \*IF GREATER THAN VALUE ( ) \*UNCERTAIN VALUE



```

*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME
+ Norway + NIVA + MHGRAN + 0-120/76 + FIDANGEREJORD + RE-1 + NORTH EAST + M + M + 770510 + 16 +
*****
+ WIND + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS
+ SPEED DIRECTION * DEG.CFLS * DEPTH * M * * * * *
+ 1.0 18 * DRY * * * * *
*****
+ SEA + ICE + DRIZZLE
+ RIPPLED; WAVES 0.0-0.1M * NO * * * * *
*****
+ COMMENT1
+ SRF STA 0-2M
*****

```

```

*****
+ : DEPTH + TEMP. + SAL. + DENS. + O2 + H2S + O2-SAT + TOTP P04P ORGP TOTN NO3N NH4N ORGN + TOC + TOC
+ M * DEG.C * O/00 * SIGMA-T * ML/L * ML/L * * * * * 13 4 9 855 450 520 -115 3.60
+ : : : : : : : : : : : : : : : : : : : : : : :
*****

```

```

*****
+ : DEPTH + RATIOS + MOL/MOL + HEAVY METALS
+ : * NO3/ TOC/ * HG * CU * ZN * MN * NI * CR * F *
+ : * P04 TOTN * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
+ : * * * * * * * *
+ : * * * * * * * *
+ : 0 249 5 714 145
*****

```





CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
* NORWAY * NIVA * HIGRAN * 0-129/76 * HAYF-JORDEN * G1-1 * 59.1.4 * 9.48.0 * 770510 * 15 *
*****
* WIND * DIRECTION * (0-35) * DRY * WET * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
* 3.8 * 18 * * * * 4.1 * GREEN * * * * 8/8 *
*****
* SEA * WAVES * 0.0-0.1M * NO * ICE * * * * * * *
*****
* RIPPLE * WAVES * 0.0-0.1M * NO * * * * * * *
*****
* COMMENT1 *
*****
* CTD-TEMP+SAL 0-200M, SRF NTR 0-2M *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * SIGMA-T * DENS. * O2 * H2S * O2-SAT * TOTP * POAP * ORCP * TOTN * NO3N * NH4N * ORCN * MC/L * TOC *
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
* 0 * 8.42 * 34.43 * 11.210 * 8.706 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 4 * 6.84 * 27.140 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 8 * 6.28 * 29.810 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 12 * 5.83 * 30.850 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 16 * 5.40 * 31.950 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 20 * 5.34 * 32.360 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 25 * 5.23 * 32.810 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 30 * 5.13 * 33.360 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 40 * 5.37 * 34.020 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 50 * 5.15 * 34.110 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 60 * 5.07 * 34.130 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 80 * 5.03 * 34.140 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 100 * 5.52 * 34.300 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 125 * 6.00 * 34.430 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 150 * 6.07 * 34.470 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 175 * 6.11 * 34.500 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
* 200 * 6.13 * 34.500 * 21.305 * 23.469 * 24.340 * 25.247 * 25.587 * 25.955 * 25.401 * 26.896 * 26.992 * 27.017 * 27.030 *
*****

```



MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA

\*\*\*\*\*  
 COUNTRY : NORWAY  
 INSTITUTION : NIVA  
 SHIP : HICRAN  
 PROJECT : 0-129/76  
 LOCATION : LANGEFJUNDSRIUKTA  
 STATION : JH-1  
 NORTH : 58.58.1  
 EAST : 9.37.1  
 DEPTH : 205  
 DATE : 770510  
 TIME : 14  
 WIND :  
 DIRECTION : (0-36)  
 SPEED : 15  
 AIR TEMP. :  
 DEG. CELS. :  
 WET :  
 DRY :  
 DEPTH : 12.0  
 M :  
 COLOUR :  
 SFCCHI-DISC :  
 WEATHER :  
 DRIZZLE :  
 SEA :  
 WAVES : 0.5-1.25M  
 ICE :  
 NO :  
 COMMENT1 :  
 CTD-TMP+SAL : 0-200M, SRF NTR 0-2M  
 COMMENT2 :  
 \*\*\*\*\*

DEPTH	TEMP.	SAL.	DENS.	02	H2S	02-SAT	TOTP	P04P	ORGP	TOTN	NO3N	NH4N	ORGN	MG/L	TOC	FE
0	7.70	20.500	16.010			0.70	17	5	12	915	230	170	515		2.00	
4	5.92	30.220	23.833													
8	5.75	30.940	24.420													
12	5.75	31.130	24.570													
16	5.77	31.510	24.867													
20	5.72	32.030	25.283													
30	5.70	32.320	25.514													
40	5.70	32.710	25.822													
50	5.60	33.120	26.158													
60	5.10	33.680	26.648													
80	5.01	34.330	27.183													
100	5.01	34.560	27.365													
125	4.95	34.680	27.466													
150	4.96	34.680	27.465													
175	4.93	34.750	27.524													
200	4.92	34.770	27.541													

(CONTINUATION)



Tokt 28.7 1977





CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

\*\* COUNTRY \* INSTITUTION \* SHIP \* PROJECT \* LOCATION \* STATION \* POSITION \* DATE \* TIME \*  
 \* \* \* \* \*  
 \*\* NORWAY \* NIVA \* HHCGRAN \* 0-129/76 \* FRIEFJORD \* RC-1 \* NORTH \* FAST \* 95 \* 770729 \* 11 \*  
 \* \* \* \* \*  
 \*\* WIND \* DIRECTION \* DEPTH \* WEATHER \* \* \* \* \*  
 \* (0-36) \* DRY \* WET \* \* \* \* \*  
 \* \* \* \* \*  
 \*\* AIR TEMP. \* SECCHI-DISC \* \* \* \* \*  
 \* \* \* \* \*  
 \*\* WIND \* DEPTH \* \* \* \* \*  
 \* (0-36) \* DRY \* WET \* \* \* \* \*  
 \* \* \* \* \*  
 \*\* \* ICE \* \* \* \* \*  
 \* \* \* \* \*  
 \*\* \* NO \* \* \* \* \*  
 \* \* \* \* \*  
 \*\* WIPPLED: WAVES 0.0-0.1M \* \* \* \* \*  
 \* \* \* \* \*  
 \*\* COMMENT: \* \* \* \* \*  
 \* \* \* \* \*  
 \*\* 59F SMP 0-2M, 4M 0-2,4,30,50,70,90M \* \* \* \* \*  
 \* \* \* \* \*

DEPTH	TEMP.	SAL.	DENS.	02	H2S	02-SAT	TOTP	PO4P	ORGP	TOTN	NH4N	ORGN	TOC
M	DEG.C	0/00	SIGMA-T	ML/L	ML/L	O/O	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
0	17.30	8.315	5.184				29	0	0	46.00	790	780	5.00
4	13.30	26.155	19.540	5.54		89.1	8	0	0	310	200	115	-5
8	10.42	28.971	22.231	4.70		72.3	13	0	0	310	110	45	155
12	8.95	30.387	23.563	4.37		65.6	18	0	0	335	140	<10	>185
16	8.43	31.216	24.288	3.91		58.3	23	0	0	330	190	70	70.
20	7.98	32.114	25.056	3.76		55.8	30	0	0	345	220	<10	>115
25	6.75	32.759	25.730	2.67		38.7	51	49	2	900	210	190	500
30	6.09	33.578	26.460	.55		7.9	82	82	0	385	500	<10	>-125
40	5.58	33.633	26.565	3.09		43.8	57	57	0	280	170	<10	>100
50	5.31	33.641	26.603	3.36		47.3	53	53	0	250	150	<10	>80
60	5.24	33.652	26.620	3.43		48.2	54	54	0	360	300	<10	>50
70	5.28	33.652	26.615	3.30		46.5	56	56	0	2680	1500	<10	>1170
80	5.25	33.664	26.628	3.18		44.7	67	65	2	395	220	<10	>165
90	5.24	33.601R	(26.580)	2.60		(36.6)	92	90	2	470	260	50	160

DEPTH	NO3/	NO2/	NO3/	NO2/	NO3/	NO2/	NO3/	NO2/	NO3/	NO2/	NO3/	NO2/	NO3/	NO2/
M	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
0	60	351	351	351	351	351	351	351	351	351	351	351	351	351
4	55	86	86	86	86	86	86	86	86	86	86	86	86	86
8	19	53	53	53	53	53	53	53	53	53	53	53	53	53
12	17	41	41	41	41	41	41	41	41	41	41	41	41	41
16	18	32	32	32	32	32	32	32	32	32	32	32	32	32
20	16	25	25	25	25	25	25	25	25	25	25	25	25	25
25	9	39	39	39	39	39	39	39	39	39	39	39	39	39
30	13	10	10	10	10	10	10	10	10	10	10	10	10	10
40	7	11	11	11	11	11	11	11	11	11	11	11	11	11
50	7	10	10	10	10	10	10	10	10	10	10	10	10	10
60	12	15	15	15	15	15	15	15	15	15	15	15	15	15
70	59	106	106	106	106	106	106	106	106	106	106	106	106	106
80	7	13	13	13	13	13	13	13	13	13	13	13	13	13
90	6	11	11	11	11	11	11	11	11	11	11	11	11	11

< : LESS THAN VALUE  
 R : REPEATED ANALYSIS  
 > : GREATER THAN VALUE  
 ( ) : UNCERTAIN VALUE





RO.1.14-11:40:54 PAGE:5

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

\*\*\*\*\*  
 \* COUNTRY \* NORWAY \*  
 \* INSTITUTION \* SHIP \*  
 \* NIVA \*  
 \* HICRAN \*  
 \* PROJECT \* 0-12076 \*  
 \* LOCATION \* BREVIKFJORD \*  
 \* STATION \* NORTH \* EAST \*  
 \* NORTH \* 50.2.8 \*  
 \* EAST \* 0.43.2 \*  
 \* DATE \* 770728 \*  
 \* TIME \* 14 \*  
 \* WIND \*  
 \* AIR TEMP. \*  
 \* DEG.CFLS \*  
 \* SFCCHI-DISC \*  
 \* DEPTH \*  
 \* M \* M \*  
 \* WET \*  
 \* DRY \*  
 \* 18 \*  
 \* 3.5 \*  
 \* YELLOW-BROWN \*  
 \* PARTLY CLOUDY \*  
 \* 3/8 \*  
 \* SEA \*  
 \* WAVES 0.1-0.5M \*  
 \* ICE \*  
 \* NO \*  
 \* COMMENT \*  
 \* SRF SMP \* HM 0-2M \*  
 \* COMMENT2 \*  
 \*\*\*\*\*

DEPTH	TEMP.	SAL.	DENS.	02	H2S	02-SAT	TOTP	P04P	ORGP	TOTN	NO3N	MICROSP./L	TOC	FF
M	DEG.C	0/00	SIGMA-T	ML/L	ML/L	0/0	ML/L	ML/L	ML/L	ML/L	ML/L	ML/L	MG/L	MG/L
0	17.60	18.343	12.713				16	2	14	3000	340	325	2335	2.50
4	15.80	28.201	20.612	5.05		102.0	10	<2	>8	365	60	25	280	
8	15.09	30.241	22.328	5.75		98.4	7	<2	>5	210	20	25	165	
12	14.70	30.587	22.677	5.74		97.6	6	<2	>4	180	10	45	125	
16	14.07	30.795	22.967	5.57		93.6	5	<2	>3	185	10	15	160.	
20	14.00	30.946	23.098	5.50		93.0	7	<2	>5	155	10	10	135	
30	12.55	31.374	23.715	5.21		85.2	8	2	6	210	40	45	125	
40	10.14	31.831	24.500	4.52		70.3	19	14	5	270	120	15	135	
60	6.67	33.785	26.548	5.46		79.5	24	21	3	260	130	10	120	
80	5.45	34.431	27.211	5.14		73.0	36	32	4	290	150	<10	>130	
100	6.13	34.639	27.201	5.31		76.8	30	28	2	245	130	20	95	

\*\*\*\*\*  
 \* RATIO \*  
 \* NO3/ \*  
 \* P04 \*  
 \* 376 \*  
 \* 415 \*  
 \* 81 \*  
 \* 66 \*  
 \* 66 \*  
 \* 82 \*  
 \* 49 \*  
 \* 58 \*  
 \* 31 \*  
 \* 24 \*  
 \* 18 \*  
 \* 18 \*  
 \* 10 \*  
 \*\*\*\*\*  
 \* :LESS THAN VALUE \*  
 \* :GREATER THAN VALUE \*  
 \*\*\*\*\*

80.1.14-11:40:55 PAGE:7

MARINE HYDROGRAPHIC DEPTH STATION

CONTROLLED DATA

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*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DATE * TIME *
* NO.3WAY * NIVA * HROGRAN * 0-129/76 * HAYVEJORD * G1-1 * NORTH * EAST * M * *
* SPEED * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* WIND DIRECTION * DEG.CELS * DEPTH * M *
* M/S (0-36) * DRY * WET *
* 7.0 * 20 * 3.5 * YELLOW-GREEN * PARTLY CLOUDY * 3/R *
* SEA * ICE *
* SLIGHT; WAVES 0.5-1.25M * NO *
* COMMENT1 *
* SURF STA 0-2M *
*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGRP./L *
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * * O/O * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * * TOC *
* 0 * 17.80 * 23.120 * 16.295 * * * * 8 * <2 * >6 * 1700 * 140 * 70 * 1490 * * FF *
*****
* DEPTH * RATIOS * MOL/MOL *
* * NO3/ * TOC/ * TOTN/ * HG * PR * CU * ZN * MN * NI * CR * F *
* * P04 * TOTN * TOTP * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
* 0 * 2 * 741 * 470 *
*****
< :LESS THAN VALUE
> :GREATER THAN VALUE
*****

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Tokt 29. – 30.11 1977











CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

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*****
COUNTRY * INSTITUTE * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * IHGRAN * 0-129/76 * EIDANGERFJORD * BF-1 * NORTH * FAST * M * * * * *
* WIND * NIVA * IHGRAN * 0-129/76 * EIDANGERFJORD * BF-1 * NORTH * FAST * M * * * * *
* SPEED * AIR TEMP. * SFCCHI-DISC * WEATHER * CLOUDS *
* M/S * DRY * WET * M * * * * *
* 2.0 * 36 * 10.5 * GREEN * PARTLY CLOUDY * 6/8 *
SEA * CALM * WAVES 0.0M * NO * NO * WRECK * SFA-WFED * BATHY/CTD * SALINOTHERM *
* COMMENT * * * * *
CTD-TEMP+SAL 0M, SRF NTR 0-2M * COMMENT? *
*****

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```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L. * TOC *
* * DEG.C * 9/00 * SIGMA-T * ML/L * ML/L * O/O * TOTP * P04P * ORCP * TOTN * NO3N * NH4N * ORGN * MG/L * FE *
* 0 * 5.78 * 30.120 * 23.770 * * * * * 15 * 13.5 * 1.5 * 370 * 140 * 10 * 220 * 1.60 *
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* * NO3/ * TOC/ * TOTM/ * HG * CU * ZN * MN * NI * CR * F * *
* * P04 * TOTN * TOTP * TOTP * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
* 0 * 23 * 5 * 275 * 55 * * * * * * * * *
*****

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90.1.14-11:41:55 PAGE:6

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME
+ V02WAY * NIVA * IHGRAN * 0-129/76 * FIDANGERFJORD * DF-1 * 59.4.6 * 9.42.5 * 100 * 771120 * 12
+ WIND + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS
+ SPEED DIRECTION * DEG.CFLS * WET * DRY * DEPTH M * COLOUR * PARTLY CLOUDY * 4/8
+ M/S (0-36) * 36 * 12.5 * GREEN * OIL * WRECK * SEA-NEED * RATHY/CTD * SALINOTHERM
+ SEA RIPPLED: WAVES 0.0-0.1M * NO * ICE * NO * PARTLY CLOUDY * 4/8
+ COMMENT1 * * * * *
+ CTD-TEMP+SAL 0-40M, SRF NTR 0-2M
*****

