

C.I.P.S.

MODELE MATHEMATIQUE DE LA
POLLUTION EN MER DU NORD

TECHNICAL REPORT
1973/02-BIOL.OI

This paper not to be cited without prior reference to the author

ETUDE DU ZOOPLANCTON DE LA CROISIERE 02
AVRIL - MAI 1973

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A. Composition qualitative

La diversité est peu importante car le zooplancton n'est pas encore développé. On observe la dominance des copépodes de tous les stades (environ 85 % du zooplancton) et l'apparition des larves de lamellibranches (points 7-6-5-3). Le nombre important de nauplii de copépodes est une indication de début de bloom.

B. Composition quantitative en nombre

On observe que dans le Sud du réseau de prélèvement (points 1 à 15) le nombre d'individus / m³ est deux fois plus grand que dans le Nord (points 16 à 25). Au point 6 (point de dumping présumé) la composition qualitative est la même qu'ailleurs, mais le nombre d'individus est cinq fois moins grand.

Les points 1, 5 et 12, qui habituellement ont un petit nombre d'individus sont pour cette croisière les plus riches.

C. Composition quantitative en poids

La composition quantitative en poids varie à peu près de la même manière que la situation en nombre, ceci est dû essentiellement à la faible diversité du zooplancton et aux proportions semblables à toutes les stations.

Le transect 1-4 montre une diminution sensible de la côte au large.

Les transects 5-10 et 11-15 et 21-25 montrent des situations perturbées.

Le transect 16-20 montre une diminution du large vers la côte.

Time Sharing

ZOOPLANKTON EKOLOGIE EN SYSTEMATIEK V.U.B.

CRUISE 02 - 1973 18-4:3-5-1973

STATION 1 M 01 180473 -03 1300

TOT.NUMB.INDIV./M3(Prot.EXCL.) 12180

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 3

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.41

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= 1.16

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.71

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	20	0	3
ACNIDARIA	20	0	3
NEMATHELMINT.	240	7	46
MOLLUSCA (L)	540	15	105
ANNELIDA (L)	320	9	62
CRUSTACEA	10540		
NAU.COP.	5400	159	
COPEPODS	4940	146	
N+C CIRR.	180	5	35
OTHERS	20	0	3
BRYOZOA (L)	20	0	3
CHAETOGNATHA	0	0	0
ECHINOD. (L)	80	2	15
TUNICATA	380	11	74
PISCES (OVA)	20	0	3

STATION 2 M 02 180473 -02 1600

TOT.NUMB.INDIV./M3(Prot.EXCL.) 13460

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 3.15

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.64

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .88

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.3

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	40	1	13
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	560	14	190
ANNELIDA (L)	60	1	20
CRUSTACEA	12460		
NAU.COP.	10700	286	
COPEPODS	1700	45	
N+C CIRR.	60	1	20
OTHERS	0	0	0
BRYOZOA (L)	40	1	13
CHAETOGNATHA	0	0	0
ECHINOD. (L)	20	0	6
TUNICATA	240	6	81
PISCES (OVA)	40	1	13



service Thompson & Bell

STATION 3 M03 180473 -02 1830

TOT.NUMB.INDIV./M3(Prot.EXCL.) 15400
 DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 3.37
 DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.96
 DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .43
 DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .64

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	120	2	166
MOLLUSCA (L)	1700	39	
ANNELIDA (L)	20	0	27
CRUSTACEA	13500		
NAU.COP.	10660	249	
COPEPODS	2780	64	
N+C CIRR.	60	1	83
OTHERS	0	0	0
BRYOZOA (L)	60	1	83
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	0	0	0
PISCES (OVA)	0	0	0

STATION 4 M04 300473 -02 16.25

TOT.NUMB.INDIV./M3(Prot.EXCL.) 2200
 DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.27
 DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 1.87
 DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .4
 DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .59

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	20	3	32
MOLLUSCA (L)	20	3	32
ANNELIDA (L)	60	9	98
CRUSTACEA	2020		
NAU.COP.	1740	284	
COPEPODS	240	39	
N+C CIRR.	40	6	65
OTHERS	0	0	0
BRYOZOA (L)	20	3	32
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	40	6	65
PISCES (OVA)	20	3	32

line Sharing Service

STATION 5

1105

240473

-02

15.30

TOT.NUMB.INDIV./M3(Prot.Excl.) 17120

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 3.56

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 5.23

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .71

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.04

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	40	0	21
NEMATHELMINT.	60	1	31
MOLLUSCA (L)	3580	75	
ANNELIDA (L)	360	7	190
CRUSTACEA	12920		
NAU.COP.	8100	170	
COPEPODS	4760	100	
N+C CIRR.	60	1	31
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	20	0	10
ECHINOD. (L)	40	0	21
TUNICATA	100	2	52
PISCES (OVA)	0	0	0

STATION 6

M06

240473

-02

13.30

TOT.NUMB.INDIV./M3(Prot.Excl.) 2300

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.3

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 1.91

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .36

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .53

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	20	3	40
MOLLUSCA (L)	760	118	
ANNELIDA (L)	100	15	200
CRUSTACEA	1360		
NAU.COP.	980	153	
COPEPODS	380	59	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	20	3	40
TUNICATA	40	6	80
PISCES (OVA)	0	0	0

STATION 7

M07

260473 -02

18.45

TOT.NUMB.INDIV./M3(Prot.Excl.) 21580

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 4

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 5.87

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .78

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.15

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	8600	143	
ANNELIDA (L)	760	12	325
CRUSTACEA	12180		
NAU.COP.	9300	155	
COPEPODS	2840	47	
N+C CIRR.	40	0	17
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	20	0	8
ECHINOD. (L)	20	0	8
TUNICATA	0	0	0
PISCES (OVA)	0	0	0

STATION 8

M08

270473 -02

12.00.