```

DEPTH	TEMP.	SAL.	DENS.	SIGMA-T	02	H2S	02-SAT	TOTP	NUTRIENTS	ORGP	TOTN	NO3N	NH4N	ORGN	TOC	FF
M	DEG.C	0/00	ML/L	ML/L	ML/L	ML/L	O/O	0/0	P04P	04P	04P	04P	04P	04P	MG/L	FF
0	5.00	28.490	22.566	24.315	5.60		86.0	14.5	13.5	1	300	130	30	140	1.40	
4	9.65	31.490	24.315	24.588	5.21		82.5	17	13	4	240	100	<10	>130		
8	10.95	32.100	24.619	24.619	5.46		86.1	15	13	2	240	90	<10	>140		
12	10.67	32.100	24.745	24.745	5.42		85.7	14	12	2	245	80	<10	>155		
16	10.75	32.280	24.879	24.879	5.68		90.3	15	12	3	215	70	15	130.		
20	10.92	32.430	25.183	25.183	5.17		83.1	15	13.5	1.5	235	70	<10	>155		
30	11.30	32.070	25.398	25.398	4.92		79.1	16.5	12	4.5	260	60	<10	>100		
40	11.23	33.230	25.622	25.622	4.95		79.4	14	12.5	1.5	180	70	<10	>100		
50	11.08	33.484	25.779	25.779	4.85		77.5	15.5	13.5	2	210	70	<10	>130		
60	10.81	33.624	26.317	26.317	4.67		72.4	16	13.5	2.5	225	80	<10	>135		
80	9.37	34.000	27.086	27.086	3.52		51.3	30	25	5	270	100	<10	>160		
95	6.53	34.445						48	44	4	315	200	<10	>105		

DEPTH	RATIOS	MOI/MOL	TOC/	TOTN/	HG	PB	CU	ZN	CD	MN	NI	CR	F
M	P04	TOTN	TOTP	TOTN	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MG/L
0	21	5	249	46									
4	17	31											
8	15	35											
12	15	39											
16	13	32											
20	11	35											
30	11	35											
40	12	28											
50	11	30											
60	13	31											
80	9	20											
95	10	15											

< LESS THAN VALUE > GREATER THAN VALUE









## 3.2 Hydrokjemiske data fra 1978

Tokt 7. – 8.3 1978





NO: 7612903 \*: FRIFFJORD \*: RR-1 \*: 59.6.6 9.34.2 \*: 56 \*: 780308 \*: 1125 \* WEATHER \*: CLOUDS \* SNOW, OR RAIN AND SNOW MIXED \* 8/8 \* WRECK \* SEA-WFFD \* RATHY/CTD \* SALINOTHERM \* NO \* NO \* NO \* NO

Table with columns: DEPTH, TEMP, SAL, DENS, SIGMA-T, H2S, O2, O2-SAT, O/O, TOTP, PO4P, NUTRIENTS, VITROGR. / L., TOC, ORGN, NH4N, NO3N, TON, ORGP, CRP, MN, NI, CU, PB, HG, TOB, TOC/TOTM, TOC/TOB, TOB/TOTM, NO3/PO4, PO4, TOB/TOTB, NO3/TOTB, TOB/TOTM, TOB/TOTB. Values range from 0 to 50 depth and various chemical concentrations.

Table with columns: DEPTH, TOC/TOTM, TOB/TOTM, NO3/PO4, PO4, TOB/TOTB, NO3/TOTB, TOB/TOTM, TOB/TOTB. Values range from 0 to 50 depth and various chemical concentrations.

\*\*\*\*\* LESS THAN VALUE \*\*\*\*\* GREATER THAN VALUE \*\*\*\*\* SPOILED OR DAMAGED SAMPLE \*\*\*\*\*





80.1.14-11:36:45 PAGE:12

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
** COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
**      *      *      *      *      *      *      *      *      *      *      *      *      *      *
** NORWAY * NIVA * * 7612903 * BREVIKFJORD * FG-1 * 59.2.8 * 9.43.2 * 110 * 7R0307 * 1200 *
*****
** WIND * AIR TEMP. * SEICHI-DISC * WEATHER * CLOUDS *
**      *      *      *      *      *
** SPEED DIRECTION * DEG.CELS * DEPTH * COLOUR *
**      * (0-36) *      *      *      *
** 4.0 * * 7.0 * YELLOW-GREEN *
*****
** SEA * WAVES 0.0-0.1M * NOT OBSERVED *
*****
** RIPPLED: * * *
*****
** COMMENT1 * * *
*****
** NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD *
*****

```

DEPTH M	TEMP DEG.C	SAL. O/100	DENS. SIGMA-T	O2 ML/L	H2S ML/L	02-SAT O/O	TOTP	PO4P	ORGP	TOTN	NO3N	NO2N	NRGN	CHL	TOC MG/L	TOC	FF
0	1.20	1.030	956				26	12	14	1200	260		225	715	2.20		
4	.07	25.920	20.825	7.80		91.3	27	9	18	700	130		25	545			
8	.16	26.920	21.626	7.59		89.7	27	16	11	230	125		<10	>95			
12	1.77	29.470	23.598	6.77		84.9	27.5	23	4.5	215	120		<10	>85			
16	2.60	31.180	24.908	7.02		91.0	29	20	9	220	115		<10	>95			
20	4.05	32.060	25.484	5.50		74.3	36	30	6	225	130		10	85			
30	6.62	33.620	26.425	4.96		72.1	42	32	10	205	130		<10	>65			
40	6.70	34.130	26.816	5.32		77.7	31	29	2	135	120		<10	>15			
50	6.70	34.530	27.131	5.57		81.6	30.5	23	7.5	180	110		<10	>60			
60	6.74	34.700	27.259	5.67		83.2	31	25	6	185	110		10	65			
80	6.67	34.810	27.355	5.53		81.1	33	25	8	200	125		15	60			
105	6.56	34.890	27.433	5.11		74.7	38	35	3	275	130		<10	>135			

DEPTH M	RATIOS	TOC/ TOTN	NO3/ P04	NO3/ TOTN	HG	PB	CU	ZN	CD	MN	NI	CR	F
0	48	2	218	102									
4	32			57									
8	17			19									
12	12			17									
16	13			17									
20	10			14									
30	9			11									
40	9			10									
50	11			13									
60	10			13									
80	11			13									
105	8			16									

< :IF LESS THAN VALUE > :IF GREATER THAN VALUE





CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * NORWAY *
* INSTITUTION * NIVA *
* SHIP * HIGRAN *
* PROJECT * 7612903 *
* LOCATION * LANGFJUNDSBUKTA *
* STATION * JH-1 *
* NORTH * 59.58.1 *
* EAST * 9.47.0 *
* DEPTH * 205 *
* DATE * 780307 *
* TIME * 1000 *
* WIND *
* DIRECTION *
* (0-36) *
* DRY *
* WFT *
* M *
* 33 *
* WEATHER * CLOUDS *
* SPEED *
* M/S *
* 4.0 *
* CONTINUOUS LAYER OF CLOUDS *
* 8/8 *
* SEA *
* WAVES * 0.1-0.5M *
* SMOOTH *
* ICE *
* NO *
* COMMENT1 *
* SURFACE STATION, NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD *
*****
* DEPTH * 0 *
* TEMP. *
* SAL. *
* DENS. *
* SIGMA-T *
* ML/L *
* O2 *
* H2S *
* ML/L *
* O2-SAT *
* 0/0 *
* TOTP *
* P04P *
* ORGP *
* TOTN *
* 365 *
* 12.5 *
* 17 *
* 20.5 *
* 17 *
* 185 *
* 90 *
* 90 *
* 2.18 *
* MICROGR./L *
* NH4N *
* ORGN *
* MG/L *
* FF *
*****
* DEPTH *
* PATIOS *
* MOL/MOL *
* NO3/ *
* TOC/ *
* TOTN *
* P04 *
* 24 *
* 7 *
* 191 *
* TOC/ *
* TOTP *
* TOTN/ *
* HG *
* MYG/L *
* PB *
* MYG/L *
* CU *
* MYG/L *
* ZN *
* MYG/L *
* MN *
* MYG/L *
* NI *
* MYG/L *
* CR *
* MYG/L *
* F *
* MG/L *
*****

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Tokt 30. –31.5 1978

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * NORTH * EAST * DEPTH * DATE * TIME *
* NORWAY * NIVA * HICRAN * 7612003 * SKIENSFJVA * S-1 * 59.11.8 * 9.37.1 * 21 * 780530 * 0900 *
* WIND * DIRECTION * (0-36) * DRY * WET * M * SECCHI-DISC * WEATHER * * CLOUDS *
* 0.0 * * * * * 3.5 * GREEN * * CLEAR * * NO *
* SEA * CALM * WAVES * 0.0M * * NO * * * * *
* COMMENT *
* NUTRIENTS + SUSPENDED INORG. + TOTAL SUSPENDED MATTER 0-2.4.18M
*****

```

DEPTH	TEMP.	SAL.	DENS.	SIGMA-T	02	H2S	02-SAT	TOTP	P04P	ORGP	TOTN	NO3N	NH4N	MICROGR./L	TOC
0	5.00	0.000	.177	9.02	101.0	6	2	9	5	4	760	420	<10	>330	3.18
4	5.00	0.000	.177	9.13	102.2	6	<2	6	4	4	920	420	<10	>490	
8	4.97	0.000	.178	9.13	102.2	7	3	7	4	4	740	415	<10	>315	
12	4.96	0.000	.177	9.06	101.4	6	3	6	3	3	720	415	<10	>355	
18	4.98	0.000	.177	9.06	101.4	6	3	6	3	3	720	415	<10	>295	

DEPTH	RATIOS	MOL/MOL	TOC/	NO3/	TOC/	TOTN/	HG	PB	CU	ZN	CD	MN	NI	CR	F
0	186	911	187	339	273	246	265								
4	464														
8	306														
12	306														
18	306														

< : LESS THAN VALUE > : GREATER THAN VALUE



CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HIGRAN * 7612903 * FRIERFJORD * RB-1 * NORTH EAST * M * 780530 * 1500 *
* WIND * DIRECTION * (0-36) * DRY * WET * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* M/S * 4.0 * 9 * DEPTH * M * 3.0 * YELLO-GREEN * CLEAR * NO *
* SEA * WAVES * 0.0-0.1M * NO *
* RIPPLED * WAVES * 0.0-0.1M * NO *
* COMMENT1 *
* NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD *
* COMMENT2 *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * O2 * H2S * ML/L * O2-SAT * TO2P * TO2P * ORGP * TO2N * NO3N * NH4N * ORGN * TOC * FE *
* M * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
0 * 6.50 * .250 * .327 * 8.50 * 8.50 * .327 * 08.2 * 10 * 5 * 1600 * 460 * 50 * 1000 * 3.10 *
3.5 * 6.16 * .270 * .355 * 7.95 * 7.95 * .355 * 95.2 * 8 * 3 * 1300 * 460 * 65 * 775 *
8 * 6.22 * 5.430 * 4.374 * 6.60 * 6.60 * 4.374 * 87.2 * 9 * 5 * 4 * 800 * 390 * 510 * -80 *
12 * 4.50 * 26.890 * 21.348 * 3.90 * 3.90 * 21.348 * 54.8 * 13 * 12 * 1 * 275 * 105 * 90 * 80 *
16 * 5.57 * 32.200 * 25.435 * 4.05 * 4.05 * 32.200 * 57.0 * 38 * 37 * 2 * 325 * 245 * 10 * 70 *
20 * 5.54 * 32.760 * 25.880 * 3.58 * 3.58 * 32.760 * 50.8 * 40 * 35 * 5 * 275 * 200 * 10 * 65 *
25 * 5.72 * 33.420 * 26.380 * 2.22 * 2.22 * 33.420 * 31.6 * 54 * 49 * 5 * 230 * 175 * 10 * 45 *
30 * 5.84 * 33.550 * 26.468 * 0.00 * 0.00 * 33.550 * 0.0 * 67 * 59 * 8 * 200 * 115 * 10 * 75 *
40 * 5.87 * 33.670 * 26.559 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
50 * 5.93 * 33.700 * 26.576 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****

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```

*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* M * NO3/PO4 * PO4TOTN * TOC/TOTN * HG * MYG/L * PB * MYG/L * CU * MYG/L * ZN * MYG/L * NI * MYG/L * CR * MYG/L * F *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
0 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
3.5 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
8 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
12 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
16 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
20 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
25 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
30 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
40 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
50 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****

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*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

```

```

*****
** COUNTRY * INSTITUTION * SHIP ** PROJECT ** LOCATION ** STATION ** POSITION ** DATE ** TIME **
** NORWAY * NIVA * HIRAN ** 7612903 ** FRIFREJORD ** RC-1 ** NORTH EAST ** 780530 ** 1615 **
** WIND * AIR TEMP. ** * SFCCHT-DISC ** * WEATHER ** * CLOUDS **
** * DEG.CELS * DEPTH * M * ** * ** * ** * **
** * 4.0 * 0 * ** 3.5 ** YELLOW-GREEN ** * CLEAR ** * NO **
** SEA ** * ICE ** * NO **
** SWATH: WAVES 0.1-0.5M ** * NO ** * WRECK * SFA-WEEP ** RATHY/CTD ** SALINOTHERM **
** COMMENT1 ** * COMMENT2 **
*****

```

```

*****
** DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * ML/L * 02-SAT * O/O * TOTP * P04P * NUTRIENTS * MICROGR./L * TOC * FF *
** * M * DEG.C * O/00 * SIGMA-T * ML/L ** ** ** ** ** ** ** ** ** ** ** * ** * ** * ** * ** * ** *
** 0 * 8.00 * .380 * .349 * 14 * 8 * 6 * 1800 * 520 * 335 * 945 * 2.95 *
** 4 * 6.92 * .430 * .448 * 15 * 7 * 8 * 1500 * 540 * 415 * 545 * *
** 8 * 6.58 * 8.340 * 6.622 * 15 * 7 * 8 * 1340 * 390 * 1000 * -50 *
** 12 * 4.78 * 26.260 * 20.825 * 16 * 16 * 0 * 310 * 125 * 90 * 95 *
** 16 * 5.52 * 32.270 * 25.496 * 39 * 34 * 5 * 330 * 235 * <10 * 50. *
** 20 * 5.54 * 32.730 * 25.857 * 41 * 41 * 0 * 260 * 225 * <10 * >25 *
** 25 * 5.40 * 33.330 * 26.347 * 41 * 41 * 0 * 260 * 225 * <10 * >25 *
** 30 * 5.59 * 33.527 * 26.490 * 44 * 41 * 5 * 270 * 210 * <10 * >50 *
** 40 * 5.56 * 33.601 * 26.542 * 55 * 55 * 6 * 260 * 190 * <10 * >60 *
** 50 * 5.80 * 33.683 * 26.578 * 65 * 65 * 6 * 245 * 150 * <10 * >85 *
** 60 * 5.71 * 33.699 * 26.602 * 54 * 49 * 5 * 245 * 160 * <10 * >75 *
** 80 * 6.29 * 33.835 * 26.637 * 56 * 54 * 2 * 250 * 175 * <10 * >65 *
** 90 * 6.35 * 33.859 * 26.648 * 70 * 65 * 5 * 255 * 210 * <10 * >35 *
*****

```

```

*****
** DEPTH * RATIOS * MOL/MOL * TOC/TOC * TOTN/TOC * HG * PR * CU * ZN * NI * CR * F *
** * M * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 0 * 144 * 2 * 543 * 284 * * * * * * * * * * * * * * * *
** 4 * 171 * * * * * 198 * * * * * * * * * * * * * * * *
** 8 * 123 * * * * * 43 * * * * * * * * * * * * * * * *
** 12 * 17 * * * * * 18 * * * * * * * * * * * * * * * *
** 16 * 14 * * * * * 19 * * * * * * * * * * * * * * * *
** 20 * 15 * * * * * 14 * * * * * * * * * * * * * * * *
** 25 * 12 * * * * * 12 * * * * * * * * * * * * * * * *
** 30 * 10 * * * * * 10 * * * * * * * * * * * * * * * *
** 40 * 8 * * * * * 8 * * * * * * * * * * * * * * * *
** 50 * 6 * * * * * 8 * * * * * * * * * * * * * * * *
** 60 * 7 * * * * * 10 * * * * * * * * * * * * * * * *
** 80 * 7 * * * * * 10 * * * * * * * * * * * * * * * *
** 90 * 7 * * * * * 8 * * * * * * * * * * * * * * * *
*****
< * IF LESS THAN VALUE > * GREATER THAN VALUE *****

```

MARINE HYDROGRAPHIC DEPTH STATION

CONTROLLED DATA

80.1.14-11:36:56 PAGE:8

```

*****
* COUNTRY * INSTITUTE * SHIP * PROJECT * LOCATION * STATION * NORTH * EAST * DEPTH * DATE * TIME *
* NORWAY * * * * * 7612903 * FIDANGERFJORD * BF-1 * 59.6.1 * 9.42.7 * 70 * 780531 * 1445 *
* WIND * * * * * AIR TEMP. * * * * * WEATHER * * * * * CLOUDS *
* SPEED * * * * * DEPTH * * * * * COLOUR * * * * * *
* M/S * (0-36) * DRY * WET * * * * * * * * * * *
* 5.0 * 16 * 15.5 * * * * * PARTLY CLOUDY * * * * * 2/8 *
* SEA * * * * * * * * * * * * * * * * * * * * * *
* SMOOTH: WAVES 0.1-0.5M * * * * * * * * * * * * * * * * * * * * * *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* COMMENT * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* SURFACE STATION 0-2M, TEMPERATURE AND SALINITY BY CTD * * * * * *
*****

```

```

*****
* DEPTH * SAL. * DENS. * O2 * H2S * O2-SAT * NUTRIENTS * MICROGR./L * * * * *
* M * DEC.C * 0/00 * SIGMA-T * ML/L * * * * * 0/0 * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * MG/L * * * * *
* 0 * 10.50 * 7.220 * 5.405 * * * * * 14 * 3 * 11 * 1500 * 400 * 140 * 960 * 2.88 *
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL * * * * * HEAVY METALS * * * * *
* M * * * * * TOC/ * TOTN/ * HG * * * * * * * * * * * * * * *
* * * * * * * * * * * * * * * * * * * * * * * * * * *
* 0 * 295 * 2 * 531 * 237 * * * * * * * * * * * * * * *
*****

```









MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA RO.1.14-11:36:58 PAGE:11

```

*****
* COUNTRY * NORWAY
* INSTITUTION * NIVA
* SHIP * HILGRAN
* PROJECT * 7612903
* LOCATION * LANGESUNDSBUKTA
* STATION * JH-1
* POSITION * NORTH 58.58.1
* DATE * 780531
* DEPTH * 205
* TIME * 1200
* NIVA *
* HILGRAN *
* AIR TEMP. *
* DEG.CFLS *
* DRY WET *
* WIND DIRECTION *
* (0-36) *
* SPEED *
* M/S *
* I.C *
* SEA *
* SWOOTH; WAVES 0.1-0.5M
* COMMENT1
* SURFACE STATION, NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD
*****

```

```

*****
* TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L *
* DEG.C * 0700 * SIGMA-T * ML/L * 0/0 * 0/0 * TOTP P04P ORGP TOTN NO3N NH4N ORGN * M/G/L * FF *
* 13.60 19.689 14.521 * 15 14 1 265 25 50 100 3.25
*****
* DEPTH * RATIOS * MOL/MOL *
* M * NO3/ * TOC/ * TOTN/ * HG * CU * ZN * NI * CR *
* P04 * TOTP * TOTD * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
* 0 4 14 559 39
*****

```

```

*****
* WEATHER *
* CLOUDS *
* CONTINUOUS LAYER OF CLOUDS *
* OIL * WPECK * SEA-WFEE * BATHY/CTD * SALINOTHERM *
* YES * NO * NO * + * - *
* COMMENT2
*****

```

Tokt 8. – 9.8 1978











80.1.14-11:37:33 PAGE:9

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME
+ NORWAY + NIVA + HHRAN + 7612903 + EIDANGEREFJORD + BF-1 + NORTH + EAST + M + *
*****
WIND + DIRECTION + AIR TEMP. + SPECCHI-DISC + WEATHER + * CLOUDS
+ (0-36) + DRY WET + M + *
*****
SPEED + DEPTH + *
+ 2.0 + 3.2 + YELLOW-GREEN + * PARTLY CLOUDY + 2/8 +
*****
SEA + ICE + *
+ RIPPLES: WAVES 0.0-0.1M + NO + *
*****
COMMENT1 + *
+ SURFACE STATION, NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD + *
*****

```

```

*****
+ DEPTH + TEMP. + SAL. + DENS. + 02 + H2S + 02-SAT + NUTRIENTS + MICROGR./L. + TOC + *
+ M + DEG.C + 0/00 + SIGMA-T + ML/L + 0/0 + 0/0 + 8 + P04P + ORGP + TOTN + NO3N + NH4N + ORGN + MG/L + FE + *
+ 0 + 19.60 + 23.200 + 15.033 + * * * * * + 1500 + 85 + 60 + 1355 + 3.50 +
*****
+ DEPTH + RATIOS + MOL/MOL + *
+ M + NO3/ + TOC/ + TOTN/ + HG + * HEAVY METALS + *
+ 0 + P04 + TOTN + TOTP + MYG/L + PR + CU + ZN + CD + MN + NI + MYG/L + CR + MYG/L + F + *
+ * * * * * + 3 + 1128 + 415 + * * * * * + * * * * * + * * * * * + * * * * * + * * * * *
< * LESS THAN VALUE *
> * GREATER THAN VALUE *

```

MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA

```

*****
COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME
* * * * *
* NORWAY * NIVA * IMGRAN * 7612903 * EIDANGERFJORD * DF-1 * NORTH * 59.4.6 * 07 * 7000R * 1230
* * * * *
WIND * * * * *
* * * * *
SPEED * DIRECTION * DEG.CELS * DEPTH * WEATHER * * * * *
* 2.5 * (0-36) * DRY * 3.5 * PARTLY CLOUDY * * * * *
* * * * *
SEA * * * * *
* * * * *
SMOOTH: WAVES 0.1-0.5M * ICE * * * * *
* * * * *
COMMENT1 * * * * *
* * * * *
NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD 0-30M * * * * *
*****

```

DEPTH	TEMP.	SAL.	DENS.	SIGMA-T	H2S	O2	02-SAT	TOTP	P04P	ORGP	TOTN	NO3N	NH4N	MICROGR./L	ORGN	TOC
0	19.20	18.200	12.247					7	2	5	1400	140	60	1200	3.40	
4	18.58	23.820	16.647	6.01	106.0			<2	<2	5	285	10	15	260		
8	18.96	24.920	17.391	5.59	100.0			5	2	3	230	<10	15	>205		
12	17.43	27.080	19.393	5.23	92.0			6	2	4	245	10	65	170		
16	15.52	29.340	21.545	5.02	86.1			7	<2	>5	235	15	60	160		
20	13.18	30.080	23.289	4.45	73.5			8	3	5	265	60	55	150		
30	11.38	31.070	24.393	4.81	77.0			15	7	8	255	115	<10	>130		
40	8.96	32.506	25.216	4.35	66.2			21	16	5	295	160	<10	>125		
50	6.72	33.242	26.114	4.60	66.8			30	24	6	320	195	<10	>115		
60	6.05	33.753	26.603	4.98	71.4			27	23	4	295	200	<10	>85		
80	5.43	34.250	27.070	4.77	67.6			36	29	7	320	220	<10	>90		
95	5.42	34.548	27.307	3.64	51.7			50	50	0	345	260	<10	>75		

DEPTH	M	NO3/	P04	155	TOTN/	TOTP	HG	PB	CU	ZN	CD	MN	NI	CR	F
0					442		.06	<.5	1.9						
4					442										
8		<11			102										
12		11			90										
16					74										
20		44			73										
30		36			38										
40		22			31										
50		18			24										
60		19			24										
80		17			20										
95		11			15										

< \* LESS THAN VALUE \* \* \* \* \*  
 > \* GREATER THAN VALUE \* \* \* \* \*







Tokt 21. – 22.11 1978







80.1.14-11:38:32 PAGE:3

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NO2WAY * MIVA * HUGRAN * 7612903 * FRIFRFJORD * BB-1 * NORTH * EAST * 5R * 781122 * 1100 *
* WIND * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* SPEED * DIRECTION * (0-36) * DRY * WET * M * DEPTH * COLOUR *
* 2.0 * 21 *
* SEA * WAVES 0.0-0.1M * NO * ICE *
* RIPPLED * PARTLY CLOUDY *
* COMMENT1 * WRECK * SEA-WEED * BATHY/CTD * SALINOTHERM *
* COMMENT2 * NO * NO * NO *
* NUTRIENTS 0-24, TEMPERATURE AND SALINITY BY CTD * COMMENT3 *
*****

```

DEPTH	TEMP.	SAL.	DENS.	SIGMA-T	O2	H2S	O/O	02-SAT	TOTP	PO4P	ORGP	TOTN	NO3N	NH4N	ORGN	TOC	FE
0	6.47	5.930	4.750	5.72	84.7	16	3	12.00	400	380	9	12.00	400	330	380	3.60	
4	9.57	25.960	20.023	4.12	64.7	22	8	12.00	450	390	8	12.00	450	360	390		
8	10.67	31.550	24.192	4.19	66.4	22	19	3	285	160	3	300	190	<10	>100		
12	10.92	32.110	24.584	4.33	68.6	19	18	1	255	120	3	285	160	20	105		
16	10.86	32.240	24.695	4.12	65.4	21	18	3	240	130	3	240	130	<10	>100		
20	10.93	32.310	24.737	4.40	69.9	20	18	2	245	110	1	245	110	<10	>125		
25	10.91	32.480	24.873	3.69	58.4	22	21	1	245	50	0	245	50	10	185		
30	10.58	32.040	25.288	.99	14.3	54	54	0	320	160	0	320	160	20	140		
40	6.38	33.370	26.259	.80		89	89	0	265	<10	0	265	<10	75	>180		
55	5.76	33.740	26.628														

DEPTH	NO3/	NO4/	TOC/	TOTN/	TOCP/	HG	PB	CU	ZN	CD	MN	NI	CR	F
0	361	221	774	221	166									
4	124	30		30	29									
8	22	29		29	25									
12	19	25		25	27									
16	15	25		25	25									
20	16	25		25	25									
25	14	25		25	13									
30	5	25		25	7									
40	7	13		13	<0									
55	<0	7		7										

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NO2WAY * MIVA * HUGRAN * 7612903 * FRIFRFJORD * BB-1 * NORTH * EAST * 5R * 781122 * 1100 *
* WIND * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* SPEED * DIRECTION * (0-36) * DRY * WET * M * DEPTH * COLOUR *
* 2.0 * 21 *
* SEA * WAVES 0.0-0.1M * NO * ICE *
* RIPPLED * PARTLY CLOUDY *
* COMMENT1 * WRECK * SEA-WEED * BATHY/CTD * SALINOTHERM *
* COMMENT2 * NO * NO * NO *
* NUTRIENTS 0-24, TEMPERATURE AND SALINITY BY CTD * COMMENT3 *
*****

```

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HHRAN * 7612003 * FRIFRBJORD * RC-1 * NORTH * FAST * 95 * 781122 * 000 *
* WIND * DIRECTION * AIR TEMP. * WEATHER *
* M/S * (0-36) * DEG.CELS * DRY * WET *
* 4.0 * 31 * * *
* SEA * * * *
* SMOOTH: WAVES 0.1-0.5M * * * *
* COMMENT * * * *
* NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD 0-25M * * * *
*****

```

DEPTH	TEMP.	SAL.	DENS.	02	H2S	02-SAT	TOTP	PO4P	ORGP	TOTN	NO3N	NH4N	ORGN	TOC
M	DEC.C	0/00	SIGMA-T	ML/L	ML/L	O/O	ML/L	ML/L	ML/L	ML/L	MG/L	MG/L	MG/L	MG/L
0	6.50	5.840	4.678				14	3	11	1600	5.35	5.00	5.65	3.68
4	9.65	29.370	22.664	5.33		80.8	19	13	6	1000	335	310	355	
8	10.62	32.050	24.589	5.18		81.6	17	13	4	215	100	<10	>105	
12	10.82	32.210	24.679	4.58		72.5	20	17	3	240	120	15	105	
16	10.83	32.210	24.677	4.47		70.8	19	17	2	245	120	<10	>115	
20	10.86	32.350	24.781	4.54		72.0	19	17	2	245	120	20	105	
25	10.94	32.550	24.922	4.69		74.6	21	17	4	220	105	<10	>105	
30	10.68	32.981	25.302	4.54		72.0	23	20	3	260	95	15	150	
40	6.43	33.558	26.401	1.67		24.1	105	102	3	300	190	<10	>100	
50	5.85	33.652	26.548	.92		13.1	63	62	1	295	180	<10	>105	
60	5.78	33.687	26.584	.75		10.7	63	61	2	270	160	<10	>100	
80	5.77	33.745	26.631	.28		4.0	83	81	2	335	220	<10	>105	
90	5.77	33.765	26.647	.28		4.0	95	87	8	340	230	<10	>100	

DEPTH	RATIOS	MOL/MOL	TOC/	TOC/	TOTN/	HG	PB	CU	ZN	NI	CR	F
M	NO3/	NO3/	TOTN	TOTP	TOTP	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
0	394	3	678	253	116							
4	57			116	28							
8	17			28	27							
12	16			27	29							
16	16			29	29							
20	16			29	25							
25	14			25	6							
30	11			6	10							
40	4			10	9							
50	6			9	9							
60	6			9	8							
80	6			8								
90	6											

```

*****
* NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD 0-25M *
*****
< *IF LESS THAN VALUE *
> *IF GREATER THAN VALUE *
*****

```

MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA 80.1.14-11:38:38 PAGE:9

```
*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* * * * *
* NORWAY * * * * * HIGRAN * * 7612903 * * EIDANGERFJORD * * RF-1 * * 59.6.1 * * 70 * * 781121 * * 1200 *
* * * * *
* * * * * WIND * * * * * AIR TEMP. * * SECCHI-DISC * * WEATHER * * CLOUDS *
* * * * *
* * * * * SPEED * * * * * DEPTH * * * * *
* * * * * M/S * * * * * DRY * * * * * WET * * * * *
* * * * * 5.0 * * * * * 18 * * * * * 7.5 * * * * * BROWN-GREEN * * * * *
* * * * *
* * * * * SFA * * * * * ICE * * * * *
* * * * * SMOOTH: WAVES 0.1-0.5M * * * * * NO * * * * *
* * * * *
* * * * * COMMENT: * * * * *
* * * * * SURFACE STATION, NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD * * * * *
*****
* * * * *
* * * * * DEPTH * * * * * SAL. * * * * * DENS. * * * * * H2S * * * * * O2-SAT * * * * * NUTRIENTS * * * * * MICROSR./L * * * * *
* * * * * M * * * * * 0/00 * * * * * 02 * * * * * ML/L * * * * * 0/0 * * * * * TOTP * * * * * P04P * * * * * ORCP * * * * * TOTN * * * * * NH4N * * * * * ORCN * * * * * MG/L * * * * * FF * * * * *
* * * * * 0 * * * * * 5.58 * * * * * 13.600 * * * * * 10.800 * * * * * * * * * * * 12 * * * * * 6 * * * * * 6 * * * * * 1300 * * * * * 420 * * * * * 290 * * * * * 590 * * * * * 2.90 * * * * *
* * * * *
* * * * * DEPTH * * * * * RATIOS * * * * * MOL/MOL * * * * *
* * * * * M * * * * * NO3/ * * * * * TOTN/ * * * * * TOTP * * * * * HG * * * * * PH * * * * * CU * * * * * ZN * * * * * CD * * * * * MN * * * * * NI * * * * * CR * * * * * F * * * * *
* * * * * 0 * * * * * 155 * * * * * 3 * * * * * 623 * * * * * 240 * * * * * * * * * * * * * * * * * * * * *
*****
```

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * DATE * TIME *
* NORWAY * NIVA * HIGRAN * 7612903 * EIDANGFRJORD * DF-1 * 97 * 781121 * 1300 *
+-----+-----+-----+-----+-----+-----+-----+-----+
* WIND * DIRECTION * DEPTH * DEPTH * SECCHI-DISC * WEATHER * CLOUDS *
* M/S * (0-36) * M * M * COLOUR *
* 5.0 * 18 * * * 6.5 * YELLOW-GREEN * PARTLY CLOUDY * 3/8 *
+-----+-----+-----+-----+-----+-----+-----+-----+
* SEA * WAVES * 0.1-0.5M * * NO * * *
+-----+-----+-----+-----+-----+-----+-----+-----+
* COMMENT *
* NUTRIENTS 0-2%, TEMPERATURE AND SALINITY BY CTD 0-30M *
*****

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*****
* DEPTH * TEMP. * SAL. * DENS. * O2 * H2S * O2-SAT * TOTP * P04P * ORGP * TOWN * NO3N * NH4N * ORGN * TOC * FF *
* M * DEG.C * O/00 * ML/L * ML/L * O/0 * O/0 * * * * * * * * * * * * * * * * *
0 7.14 13.460 10.573 6.04 91.4 11 10 4 6 1000 390 250 360 2.88
4 9.35 30.180 23.341 6.85 104.3 11 9 2 2 255 90 60 105
8 9.43 30.930 23.913 6.32 97.1 11 9 2 2 230 60 60 110
12 9.71 31.390 24.227 6.18 96.4 10 9 2 2 220 60 60 100
16 10.24 31.930 24.561 5.96 93.5 13 10 3 3 200 70 25 105
20 10.42 32.180 24.725 5.54 87.7 10 10 0 0 180 65 <10 >80
30 10.74 32.570 24.972 5.40 86.1 10 9 1 1 185 50 <10 >125
40 10.96 32.798 25.111 5.68 90.8 9 9 0 0 140 50 10 80
50 11.00 33.133 25.364 5.18 82.8 12 11 1 1 215 65 15 135
60 10.90 33.394 25.584 4.01 58.9 35 35 0 0 265 195 10 60
80 6.91 34.278 26.904 3.37 48.9 50 50 0 0 320 230 <10 >80
95 6.33 34.509 27.163
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL. * HEAVY METALS *
* NO3/ TOC/ TOTN/ HG PB MYG/L CU ZN MN NI CR F *
* P04 TOTN TOCP * MYG/L MYG/L MYG/L MYG/L MYG/L MYG/L *
* 216 3 743 221 51 46 44 44 31 40 41 34 40 17 14 >
* 22 15 12 17 18 14 12 40 30 14 20 12 50 60 30 95 *
< :IFSS THAN VALUE >
:GREATER THAN VALUE
*****

```



CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```
*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * NORTH * EAST * DEPTH * DATE * TIME *
* 1 * NORWAY * * NIVA * * TRIGRAN * * 7612903 * * HAØYFJØRDEN * * GI-1 * * 59.1.4 * * 9.48.0 * * 205 * * 781121 * * 1100 *
*****
* WIND * * * * *
* * AIR TEMP. * * * * *
* * DEG.CELS * * DEPTH * * SECCHI-DISC * * WEATHER * * CLOUDS *
* * (0-36) * * * * *
* * DRY WET * * * * *
* * 20 * * * * *
*****
* SEA *
* * WAVES 0.1-0.5M * *
* * * * *
* * * * *
* * * * *
* * * * *
*****
* * SURFACE STATION, NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD
*****
```

```
*****
* * DEPTH * * TEMPER * * SAL * * DENS * * 02 * * H2S * * ML/L * * TOTP * * P04P * * ORGP * * TOTN * * N03N * * NH4N * * ORGN * * TOC * *
* * 0 * * 7.09 * * 20.190 * * 15.833 * * 12 * * 7 * * 5 * * 720 * * 290 * * 375 * * 55 * * 2.23 *
*****
```

```
*****
* * DEPTH * * RATIOS * * MOL/MOL * *
* * * * * * * * * * *
* * * * * * * * * * *
*****
```

```
*****
* * SURFACE STATION, NUTRIENTS 0-2M, TEMPERATURE AND SALINITY BY CTD
*****
* * DEPTH * * TEMPER * * SAL * * DENS * * 02 * * H2S * * ML/L * * TOTP * * P04P * * ORGP * * TOTN * * N03N * * NH4N * * ORGN * * TOC * *
* * 0 * * 7.09 * * 20.190 * * 15.833 * * 12 * * 7 * * 5 * * 720 * * 290 * * 375 * * 55 * * 2.23 *
*****
```

```
*****
* * DEPTH * * RATIOS * * MOL/MOL * *
* * * * * * * * * * *
* * * * * * * * * * *
*****
```





### **3.3 Hydrokjemiske data fra 1979**

Tokt 13. – 14.3 1979

MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA RO.3.27-17:40:13 PAGE:1

```

*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME +
+ NORWAY + NIVA + HIRGAN + 0-76129 + SKIENSELVA + S-1 + NORTH + EAST + M + 23 + 700313 + 0 +
+ WIND + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS +
+ M/S + DIRECTION + DEG.CELS + DEPTH + MET + M + PARTLY CLOUDY + 4/8 +
+ 0.0 + (0-36) + DRY + 0.0 + 2.6 + GREEN + OIL + WPECK + SEA-WEEP + BATHY/CTD + SALINOTHERM +
+ SEA + WAVES 0.0M + ICE + NO + COMMENT2 +
+ COMMENT1 +
*****

```

```

*****
+ DEPTH + TEMP. + SAL. + DENS. + SIGMA-T + H2S + O2 + 02-SAT + O/O + TOTP + PO4P + ORGP + TOTN + NO3N + NH4N + ORGN + TOC +
+ M + DEG.C + 0/00 + 0/00 + <2.846 + <2.415 + 8.28 + (86.6) + 13 + 9 + 4 + 660 + 370 + 80 + 210 + 8.50 +
+ 4 + 1.70 + <2.846 + <2.411 + 8.14 + 85.0 + 14 + 8 + 6 + 580 + 370 + 25 + 185 +
+ 8 + 1.40 + 3.465 + 2.897 + 8.14 + 85.0 + 10 + 5 + 5 + 550 + 360 + 15 + 175 +
+ 12 + 3.09 + 26.072 + 20.808 + 4.86 + 61.6 + 22 + 12 + 10 + 335 + 110 + 65 + 160 +
+ 16 + 5.00 + 28.026 + 22.199 + 1.47 + 13 + 21 + 285 + <10 + 125 + >150 +
+ 20 + 5.71 + 29.006 + 22.900 + 4.79 + 30 + 15 + 325 + <10 + <10 + >305 +
*****

```

```

*****
+ DEPTH + RATIOS + MOL/MOL + HEAVY METALS +
+ M + NO3/ + TOC/ + TOTN/ + TOC/ + TOTP/ + HG + PB + CU + ZN + CD + MN + NI + CR + F +
+ 0 + 91 + 15 + 1686 + 112 + 92 + 34 + 10 + 10 + 10 + 10 + 10 + 10 + 10 +
+ 4 + 102 + 159 + 122 + 34 + 10 + 10 + 10 + 10 + 10 + 10 + 10 +
+ 12 + 20 + 20 + 34 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 +
+ 16 + <2 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 +
+ 20 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 + <1 +
*****
< :LESS THAN VALUE > :GREATER THAN VALUE
( ) :UNCERTAIN VALUE
*****

```

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HHRAN * 0-76129 * SKIENSFLVA * S-2 * NORTH * 59.08.5 * 23 * 790313 * 1115 *
* (WIN) * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* W/S * DRY * WET * * * * *
* 0.0 * * * * *
* SFA * CALM; WAVES 0.0M * ICE * PARTLY CLOUDY * 5/8 *
* * * * *
* COMMENT1 * * * * *
* * * * *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * SIGMA-T * ML/L * H2S * O2-SAT * O/O * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * TOC * FF *
* M * 4.10 * 1.82 * 11.323 * 9.137 * 7.71 * 85.7 * 14 * 10 * 4 * 500 * 700 * 400 * 145 * 155 * 4.30 *
* 4 * 2.65 * 27.950 * 22.331 * 9.137 * 6.71 * 85.2 * 19 * 15 * 4 * 295 * 500 * 305 * 120 * 75 *
* 8 * 2.67 * 28.632 * 22.873 * 5.85 * 74.7 * 22 * 15 * 7 * 290 * 290 * 80 * 90 * 120 *
* 16 * 5.62 * 30.245 * 23.886 * .71 * 9.9 * 37 * 19 * 18 * 370 * 100 * 160 * 110 *
* 20 * 6.70 * 30.957 * 24.320 * .14 * 2.0 * 32 * 24 * 8 * 205 * <10 * 125 * >70 *
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* M * * * * *
* 0 * 08 * 09 * 10 * 11 * 12 * 13 * 14 *
* 4 * 67 * 792 * * * * *
* 8 * 15 * * * * *
* 12 * 12 * * * * *
* 16 * 12 * * * * *
* 20 * <1 * * * * *
*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

```

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

80.3.27-17:40:14 PAGE:3

```

*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME
+ NORWAY + NIVA + HIRGAN + 0-76129 + FRIERFJORD + BR-1 + NORTH EAST + 58 + 700313 + 1615
+ MIND + AIR TEMP. + SFCCHI-DISC + WEATHER + CLOUDS
+ SPEED DIRECTION + DEPTH WET * M * 3.2 GREEN-BROWN + PARTLY CLOUDY + 5/8
+ M/S (0-35) + DRY * M *
+ SEA + ICE
+ SMOOTH: WAVES 0.1-0.5M * NO
+ COMMENT1
*****

```

```

*****
+ : DEPTH + TEMP. + SAL. + DENS. + 02 ML/L + H2S + 02-SAT + O/O + TOTP + P04P + ORGP + TOTN + N03N + NH4N + ORGN + TOC + FE
+ M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * O/O * 6 * 10 * 8 * 1500 * 600 * 250 * 650 *
0 1.75 <2.846 <2.412 7.14 80.8 27 19 13 290 620 90 75 125 1280
4 2.36 11.956 9.634 6.85 86.7 19 13 290 620 90 75 125 1280
12 3.51 28.026 23.369 7.07 92.6 19 14 290 620 90 75 125 1280
16 6.15 30.096 24.418 4.28 60.5 34 29 335 200 80 55 55 55
20 7.32 32.040 25.090 3.71 54.2 35 34 305 190 <10 >105 >10 >70 >65 >60
25 7.37 32.595 25.519 3.74 54.9 38 37 300 180 <10 >110 >10 >70 >65 >60
30 6.95 33.363 26.179 2.50 36.5 42 41 165 90 <10 >70 >65 >60
40 6.15 33.620 26.485 .93 13.4 57 56 135 <10 >70 >65 >60
55 5.84 33.667 26.561 .14 77 61 135 <10 >70 >65 >60
*****

```

```

*****
+ : DEPTH + RATIOS + MOL/MOL + HEAVY METALS
+ M + NO3/ TOC/ TOTN/ TOC/ TOTN/ TOC/ TOTN/ TOC/ TOTN/ TOC/ TOTN/ TOC/ TOTN/ TOC/ TOTN/ TOC/ TOTN/
+ 0 221 3 207 197 34 32 22 19 17 12 6 5
4 72 15 15 34 32 22 19 17 12 6 5
8 15 16 32 32 22 19 17 12 6 5
12 16 15 22 19 17 12 6 5
16 15 12 17 12 6 5
20 12 11 17 12 6 5
25 11 8 12 6 5
30 8 4 6 5
40 4 <0
55 <0
*****
< :IF LESS THAN VALUE
> :GREATER THAN VALUE
*****

```

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * NORTH * EAST * DATE * TIME *
* NORWAY * NIVA * HHRAN * 0-76129 * FRIFREJORD * RC-1 * 59.06.4 * 9.37.1 * 95 * 790313 * 15 *
* WIND * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* SPEED DIRECTION * DEG.CELS * WET * DEPTH * M * COLOUR *
* 1.0 * 5 * DRY * 2.8 * GREEN *
* SEA * WAVE * WAVES 0.1-0.5M * ICE *
* SMOOTH: WAVES 0.1-0.5M * NO *
* COMMENT1 * COMMENT2 *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * ML/L * 02-SAT * 0/0 * TOTP * PO4P * ORGP * TOTN * NH4N * ORGN * TOC * FE *
* M * DEG.C * O/00 * O/00 * SIGMA-T * ML/L * ML/L * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 0 * 2.90 * 3.204 * 2.709 * 8.07 * 85.8 * 20 * 17 * 8 * 2300 * 730 * 470 * 11.00 * 4.30 *
* 4 * 1.89 * 4.468 * 3.700 * 6.85 * 87.8 * 20 * 14 * 6 * 2000 * 720 * 500 * 780 *
* 8 * 3.02 * 27.882 * 22.251 * 7.00 * 89.1 * 17 * 15 * 2 * 310 * 110 * 65 * 135 *
* 12 * 2.42 * 29.232 * 23.368 * 5.21 * 72.1 * 23 * 18 * 5 * 240 * 80 * 60 * 100 *
* 16 * 5.35 * 30.810 * 24.362 * 4.07 * 58.6 * 27 * 26 * 1 * 300 * 150 * 60 * 90 *
* 20 * 6.72 * 31.966 * 25.111 * 3.71 * 54.0 * 37 * 36 * 1 * 305 * 170 * 25 * 110 *
* 25 * 7.09 * 32.335 * 25.352 * 3.36 * 48.8 * 40 * 42 * 0 * 300 * 170 * 15 * 115 *
* 30 * 6.75 * 33.191 * 26.070 * 2.78 * 40.0 * 46 * 50 * -2 * 270 * 160 * <10 * >100 *
* 40 * 6.24 * 33.620 * 26.474 * 1.57 * 22.5 * 55 * 59 * -4 * 190 * 95 * <10 * >85 *
* 50 * 5.95 * 33.679 * 26.557 * 1.21 * 17.3 * 59 * 63 * -4 * 145 * 65 * <10 * >70 *
* 60 * 5.86 * 33.706 * 26.589 * 0.79 * 11.3 * 73 * 76 * -3 * 125 * 35 * 55 * 35 *
* 80 * 5.85 * 33.738 * 26.615 * 0.36 * 5.1 * 81 * 77 * 4 * 135 * 65 * <10 * >60 *
* 90 * 5.78 * 33.738 * 26.624 *
*****

```

```

*****
* RATIO * MOL/MOL * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* DEPTH * NO3/ * TOC/ * TOTN/ * HG * PB * CU * ZN * CO * MN * NI * CR * F *
* M * P04 * TOTN * TOTP * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
* 0 * 95 * 203 * 203 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 4 * 114 * 221 * 221 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 8 * 16 * 40 * 40 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 12 * 10 * 23 * 23 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 16 * 13 * 25 * 25 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 20 * 10 * 18 * 18 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 25 * 10 * 17 * 17 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 30 * 8 * 15 * 15 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 40 * 6 * 12 * 12 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 50 * 4 * 8 * 8 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 60 * 2 * 5 * 5 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 80 * 1 * 4 * 4 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 90 * <0 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

```

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME
+ NORWAY + NIVA + HGRAN + 0-76129 + EIDANGERFJORD + DF-1 + NORTH EAST + 07 + 700314 + 1030
+ WIND + AIR TEMP. + SECHI-DISC + WEATHER + CLOUDS
+ SPEED DIRECTION + DEG.C/LS + DRY WET + M + CLEAR + 1/8 OR LESS
+ M/S (0-36) + 5 + 7.5 GREEN
+ SEA + ICE
+ RIPPLED; WAVES 0.0-0.1M + IN VICINITY, TYPE/AMOUNT UNKNOWN
+ COMMENT
*****

```

DEPTH	TEMP.	SAL.	DENS.	SIGMA-T	H2S	O2	ML/L	02-SAT	TOTP	P04P	NUTRIENTS	ORGP	TOTN	N03N	NH4N	ORGN	TOC	FF
0	1.60	15.823	12.718	22.149	7.93	96.1	12	19	10	10	1800	9	1800	410	240	1150	3.40	
4	.96	27.608	22.149	22.882	7.85	95.6	12	12	7	6	400	5	400	45	30	325		
8	.89	28.513	23.471	24.400	6.93	89.5	16	16	8	8	165	6	165	25	55	85		
12	1.24	28.274	24.400	24.922	6.43	85.0	18	18	13	13	220	8	220	40	55	125		
16	2.63	30.545	25.534	25.953	5.85	79.7	22	22	16	16	240	5	240	75	45	120		
20	3.36	31.274	26.408	26.954	5.43	78.1	22	22	22	22	255	6	255	90	30	135		
30	4.35	32.160	27.471	27.471	5.14	77.7	24	24	22	22	250	2	250	115	20	115		
40	4.74	32.739	26.954	26.954	5.43	77.7	26	26	23	23	250	3	250	125	20	105		
50	4.78	33.320	27.471	27.471	5.14	77.7	25	25	24	24	265	3	265	130	15	90		
60	6.05	34.199	27.471	27.471	5.14	77.7	32	36	36	36	265	0	265	165	<10	>90		
80	6.10	34.815R	27.471	27.471	5.14	77.7	36	40	36	36	280	0	280	180	<10	>90		
95	5.63	34.788	27.471	27.471	5.43	77.7	40	40	36	36	275	4	275	170	<10	>95		

DEPTH	RATIOS	MO/L/MOL	HEAVY METALS	CR	F							
0	NO3/ P04	TOC/ TOTN/ TOTP	HG MYG/L	PB MYG/L	CU MYG/L	ZN MYG/L	CD MYG/L	MN MYG/L	NI MYG/L	NT MYG/L	CR MYG/L	F
4	91	2	461	209	74	30	30	29	26	23	21	18
8	14	74	30	30	29	26	23	21	18	17	15	10

```

*****
< LESS THAN VALUE
R REPEATED ANALYSIS
*****
> GREATER THAN VALUE
( ) UNCERTAIN VALUE
*****

```

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + NORTH + EAST + DEPTH + DATE + TIME
+ Norway + NIVA + FIGRAN + 0-76129 + BREVIKJORD + FG-1 + 59.02.8 + 9.43.2 + 110 + 700314 + 1250
WIND + DIRECTION + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS
+ (0-36) + DEG.CELS + WFT + M + * CLEAR * * 2/8
+ 5 + DRY + * * * * *
SEA + WAVES 0.0-0.1M + ICE + * NO *
RIPPLES:
COMMENT:
*****

```

```

*****
DEPTH + TEMP. + SAL. + DENS. + 02 + H2S + 02-SAT + 0/0 + TOTP + P04P + NUTRIENTS + MICROCR./L + TOC + FF
+ 0 + 2.30 + 11.512 + 9.283 + 7.78 + 94.2 + 14 + 8 + 8 + 15.00 + 490 + 300 + 710 + 3.20
+ 4 + .98 + 27.396 + 21.979 + 7.78 + 95.2 + 12 + 9 + 400 + 50 + 90 + 260
+ 8 + .93 + 28.926 + 23.205 + 7.78 + 93.6 + 16 + 6 + 200 + 20 + 55 + 125
+ 12 + 1.51 + 29.695 + 23.793 + 7.50 + 86.1 + 21 + 9 + 235 + 45 + 55 + 135
+ 16 + 2.69 + 30.980 + 24.742 + 6.64 + 92.0 + 17 + 14 + 7 + 235 + 70 + 40 + 125
+ 20 + 2.33 + 31.305 + 25.027 + 7.14 + 87.2 + 22 + 18 + 4 + 240 + 100 + 35 + 105
+ 30 + 3.43 + 32.098 + 25.571 + 6.35 + 84.5 + 22 + 17 + 5 + 240 + 90 + 15 + 135
+ 40 + 3.59 + 32.576 + 25.937 + 6.50 + 80.8 + 26 + 20 + 6 + 260 + 110 + 25 + 125
+ 50 + 4.13 + 33.004 + 26.225 + 6.21 + 78.2 + 33 + 33 + 0 + 265 + 170 + <10 + >85
+ 30 + 5.91 + 34.792 + 27.440 + 5.43 + 79.5 + 38 + 35 + 3 + 265 + 170 + <10 + >85
+ 105 + 5.56 + 34.792 + 27.483 + 5.57
*****

```

```

*****
DEPTH + RATIOS + MOL./MOL. + HEAVY METALS
+ M + NO3/ + TOC/ + TOTN/ + HG + PB + CU + ZN + CD + MN + NI + CR + F
+ * * * * *
+ 0 + 1.35 + 2 + 516 + 207 + 63 + 37 + 32 + 25 + 26 + 24 + 24 + 22 + 20 + 18 + 15
+ 4 + 22 + 207 + 63 + 37 + 32 + 25 + 26 + 24 + 24 + 22 + 20 + 18 + 15
+ 8 + 7 + 37 + 32 + 25 + 26 + 24 + 24 + 22 + 20 + 18 + 15
+ 12 + 11 + 32 + 25 + 26 + 24 + 24 + 22 + 20 + 18 + 15
+ 16 + 11 + 25 + 26 + 24 + 24 + 22 + 20 + 18 + 15
+ 20 + 10 + 26 + 24 + 24 + 22 + 20 + 18 + 15
+ 30 + 12 + 24 + 24 + 22 + 20 + 18 + 15
+ 40 + 12 + 24 + 24 + 22 + 20 + 18 + 15
+ 50 + 12 + 24 + 24 + 22 + 20 + 18 + 15
+ 60 + 12 + 24 + 24 + 22 + 20 + 18 + 15
+ 80 + 11 + 18 + 15
+ 105 + 11
*****
< :LESS THAN VALUE
> :GREATER THAN VALUE
*****

```

RO.3.27-17:49:17 PAGE:7

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HUGRAN * 0-76129 * HAØYFJORD * G1-1 * NORTH EAST * M * 790314 * 1530 *
* SPEED WIND DIRECTION * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* M/S (0-36) * DRY WET * DEPTH M * PARTLY CLOUDY * 7/8 *
* .5 * * * * *
* SEA * * * * *
* RIPPLES WAVES 0.0-0.1M * ICE * NO *
* * * * *
* COMMENT1 * COMMENT2 *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * O2 * H2S * O2-SAT * TOTP * P04P * ORCP * TOTN * NO3N * NH4N * ORGN * TOC *
* M * 0 * 1.65 * 19.656 * 15.770 * * * * * 15 * 10 * 5 * 1100 * 270 * 140 * 600 * 4.00 *
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* M * * * * *
* * P04 * TOTN * TOTP * HG * PB * CU * ZN * MN * NI * CR * F *
* 0 * 60 * 4 * 6.88 * 1.62 * * * * * * * * * * * * *
*****

```



CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME +  
 + NORWAY + NIVA + HERRAN + 0-76129 + LANGSUNDSEUKTA + JH-1 + NORTH EAST + 205 + 700314 + 1430 +  
 WIND + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS +  
 + SPEED DIRECTION + DEG.C/LS + DEPTH M + + PARTLY CLOUDY + 3/8 +  
 + M/S (0-36) + DRY MET + M + + SEA OIL + WRECK + SEA-WEEP + RATHY/CTD + SALINOTERM +  
 .2 + ICF. + NO + NO + COMMENT2 +  
 + SEAS + WAVES 0.1-0.5M + NO + NO +  
 + SMOOTH + COMMENT1 +  
 + COMMENT2 +

+ DEPTH + TEMP. + SAL. + DENS. + 02 + H2S + 02-SAT + NUTRIENTS + MICROGR./L + TOC +  
 M + DEG.C + 0/00 + SIGMA-T + M/L. + ML/L. + O/O + TOTP P04P ORGP TOTN NO3N NH4N ORGN MG/L \* FF \*  
 0 2.55 26.091 20.857 14 9 5 325 75 135 115 2.40

+ DEPTH + RATIOS + MOL/MOL. + HEAVY METALS +  
 M + NO3/ TOC/ TOTN/ + HG CD ZN NI CR F +  
 + P04 TOTN TOTP \* MYG/L \* MYG/L \* MYG/L \* MYG/L \* MYG/L \*  
 0 18 9 442 51

Tokt 19. – 20.6 1979

MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA

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*****
* COUNTRY * INSTITUTE * SHIP * PROJECT * LOCATION * STATION * POSITION * DATE * TIME *
* NORWAY * NIVA * HFRAN * 0-76129 * SKIENSELVA * S-1 * NORTH EAST * 700620 * 9 *
* WIND * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* SPEED DIRECTION * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* M/S (0-36) * DIR WET * M 1.3 GREY * PARTLY CLOUDY * 1/8 OR LESS *
* SEA * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* CALM: WAVES 0.0M * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* COMMENT1 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* TEMP+SAL WITH CTD, SURFACE VERY DIRTY * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****

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```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L * TOC *
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * O/O * TOTP * PO4P * ORGP * TOTN * NO3N * NH4N * ORGN * MG/L * FE *
* 0 * 10.50 * .030 * -1.118 * .118 * .114 * 7.54 * 14 * 6 * 8 * 490 * 365 * <10 * >105 * 4.50 *
* 4 * 10.45 * .030 * -1.114 * .114 * 7.83 * 100.3 * 9 * 4 * 500 * 350 * <10 * >140 * 7.50 *
* 8 * 10.45 * .040 * -1.066 * .062 * 7.76 * 96.6 * 7 * 3 * 470 * 360 * <10 * >100 *
* 12 * 10.23 * .070 * -.062 * .062 * 98.9 * 100.3 * 4 * 4 * 500 * 365 * <10 * >125 *
* 16 * 10.43 * 1.170 * .762 * 7.62 * 100.1 * 5 * 2 * 480 * 360 * <10 * >105 *
* 20 * 10.41 * 2.550 * 1.825 * 7.03 * 91.4 * 7 * 2 * 570 * 320 * <10 * >200 *
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* M * NO3 * TOC * TOTN * TOTP * Hg * Pb * Cu * Zn * Cd * Mn * Ni * CR * F *
* 0 * 2.02 * 11 * 1160 * 106 * * * * * * * * * * * * * * * * * * * * * * * * * * *
* .5 * 129 * 17 * 1332 * 79 * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 4 * 199 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 8 * 269 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 12 * 404 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 16 * 398 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 20 * 354 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****

```

< \* LESS THAN VALUE \* > \* GREATER THAN VALUE \*

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * NORTH * EAST * DEPTH * DATE * TIME *
* * * * *
NORWAY * NIVA * HIGRAN * 0-76129 * SKIENSFLVA * S-2 * 59.08.5 * 9.38.7 * 23 * 700620 * 11 *
*****
WIND * * * * *
SPEED * * * * *
M/S * DIRECTION * DRY * WET * * * * *
0.0 * (0-36) * * * * *
*****
SEA * WAVES 0.0M * ICE * * * * *
CALM * WAVES 0.0M * NO * * * * *
*****
COMMENT1 * * * * *
TEMP+SAL WITH CTD * * * * *
*****

```

```

*****
DEPTH * TEMP * SAL * DENS. * SIGMA-T * ML/L * H2S * O2-SAT * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * TOC *
* * * * *
0 * 13.20 * 7.80 * 7.80 * 5.857 * 0.221 * 102.1 * 6 * 2 * 6 * 485 * 350 * <10 * >125 *
4 * 10.32 * 7.780 * 7.61 * 5.857 * 7.61 * 79.9 * 6 * 2 * 4 * 485 * 350 * <10 * >125 *
8 * 7.85 * 24.770 * 5.66 * 19.328 * 5.66 * 68.9 * 17 * 10 * 7 * 485 * 130 * 1.00 * 255 *
12 * 7.23 * 25.450 * 4.93 * 19.934 * 4.93 * 18.9 * 20 * 11 * 9 * 400 * 110 * 95 * 175 *
16 * 6.07 * 26.480 * 1.38 * 20.872 * 1.38 * 19.8 * 23 * 9 * 14 * 335 * 70 * 70 * 175 *
20 * 6.05 * 26.570 * 1.45 * 20.945 * 1.45 * 19.8 * 22 * 9 * 13 * 325 * 60 * 60 * 175 *
*****

```

```

*****
DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* * * * *
0 * NO3/ * TOC/ * TOTN/ * TOTP/ * HG * PB * CU * ZN * MN * NI * CR * F *
* * * * *
0 * 397 * 10 * 1289 * 134 * * * * * * * * * * * * *
4 * 387 * * * * * * * * * * * * *
8 * 20 * 63 * * * * * * * * * * * * *
12 * 22 * 44 * * * * * * * * * * * * *
16 * 22 * 32 * * * * * * * * * * * * *
20 * 22 * 33 * * * * * * * * * * * * *
*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

```

MARINE HYDROGRAPHIC DEPTH STATION

CONTROLLED DATA

80.3.27-17:49:23 PAGE:3

```

*****
** COUNTRY + INSTITUTION * SHIP ** PROJECT ** LOCATION ** STATION ** NORTH ** EAST ** DEPTH ** DATE ** TIME **
** + + + + + ** + + + + + ** + + + + + ** + + + + + ** + + + + + ** + + + + + ** + + + + + ** + + + + + **
** NORWAY + NIVA + HHCGRAN ** 0-76129 ** VOLLSFJORD ** AA-1 ** 59.07.7 ** 9.31.5 ** 18 ** 790620 ** 14 **
** WIND * AIR TEMP. * SFCCHI-DISC ** WEATHER ** CLOUDS **
** + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + *
** SPEED DIRECTION + DRIFT WEG * DEPTH COLOUR ** PARTLY CLOUDY ** 1/8 OR LESS **
** M/S (0-36) + DRIFT WEG * DEPTH COLOUR ** + + + + + ** + + + + + ** + + + + + **
** 2.0 16 * 22.0 * 2.5 BROWN ** + + + + + ** + + + + + ** + + + + + **
** SEA ** ICE **
** + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + *
** WAVE: WAVES 0.0-0.1M * NO ** + + + + + ** + + + + + ** + + + + + ** + + + + + **
** COMMENT: **
** TEMP+SAL WITH CTD **
*****

```

```

*****
** DEPTH + TEMP. + SAL. + DENS. + 02 + H2S + 02-SAT + 0/0 + TOTP P04P ORGP TOTN NO3N NH4N ORGN MC/L TOC **
** M + DEG.C + 0/00 + SIGMA-T + ML/L + ML/L + 0/0 + 14 2 12 1000 480 160 360 **
** 0 15.40 2.420 1.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 **
** 4 11.14 3.250 2.284 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 **
** 8 6.16 24.210 19.079 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 **
** 12 4.40 28.320 22.488 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 **
** 16 5.56 30.280 23.921 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 **
** 17 5.72 30.440 24.029 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 **
*****

```

```

*****
** DEPTH + RATIOS * MOI/MOL * HEAVY METALS **
** M + NO3/ TOCN/ TOCP * HG * PB * CU * 7N * MN * NI * CR * F **
** + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + * + + + + + *
** 0 531 682 158 **
** 4 **
** 8 **
** 12 **
** 16 **
** 17 **
*****

```



MARINE HYDROGRAPHIC DEPTH STATION

CONTROLLED DATA

```

*****
** COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
** NORWAY * NIVA * HHSRAN * 0-76129 * FRIERJORD * BB-1 * NORTH * EAST * M * *
** WIND * DIRECTION * DEG.CELS * DEPTH * SECCHI-DISC * WEATHER * CLOUDS *
** M/S * (0-36) * DRY * WET * M * * PARTLY CLOUDY * 1/8 OR LESS *
** 4.0 * 12 * 22.0 * * * * *
** SEA * WAVES * 0.1-0.5M * * * * *
** SMOOTH * * * * *
** COMMENT * * * * *
** TEMP+SAL WITH CTD * * * * *
*****

```

```

*****
** DEPTH * TEMP. * SAL. * DENS. * SIGMA-T * ML/L * H2S * O2-SAT * O/O * TOTP * P04P * NUTRIENTS * MICROGR./L * TOC *
** M * 15.70 * 1.880 * 4.804 * 19.442 * 6.02 * 7.43 * 100.2 * 10 * 4 * 12 * 4 * 8 * 1100 * 430 * 250 * 420 * 3.80 *
** 4 * 17.92 * 6.500 * 4.804 * 19.442 * 6.02 * 7.43 * 84.5 * 11 * 4 * 6 * 720 * 430 * 300 * -10 * *
** 12 * 5.35 * 28.600 * 22.618 * 23.858 * 5.00 * 5.58 * 76.1 * 23 * 20 * 3 * 355 * 150 * 90 * 115 * *
** 16 * 5.48 * 30.100 * 23.858 * 5.00 * 5.08 * 69.1 * 23 * 23 * 0 * 365 * 200 * 30 * 135 * *
** 20 * 5.41 * 30.520 * 24.126 * 24.404 * 4.86 * 70.3 * 26 * 25 * 1 * 345 * 200 * 20 * 125 * *
** 25 * 5.18 * 30.840 * 24.404 * 25.245 * 4.93 * 67.0 * 27 * 26 * 1 * 335 * 210 * <10 * >115 *
** 30 * 4.85 * 31.860 * 26.585 * 1.38 * 19.8 * 46 * 44 * 2 * 235 * 160 * <10 * >65 *
** 40 * 6.11 * 33.740 * 26.715 * * * * *
** 55 * 6.08 * 33.900 * 26.715 * * * * *
*****

```

```

*****
** DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
** M * NO3/ * TOC/ * TOTN/ * TOTP * HG * PB * CU * ZN * CD * MN * NI * CR * F *
** 0 * 238 * 4 * 817 * 203 * 159 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 4 * 238 * 4 * 817 * 159 * 70 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 8 * 27 * 34 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 12 * 17 * 34 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 15 * 19 * 35 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 20 * 18 * 29 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 25 * 18 * 27 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 30 * 15 * 25 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 40 * 8 * 11 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
** 55 * <0 * 3 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

```

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
** COUNTRY * INSTITUTION * SHIP ** PROJECT ** LOCATION ** STATION * NORTH POSITION * DEPTH * DATE * TIME *
** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
** NORWAY * N/A * HIGRAN ** 0-76129 ** FRIERFJORD ** HC-1 ** 59.06.4 9.37.1 ** 95 ** 700620 * 12 *
** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
** WIND DIRECTION * AIR TEMP. SECCHI-DISC ** WEATHER * CLOUDS
** (0-36) * DRY * WET * M * ** ** ** **
** 2.0 17 * 20.2 * 2.2 GREY-BROWN ** PARTLY CLOUDY ** 1/8 OR LFSS
** ** ** ** ** ** ** ** ** ** ** **
** SEA WAVES 0.0-0.1M * NO * ** ** **
** ** ** ** **
** COMMENT * COMMENT2
** TEMP+SAL 0-30W WITH CTD
*****

```

DEPTH	TEMP.	SAL.	DENS.	02	H2S	ML/L	02-SAT	O/O	TOTP	P04P	ORCP	TOTN	NO3N	NH4N	ORGN	TOC	FE	
0	13.00	2.570	1.536	7.03	6.865	19.432	19.432	22.906	23.848	24.070	5.44	24.312	25.410	26.397	1.81	1.23	.87	
4	10.10	9.070	6.865	7.03	6.865	19.432	19.432	22.906	23.848	24.070	5.44	24.312	25.410	26.397	1.81	1.23	.87	
8	9.02	25.100	19.432	7.03	6.865	19.432	19.432	22.906	23.848	24.070	5.44	24.312	25.410	26.397	1.81	1.23	.87	
12	6.45	29.120	22.906	5.66	79.5	20	16	300	130	85	175	130	130	130	130	130	130	
16	5.43	30.170	23.848	4.86	67.1	31	29	385	240	15	130	130	130	130	130	130	130	
20	5.42	30.450	24.070	5.08	70.3	26	25	355	200	40	115	115	115	115	115	115	115	
25	5.30	30.740	24.312	5.44	75.2	24	23	365	180	20	165	165	165	165	165	165	165	
30	5.01	32.090	25.410	5.37	74.3	25	24	315	160	20	135	135	135	135	135	135	135	
40	6.00	33.484	26.397	1.81	25.9	53	52	265	160	<10	>95	>95	>95	>95	>95	>95	>95	
50	6.01	33.644	26.522	1.23	17.6	64	65	210	100	<10	>100	>100	>100	>100	>100	>100	>100	
60	5.97	33.679	26.554	.87	12.5	97	95	180	<10	15	>155	>155	>155	>155	>155	>155	>155	
80	5.88	33.722	26.599	.11	.27	190	180	600	<10	105	>485	>485	>485	>485	>485	>485	>485	
90	5.87	33.726	26.604															

DEPTH	NO3	NO4	TOC	TOTN	HC	PB	CU	ZN	CD	MN	NI	CR	F
0	113	131	353	265									
4	185	265											
8	22	52											
12	18	43											
16	18	27											
20	18	30											
25	17	34											
30	15	28											
40	7	11											
50	4	8											
60	3	7											
80	<0	4											
90	<0	7											

< : LESS THAN VALUE > : GREATER THAN VALUE









CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + NORTH + EAST + DEPTH + DATE + TIME +
+ NORWAY + NIVA + HIRGAN + 0-76129 + HAYFJORD + G1-1 + 59,01.4 + 9.48.0 + 205 + 700610 + 11 +
+ WIND + DIRECTION + (0-36) + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS +
+ M/S + 4.0 + 18 + 17.3 + DRY WET + DEPTH + M + PARTLY CLOUDY + 6/8 +
+ SEA + WAVES 0.1-0.5M + NO + ICE +
+ COMMENT1 +
+ TEMP+SAL WITH CTD +
*****

```

```

*****
+ : DEPTH + TEMP. + SAL. + SIGMA-T + DENS. + 02 + H2S + 02-SAT + TOTP + PO4P + ORGP + TOTN + NO3N + NH4N + ORGN + MG/L + FE +
+ : M + 0 + 14.30 + 13.070 + 9.257 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 4 + 12.53 + 23.090 + 17.321 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 8 + 10.04 + 25.650 + 19.712 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 12 + 7.38 + 28.170 + 22.047 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 16 + 5.50 + 30.730 + 24.282 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 20 + 5.10 + 31.810 + 25.179 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 30 + 5.24 + 32.840 + 25.078 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 40 + 5.00 + 33.700 + 26.685 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 50 + 5.48 + 34.300 + 27.104 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 60 + 5.86 + 34.390 + 27.129 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 80 + 5.95 + 34.450 + 27.165 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 100 + 5.94 + 34.490 + 27.198 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 125 + 5.93 + 34.510 + 27.215 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 150 + 5.94 + 34.510 + 27.214 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
+ : 195 + 5.94 + 34.550 + 27.245 + 02 + 0.0 + 0.0 + 11 + 0 + 0 + 800 + 210 + 100 + 400 + 3.10 +
*****

```

```

*****
+ : DEPTH + RATIOS + MOL/MOL + HEAVY METALS +
+ : M + NO3/ + PO4 + TOTN/ + TOTP + HG + PB + CU + ZN + CD + MN + NI + CR + F +
+ : 0 + 232 + 5 + 727 + 161 +
+ : 4 +
+ : 8 +
+ : 12 +
+ : 16 +
+ : 20 +
+ : 30 +
+ : 40 +
+ : 50 +
+ : 60 +
+ : 80 +
+ : 100 +
+ : 125 +
+ : 150 +
+ : 195 +
*****

```

```

*****
* COUNTRY * INSTIUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HHGRAN * 0-76129 * LANGFUNDSDRIUKTA * JH-1 * NORTH * EAST * * *
* WIND * AIR TEMP. * SECCHI-DISC * WEATHER * * * CLOUDS *
* SPEED * DIRECTION * DEPTH * * * * *
* M/S * (0-36) * DRY * WET * * * * *
* 2.0 * 18 * 17.0 * * * * *
* SEA * ICE * * * * *
* RIPPLED; WAVES 0.0-0.1M * NO * * * * *
* COMMENT1 * * * * *
* TEMP+SAL WITH CTD * * * * *
*****

```

DEPTH	TEMP.	SAL.	DENS.	02	H2S	02-SAT	TOTP	P04P	ORGP	TOTN	N03N	NH4N	ORGN	TOC	FE
M	DEG.C	O/00	ML/L	ML/L	ML/L	O/0	7	2	5	290	30	30	230	MG/L	MG/L
0	14.60	19.400	14.124												
4	12.91	22.240	16.608												
8	11.09	25.220	19.214												
12	9.56	27.770	21.432												
16	7.02	31.480	24.690												
20	6.48	32.340	25.435												
30	6.25	33.230	26.165												
40	6.27	33.730	26.557												
50	6.33	33.930	26.707												
60	6.50	34.390	27.047												
80	6.25	34.490	27.158												
100	5.29	34.520	27.300												
125	4.66	34.620	27.451												
147	4.55	34.770	27.582												

DEPTH	RATIOS	MOL/MOL	HEAVY METALS
M	N03/	TOC/	CR
	P04	TOTN	MYG/L
	33	TOTP	MYG/L
		92	MG/L
0		12	
4		1142	
8			
12			
16			
20			
30			
40			
50			
60			
80			
100			
125			
147			

Tokt 21. – 22.8 1979

MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA 80.3.27-17:49:40 PAGE:10

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*****
COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* * * * *
NORWAY * NIVA * UICRAN * 0-76129 * SKIENSELVA * S-1 * 59.11.8 9.37.1 * 23 * 700822 * 000 *
* * * * *
WIND * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* * * * *
SPEED * DIRECTION * DEPTH * COLOUR *
* * * * *
M/S * DRY * WET * M *
* * * * *
0.0 * 14.9 * 2.5 * BROWN * PARTLY CLOUDY *
* * * * *
SEA * ICE *
* * * * *
SUPPLE: WAVES 0.0-0.1M * NO *
* * * * *
COMMENT1 *
* * * * *
CTD-TEMP+SAL 0-20M *
* * * * *

```

```

*****
* * * * *
DEPTH * TEMP. * SAL. * DENS. * SIGMA-T * H2S * O2 * 02-SAT * PO4P * TOTN * NO3N * NH4N * ORGN * TOC *
* * * * *
M * DEG.C * O/00 * ML/L * ML/L * O/O *
* * * * *
0 * 12.92 * 0.000 * -.411 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 *
* * * * *
4 * 12.58 * 0.000 * -.369 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 *
* * * * *
8 * 12.56 * 0.000 * -.366 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 *
* * * * *
12 * 12.53 * 0.000 * -.375 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 *
* * * * *
16 * 12.57 * 0.000 * -.368 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 *
* * * * *
20 * 12.61 * 0.000 * -.373 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 * 0.000 *
* * * * *

```

```

*****
* * * * *
DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* * * * *
M * NO3/ * TOC/ * TOTN/ * HG * PB * CU * ZN * CD * MN * NI * CR * F *
* * * * *
0 * 387 * 1805 * 206 * 177 * * * * * * * * * * * *
* * * * *
4 * 258 * 177 * 177 * 177 * * * * * * * * * * * *
* * * * *
8 * 193 * 133 * 133 * 133 * * * * * * * * * * * *
* * * * *
12 * 155 * 133 * 133 * 133 * * * * * * * * * * * *
* * * * *
16 * 16 * 152 * 152 * 152 * * * * * * * * * * * *
* * * * *
20 * 101 * 155 * 155 * 155 * * * * * * * * * * * *
* * * * *

```

< \*IF LESS THAN VALUE > \*IF GREATER THAN VALUE

MARINE HYDROGRAPHIC DEPTH STATION CONTROLLED DATA 80.3.27-17:49:40 PAGE: 11

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HFRAN * 0-76129 * SKIENSELVA * S-2 * NORTH EAST * M * * *
* WIND * AIR TEMP. * DEG.CELS * DEPTH * SFCCHI-DISC * WEATHER * CLOUDS *
* M/S * DRY * WET * M * * * * *
* 0.0 * 16.5 * * * * *
* SEA * ICE *
* RIPPLED; WAVES 0.0-0.1M * NO *
* COMMENT1 *
* CTD-TEMP+SAL 0-20M *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L * TOC *
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * O/O * TotP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * MG/L * FE *
* 0 * 12.68 * 0.000 * -.381 * 8 * 3 * 5 * 500 * 345 * 25 * 130 * * *
* 4 * 12.93 * 0.000 * -.419 * 6.92 * 93.9 * 8 * 4 * 4 * 550 * 350 * 15 * 185 * * *
* 8 * 12.54 * 0.000 * -.364 * 6.87 * 92.3 * 9 * 4 * 5 * 540 * 355 * 10 * 175 * * *
* 12 * 12.90 * 4.052 * 2.679 * 6.38 * 88.6 * 10 * 3 * 7 * 530 * 325 * 50 * 155 * * *
* 16 * 13.98 * 20.015 * 14.709 * 4.42 * 69.4 * 13 * 3 * 10 * 370 * 140 * 115 * 115 * * *
* 20 * 14.06 * 20.773 * 15.275 * 4.07 * 64.3 * 13 * 3 * 10 * 345 * 135 * 105 * 105 * * *
*****

```

```

*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* M * NO3/ * TOC/ * TOTN/ * HG * PB * CU * ZN * CD * MN * NI * CR * F *
* 0 * 254 * 9 * 138 * 138 * 152 * 133 * 117 * 63 * 59 *
* 4 * 193 * 1225 * 152 *
* 8 * 196 * 133 *
* 12 * 240 *
* 16 * 103 *
* 20 * 100 *
*****

```









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CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

COUNTRY \* INSTITUTION \* SHIP \* PROJECT \* LOCATION \* STATION \* POSITION \* DEPTH \* DATE \* TIME \*  
 NORWAY \* NIVA \* HHGRAN \* 0-76129 \* FRIFREJORD \* RC-1 \* NORTH EAST \* 50.06.4 \* 9.37.1 \* 700822 \* 1100 \*  
 WIND \* DIRECTION \* AIR TEMP. \* SECCHI-DISC \* WEATHER \* CLOUDS \*  
 (0-36) \* DRY \* DEG.CFLS \* DEPTH \* COLOUR \* M \* M \*  
 20 \* 16.0 \* 3.3 \* YELLOW \* PARTLY CLOUDY \* 6/8 \*  
 SEA \* WAVES 0.1-0.5M \* NO \* ICE \*  
 SMOOTH \* WAVES 0.1-0.5M \* NO \*  
 COMMENT1 \*  
 CTD-TEMP+SAL 0-25M \* COMMENT2 \*

DEPTH	TEMP.	SAL.	DENS.	02	H2S	02-SAT	TOTP	P04P	ORGP	TOTN	N03N	NH4N	ORGN	TOC	FE
M	DEC.C	0/00	STOMA-T	ML/L	ML/L	0/0	0/0	04P	0/0	0/0	0/0	0/0	0/0	MG/L	FF
0	13.44	0.736	0.80	6.46	89.8	10	3	7	1200	510	340	350	350	3.80	
4	13.70	1.026	.252	4.90	80.7	14	8	6	1100	505	330	330	265		
8	14.61	25.639	18.898	4.60	72.1	13	8	5	335	85	105	145	145		
12	11.48	28.330	21.556	4.26	63.1	20	16	4	455	185	100	130	130		
16	8.66	29.372	22.814	4.34	64.0	23	18	5	385	200	130	55	260		
20	8.33	29.738	23.147	4.25	65.5	20	15	5	320	180	80	60	125		
25	10.02	30.700	23.640	4.08	63.4	21	16	5	320	160	160	35	125		
30	10.21	31.405	24.157	1.14	16.2	61	57	4	290	160	160	120	120		
40	5.84	33.413	26.360	.99	14.2	67	65	2	255	140	30	85	85		
50	6.04	33.629	26.499	.20	2.9	69	62	7	150	45	15	90	90		
60	6.03	33.671	26.540						140	<10	<10	50	>80		
80	5.91	33.706	26.583	1.13					230	<10	<10	105	>115		
90	5.80	33.710	26.588	1.13											

DEPTH	RATIOS	MO/MOL	TOC/	TOTN/	HG	PB	CU	ZN	MYG/L	CD	MYG/L	NI	CR	F
M	N03/	TOC/	TOTN/	TOTN/	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MYG/L	MG/L
0	376	4	980	265										
4	372			270										
8	23			53										
12	28			56										
16	26			50										
20	25			37										
25	27			35										
30	22			34										
40	6			11										
50	5			8										
60	2			5										
80	<0			2										
90	<0			3										

< \* LESS THAN VALUE \*  
 > \* GREATER THAN VALUE \*

80.3.27-17:40:37 PAGE:5

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + NORTH + EAST + DATE + TIME
* NORWAY * NIVA * HUGRAN * 0-76129 * FIDANGERFJORD * RF-1 * 59.06.1 * 9.42.7 * 55 * 700821 * 1200
* WIND * DIRECTION * DEG.CELS * DEPTH * WEATHER * CLOUDS
* 7.0 * (0-36) * DRY * WET * 2.7 * BROWN-GREEN * RAIN * 8/8
* SEA * WAVES * 0.1-0.5M * ICE * NO
* COMMENT1
* CTD-TEMP+SAL
*****

```

```

*****
DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L * TOC *
M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * O/O * TOTP * P04P * ORGP * TOTN * N03N * NH4N * ORGN * MG/L * FF *
0 * 17.72 * 8.550 * 5.279 *
*****

```

```

*****
DEPTH * RATIOS * MOL/MOL * HEAVY METALS
M * NO3/ * TOC/ * TOTN/ * HG * PB * CU * ZN * CD * MN * NI * CR * F *
0 * * 31 * 5 * 192 * 39 *
MG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
*****

```

MARINE HYDROGRAPHIC DEPTH STATION

CONTROLLED DATA

80.3.27-17:49:37 PAGE:6

```

*****
COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* * * * *
MORWAY * NIVA * HHRAN * 0-76129 * EIDANGERFJORD * DF-1 * NORTH * EAST * 08 * 700821 * 1300 *
WIND * DIRECTION * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* * * * *
SPEED * DEGREE * DRY * WET * * * * *
M/S * (0-36) * 14.5 * * * * *
* * * * *
SEA * * * * *
SMOOTH * WAVES 0.1-0.5M * ICE * * * * *
* * * * *
COMMENT1 * * * * *
CFD-TEMP+SAL * * * * *
*****

** DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L * TOC *
M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * O/O * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * MG/L * FF *
0 * 15.21 * 7.910 * 5.260 * * * * * 7 * <2 * >5 * 728 * 350 * 375 * 3 * 3.30

*****
** DEPTH * RATIOS * MOL/MOL. * HEAVY METALS *
M * * * * *
0 * P04 * TOC/ * TOTN/ * HG * PB * CU * ZN * MN * NI * CR * MG/L *
* * * * * 5 * 1216 * 230 * * * * *
*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

```

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + NORTH + EAST + DEPTH + DATE + TIME
+ + + + +
+ PORTWAY + MIVA + HUGRAN + 0-76129 + BREVIKFIJORD + FG-1 + 59.02.8 + 9.43.2 + 110 + 700821 + 1400
+ + + + +
+ WIND + DIR + ATR TEMP. + SECCHI-DISC + WEATHER + CLOUDS
+ + + + +
+ SPEED DIRECTION + DEG.CELS + DRY WET + DEPTH COLOUR + RAIN
+ + + + +
+ 8.0 18 + 14.1 + 3.5 BROWN
+ + + + +
+ SEA + ICE
+ SLIGHT: WAVES 0.5-1.25M + NO
+ + + + +
+ COMMENT1
+ CTD-TEMP+SAL 0-30M
*****

```

```

*****
+ : DEPTH * TEMP. * SAL. * DENS. * SIGMA-T * O2 * H2S * O2-SAT * O/O * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * TOC *
+ M * DEG.C * O/O * ML/L * ML/L * ML/L * O/O * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * MG/L * FF *
+ 0 14.76 7.952 5.368 16.569 5.28 85.7 6 6 3 628 290 425 -87 1.90
+ 4 14.80 22.647 20.086 4.62 77.3 10 7 3 285 40 65 190
+ 8 14.89 27.263 22.861 4.35 70.7 12 10 2 280 85 40 155
+ 12 12.63 30.288 23.678 4.47 73.4 10 9 1 260 05 15 150
+ 16 12.80 31.388 24.073 4.62 76.4 10 7 3 220 65 10 145
+ 20 12.92 31.930 24.408 4.80 79.2 9 6 3 200 60 55 85
+ 30 12.73 32.316 24.915 4.78 77.0 10 9 1 205 70 10 130
+ 40 12.06 32.805 25.328 4.88 74.5 15 12 3 235 120 <10 >125
+ 50 11.33 33.164 26.897 5.30 73.7 28 25 3 305 170 <10 >105
+ 60 8.85 33.261 27.179 4.12 57.4 48 45 3 305 220 <10 >75
+ 80 4.72 33.929
+ 105 4.67 34.278
*****

```

```

*****
+ : DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
+ M * NO3/ * P04 * TOC/ * TOTN/ * HG * PB * CU * ZN * MN * NI * CR * F *
+ : 214 * P04 * TOTN * TOTP * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MG/L *
+ 0 214 4 817 231 109
+ 4 44
+ 8 14 63
+ 12 19 52
+ 16 23 57
+ 20 21 40
+ 30 22 49
+ 40 22 46
+ 50 17 45
+ 60 22 35
+ 80 15 23
+ 105 11 14
*****
< : LESS THAN VALUE
> : GREATER THAN VALUE
*****

```

80.3.27-17:49:38 PAGE:8

CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * * * * * 0-76129 * HAMVEJORD * GI-1 * 59.0.4 9.48.0 * 205 * 790821 * 1100 *
* WIND * * * * * AIR TEMP. * * * * * WEATHER * * * * * CLOUDS *
* SPEED * * * * * DEG.C/CLS * * * * * SECCHI-DISC * * * * * *
* M/S * * * * * DRY WET * * * * * COLOUR * * * * * *
* 7.5 * 18 * 17.0 * * * * * 4.3 BROWN * * * * * CONTINUOUS LAYER OF CLOUDS * 8/8 *
* SEA * * * * * * ICE * * * * * * * * * * * * * * * *
* SMOOTH: WAVES 0.1-0.5M * * * * * * NO * * * * * * * * * * * * * * * *
* COMMENT1 * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* CTD-TEMP+SAL * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L * TOC *
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * * O/O * TOTP * P04P * ORGP * TOTN * N03N * NH4N * ORGN * MG/L * FF *
* 0 * 15.89 * 9.330 * 6.218 * * * * * 7 * <2 * >5 * 648 * 300 * 340 * 8 * 3.00 *
*****
* DEPTH * RATIOS * MOL/MOL * * * * * HEAVY METALS * * * * *
* M * * * * * TOC/ * TOTN/ * HG * PB * CU * ZN * MN * NI * CR * F *
* * * * * P04 * TOTP * TOTP * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *
* G * * * * * 5 * 1105 * 205 * * * * * * * * * * * * * * * *
*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

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CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

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*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME +
+ NORWAY + NILVA + HROGRAN + 0-76129 + LANGFJUNDSRIIKTA + JH-1 + NORTH EAST + M + 205 + 700821 + 1000 +
+ WIND + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS +
+ SPEED DIRECTION + DEG.CELS + DEPTH + CONTINUOUS LAYER OF CLOUDS + 8/8 +
+ M/S (0-36) + DRY WET + M + GREEN +
+ SEA SLIGHT; WAVES 0.5-1.25M + NO + OIL + WRECK + SEA-WEEP + BATHY/CTD + SALINOTHERM +
+ COMMENT1 + COMMENT2 +
+ CTD-TEMP+SAL +
*****

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*****
+ DEPTH + TEMP. + SAL. + DENS. + 02 + H2S + 02-SAT + NUTRIENTS + MICROGR./L + TOC +
+ DEG.C + 0/00 + SIGMA-T + ML/L. + 0/0 + TOTP + P04P + ORGP + TOTN + NO3N + NH4N + ORGN + MG/L + FF +
0 16.63 14.370 9.901 7 2 5 370 60 85 225 3.60
*****
+ DEPTH + RATIOS + MOL/MOL + HEAVY METALS +
+ N13/ TOC/ TOTN/ + HG + PB + CU + ZN + MN + NI + CR + F +
+ P04 TOTP TOTP TOTP + MYG/L + MYG/L + MYG/L + MYG/L + MYG/L + MYG/L +
0 65 11 1326 117
*****

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Tokt 27. – 28.11 1979





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CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

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*****
* COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + POSITION + DEPTH + DATE + TIME +
* NORWAY + NIVA + HHRAN + 7612904 + VOLLSEJORD + AA-1 + 59.07.7 9.31.5 + 18 + 791128 + 1400 +
* WIND DIRECTION + AIR TEMP. + WEATHER + CLOUDS +
* (0-36) + DEG.CELS + (0-36) + M + CONTINUOUS LAYER OF CLOUDS + 8/8 +
* 0.0 + DRY WET + M +
* SEA + ICE +
* CALM: WAVES 0.0M + NO +
* COMMENT1 +
* CTD-TEMP+SAL + COMMENT2 +
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS MICROGR./L. + TOC +
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * O/O * TOTP P04P ORGP TOTN N03N NH4N ORGN * MG/L * FE *
* 0 * 3.18 * 5.160 * 4.252 * 9 * 4 * 5 * 1300 * 450 * 189 * 661 * 2.80 +
*****
* DEPTH * RATIOS * MOL/MOL. + HEAVY METALS +
* M * H03/ * TOC/ * TOTN/ * HG * CU * ZN * MN * NI * CR * F *
* 0 * 249 * 3 * 802 * 319 * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L * MYG/L *

```

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CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * NORTH * EAST * DEPTH * DATE * TIME *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* NORWAY * NIVA * HGHAN * 7612904 * VOLLSEJORD * AB-1 * 59.07.4 * 9.33.4 * 33 * 701128 * 1420 *
*****
* WIND * DIRECTION * AIR TEMP. * SECCHI-DISC * WEATHER * CLOUDS *
* M/S * (0-36) * DEG.CELS * DEPTH * M * * * * * * * * * * * * * * * * * * * * * *
* 0.0 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****
* SEA * CALM; WAVES 0.0M * ICE * CONTINUOUS LAYER OF CLOUDS * 8/8 *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* COMMENT1 * OIL * WRECK * SEA-WEED * BATHY/CID * SALINOTHERM *
* CTD-TEMP+SAL * NO * NO * NO * * * * * * * * * * * * * * * * * * * * * *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* COMMENT2 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****

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*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * O/O * TOTP * P04P * ORGP * TOTN * NO3N * NHAN * ORGN * TOC * FE *
* M * DEG.C * O/00 * ML/L * ML/L * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 0 * 3.73 * 15.620 * 12.259 * 6.49 * 84.9 * 9 * 8 * 4 * 1200 * 460 * 173 * 567 * 4.50 *
* 4 * 7.13 * 31.330 * 23.828 * 3.02 * 48.5 * 26 * 5 * 4 * 1200 * 440 * 192 * 568 *
* 8 * 11.76 * 31.670 * 24.202 * 3.67 * 58.3 * 24 * 23 * 1 * 300 * 170 * <10 * >120 *
* 12 * 10.58 * 31.790 * 24.394 * 4.21 * 66.1 * 21 * 20 * 1 * 265 * 140 * <10 * >115 *
* 20 * 10.55 * 32.190 * 24.710 * 4.12 * 64.8 * 22 * 21 * 1 * 230 * 125 * <10 * >100 *
* 30 * 10.24 * 32.560 * 25.051 * 3.22 * 50.4 * 30 * 29 * 1 * 235 * 130 * <10 * >95 *
*****

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*****
* DEPTH * RATIOS * MOL/MOL * TOC/ * TOTN/ * TOC/ * TOTN/ * TOC/ * TOTN/ * TOC/ * TOTN/ * TOC/ * TOTN/ * TOC/ * TOTN/ *
* M * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 0 * 294 * 4 * 1451 * 332 * 295 * 26 * 24 * 26 * 26 * 23 * 17 *
* 4 * 195 * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 8 * 15 * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 12 * 13 * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 16 * 14 * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 20 * 13 * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* 30 * 10 * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*****

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*****
< * LESS THAN VALUE *
> * GREATER THAN VALUE *
*****

```







CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HIGRAN * 7612904 * EIDANGERFJORD * BF-1 * NORTH EAST * M * * *
* SPEED * WIND * AIR TEMP. * SECCHI-DISC * WFAATHER * CLOUDS *
* M/S * DIRECTION * DEG.CELS * DEPTH * M * PARTLY CLOUDY * 2/8 *
* 3.4 * 33 * DRY * WET * * * *
* SFA * WAVES * 0.1-0.5M * ICE * NO *
* SMOOTH * * * * *
* COMMENT1 * * * * *
* CTD-TEMP+SAL * * * * *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L. * TOC *
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * 0/0 * 0/0 * 17 * 15 * 2 * 335 * 150 * 50 * 135 * 2.20 *
* 0 * 6.62 * 24.100 * 19.015 * * * * *
*****

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*****
* DEPTH * RATIOS * MOL/MOL * HEAVY METALS *
* M * * * * *
* 0 * * * * *
*****

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CONTROLLED DATA

MARINE HYDROGRAPHIC DEPTH STATION

```

*****
* COUNTRY * INSTITUTION * SHIP * PROJECT * LOCATION * STATION * POSITION * DEPTH * DATE * TIME *
* NORWAY * NIVA * HIRSHAN * 7612904 * EIDANGERFJORD * DF-1 * NORTH EAST * * * *
* WIND * AIR TEMP. * DEPTH * SECCHI-DISC * WEATHER * * * *
* SPEED * DIRECTION * DRY WET * M * * * *
* M/S * (0-36) * * * * * * * *
* 2.4 * 33 * * * * * * * *
* SEA * * * * * * * *
* SMOOTH: WAVES 0.1-0.5M * NO * * * *
* COMMENT1 * * * *
* CTD-TEMP+SAL * * * *
*****

```

```

*****
* DEPTH * TEMP. * SAL. * DENS. * 02 * H2S * 02-SAT * NUTRIENTS * MICROGR./L * TOC *
* M * DEG.C * 0/00 * SIGMA-T * ML/L * ML/L * 0/0 * TOTP * P04P * ORGP * TOTN * NO3N * NH4N * ORGN * MG/L * FE *
* 0 * 7.73 * 25.960 * 20.273 * * * * * 18 * 15 * 3 * 315 * 150 * 50 * 115 * 1.70
*****
* DEPTH * RATIOS * MOL/MOL * * * * * HEAVY METALS * * * *
* M * NO3/ * TOC/ * TOTN/ * HG * CU * ZN * MN * NI * CR * F *
* 0 * * * * * 2.44 * 6 * 39 * * * * *

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*****
+ COUNTRY + INSTITUTION + SHIP + PROJECT + LOCATION + STATION + NORTH + EAST + DEPTH + DATE + TIME +
+ NO. + NIVA + BRIGAN + 7612004 + BREVIKBJORD + FG-1 + 59,02.8 + 9,43.2 + 110 + 701127 + 1350 +
+ WIND + AIR TEMP. + SECCHI-DISC + WEATHER + CLOUDS +
+ DIRECTION + DEG.CELS. + DEPTH + COLOUR +
+ (0-36) + DRY + WET + M +
+ 10.1 + 33 + 8.0 + 5.5 + GREEN + PARTLY CLOUDY + 2/8 +
+ SEA + ICE +
+ SMOOTH: WAVES 0.1-0.5M + NO +
+ COMMENT1 +
+ CTD-TEMP+SAL + COMMENT2 +
*****

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```

*****
+ DEPTH + TEMP. + SAL. + DENS. + 02 + H2S + 02-SAT + TOTP + P04P + ORGP + TOTN + NO3N + NH4N + ORGN + TOC +
+ M + DEG.C + 0/00 + SIGMA-T + ML/L + ML/L + 0/0 + 0/0 + 9 + 14 + 14 + 2 + 380 + 170 + 75 + 135 +
+ 0 + 6.48 + 15.260 + 12.034 + 6.21 + 86.8 + 16 + 17 + 15 + 2 + 240 + 60 + 40 + 140 +
+ 8 + 7.75 + 31.570 + 24.662 + 6.53 + 96.1 + 17 + 15 + 2 + 240 + 60 + 40 + 140 +
+ 12 + 7.75 + 31.710 + 24.772 + 6.41 + 94.4 + 18 + 15 + 3 + 220 + 55 + 45 + 120 +
+ 16 + 7.84 + 31.870 + 24.885 + 6.44 + 95.2 + 18 + 15 + 3 + 175 + 50 + 35 + 90 +
+ 20 + 7.97 + 32.160 + 25.093 + 6.41 + 95.2 + 18 + 15 + 3 + 210 + 50 + 35 + 125 +
+ 30 + 8.52 + 32.630 + 25.380 + 6.18 + 93.2 + 17 + 14 + 3 + 220 + 55 + 30 + 135 +
+ 40 + 9.16 + 33.000 + 25.571 + 5.85 + 89.7 + 15 + 14 + 1 + 190 + 65 + 10 + 115 +
+ 50 + 9.46 + 33.450 + 25.874 + 5.54 + 85.8 + 14 + 14 + 0 + 185 + 70 + 10 + 105 +
+ 60 + 9.45 + 33.800 + 26.148 + 5.37 + 83.3 + 17 + 16 + 1 + 220 + 90 + 25 + 105 +
+ 80 + 8.39 + 34.220 + 26.644 + 3.33 + 47.9 + 23 + 22 + 1 + 290 + 115 + 20 + 155 +
+ 105 + 5.96 + 34.340 + 27.077 + 3.33 + 47.9 + 53 + 50 + 300 + 215 + 10 + 75 +
*****

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```

*****
+ DEPTH + RATIOS + MOL/MOL + HEAVY METALS +
+ M + NO3/ + TOC/ + TOTN/ + HG + PB + CU + ZN + CD + MN + NI + CR + F +
+ 0 + 91 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 4 + 27 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 8 + 9 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 12 + 8 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 16 + 7 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 20 + 7 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 30 + 9 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 40 + 10 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 50 + 11 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 60 + 12 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 80 + 12 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
+ 105 + 10 + 516 + 136 + 53 + 31 + 27 + 21 + 26 + 29 + 28 + 29 + 28 + 13 +
*****
< :IFSS THAN VALUE
:GREATER THAN VALUE
*****

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#### 4. LITTERATUR

1. NIVA, 1979a:

0-76129. Overvåking av forurensninger i Grenlandsfjordene og Skienselva. Årsrapport for 1977. Saksbehandler: Brage Rygg. 152 s. 25.5.1979

2. NIVA, 1979b:

0-76129. Overvåking av forurensninger i Grenlandsfjordene og Skienselva i 1978. Delrapport 2: Metaller og partikulært materiale i vannmassene. Saksbehandler: Jens Skei. 9 s. 20.8.1979.

3. NIVA, 1980:

0-76129. Overvåking av forurensninger i Grenlandsfjordene og Skienselva i 1979. Delrapport 3: Metaller og partikulært materiale i vannmassene. Saksbehandler: Jens Skei, under bearbeidelse.

4. GRASSHOFF, K. and HERMANN, F., 1975:

Salinometer Intercalibration Experiment. International Council for the Exploration of the Sea. Hydrography Committee. C.46. Stensilert.

5. International Oceanographic tables, National Institute of Oceanography of Great Britain and UNESCO. Vol. 1 (1966) & Vol. 2 (1973).

6. GAARDER, T., 1916:

De vestlandske fjorders hydrografi. I. Surstoffet i fjordene. Bergens Mus. Årb. 1915-16. Nat.Vit. rekke, 2: 1-200.

7. HENRIKSEN, A., 1974:

Preservation of water samples for phosphorus and nitrogen determination. Vatten 27 (3): 247-254.

8. HENRIKSEN, A. & SELMER-OLSEN, A.R., 1970:

Automatic methods for determining nitrate and nitrite in water and soil extracts. Analyst. London, 95: 514-518.

9. MURPHY, J. & RILEY, J.P., 1958:

A single-solution method for the determination of soluble phosphate in sea-water. J. Mar. Biol. Ass. U.K., 37: 9-14.

10. NIVA, 1975:

D1-03. Lagring av vannprøver for bestemmelser av ammonium. Bergmann-Paulsen, I.-M.

11. MENZEL, D. & VACCARO, R., 1964:

The measurement of the dissolved organic and particulate organic carbon in sea-water. Limnol. & Oceanogr., 9: 138-142.