TOT.NUMB.INDIV./M3(Prot.Excl.) 13320

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 3.14

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.61

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .21

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .3

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	40	1	240
ANNELIDA (L)	0	0	0
CRUSTACEA	13260		
NAU.COP.	11860	320	
COPEPODS	1400	37	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	20	0	120
TUNICATA	0	0	0
PISCES (OVA)	0	0	0

STATION 9

M03

270473

.01

0330

TOT.NUMB.INDIV./M3(Prot.Excl.) 2140

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.25

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 1.85

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .38

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .56

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
Cnidaria	0	0	0
Acnidaria	0	0	0
Platyhelminth.	0	0	0
Mollusca (L)	0	0	0
Annelida (L)	0	0	0
Crustacea	2140		
Mal. Cop.	1940	326	
Copepods	200	33	360
Mid. Symb.	0	0	0
Others	0	0	0
Bryozoa (L)	0	0	0
Chaetognatha	0	0	0
Echinod. (L)	0	0	0
Tunicata	0	0	0
Pisces (ova)	0	0	0

STATION 10

M 10

270473

.01

0300

TOT.NUMB.INDIV./M3(Prot.Excl.) 11960

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 2.97

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.37

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= 1.06

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.59

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
Cnidaria	0	0	0
Acnidaria	0	0	0
Platyhelminth.	80	2	18
Mollusca (L)	460	13	103
Annelida (L)	0	0	0
Crustacea	11240		
Mal. Cop.	10350	311	
Copepods	780	23	175
Mid. Symb.	100	3	22
Others	0	0	0
Bryozoa (L)	0	0	0
Chaetognatha	0	0	0
Echinod. (L)	60	1	13
Tunicata	100	3	22
Pisces (ova)	20	0	4

STATION 11

M11

260473

-02 1200

TOT.NUMB.INDIV./M3(Prot.EXCL.) 15680

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 3.4

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 5

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .95

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.4

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	20	0	5
MOLLUSCA (L)	560	12	162
ANNELIDA (L)	540	12	156
CRUSTACEA	14440		
NAU.COP.	12260	281	
COPEPODS	2180	50	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	100	2	29
TUNICATA	20	0	5
PISCES (OVA)	0	0	0

STATION 12

M12

260473

-02 14.15

TOT.NUMB.INDIV./M3(Prot.EXCL.) 10380

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 2.77

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.07

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .27

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .39

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	40	1	144
ANNELIDA (L)	60	2	216
CRUSTACEA	10280		
NAU.COP.	8900	308	
COPEPODS	1380	47	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	0	0	0
PISCES (OVA)	0	0	0

STATION 13

M 13

02 05 73

-02 17.40

TOT.NUMB.INDIV./M3(Prot.EXCL.) 3220

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.54

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 2.26

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .17

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .25

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	20	2	180
MOLLUSCA (L)	20	2	180
ANNELIDA (L)	0	0	0
CRUSTACEA	3180		
NAU.COP.	2320	259	
COPEPODS	860	96	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	0	0	0
PISCES (OVA)	0	0	0

STATION 14

M 14

02 05 73

-02

TOT.NUMB.INDIV./M3(Prot.EXCL.) 6140

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 2.13

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 3.13

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .47

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .69

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	20	1	24
MOLLUSCA (L)	200	11	240
ANNELIDA (L)	20	1	24
CRUSTACEA	5840		
NAU.COP.	4660	273	
COPEPODS	1180	69	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	20	1	24
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	40	2	48
PISCES (OVA)	0	0	0

STATION 15

M 15

02 05 73

-02

14.30

TOT.NUMB.INDIV./M3(Prot.EXCL.) 14960

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 3.33

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.89

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .99

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.46

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	440	10	118
ANNELIDA (L)	60	1	16
CRUSTACEA	13620		
NAU.COP.	12020	289	
COPEPODS	1600	38	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	40	0	10
CHAETOGNATHA	0	0	0
ECHINOD. (L)	180	4	48
TUNICATA	620	14	166
PISCES (OVA)	0	0	0

STATION 16

M 16

07 05 73

-02

18.30

TOT.NUMB.INDIV./M3(Prot.EXCL.) 3880

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.69

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 2.49

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .67

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .99

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	0	0	0
ANNELIDA (L)	0	0	0
CRUSTACEA	3860		
NAU.COP.	3260	302	
COPEPODS	340	31	197
N+C CIRR.	260	24	150
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	20	1	11
PISCES (OVA)	0	0	0

STATION 17

M 17

04 05 73

-02 06:15

TOT.NUMB.INDIV./M3(Prot.EXCL.) 4420

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.81

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 2.65

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .47

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .69

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	20	1	24
MOLLUSCA (L)	100	8	120
ANNELIDA (L)	80	6	96
CRUSTACEA	4140		
NAU.COP.	2860	232	
COPEPODS	1260	102	
N+C CIRR.	0	0	0
OTHERS	20	1	24
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	80	6	96
PISCES (OVA)	0	0	0

STATION 18

M 18

03 05 73

-02 08:30

TOT.NUMB.INDIV./M3(Prot.EXCL.) 4480

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.82

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 2.67

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .48

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .71

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	60	4	67
MOLLUSCA (L)	120	9	135
ANNELIDA (L)	80	6	90
CRUSTACEA	4160		
NAU.COP.	2880	231	
COPEPODS	1280	102	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	20	1	22
PISCES (OVA)	40	3	45

STATION 19

M 19

03 05 73

-02

18.30

TOT.NUMB.INDIV./M3(Prot.Excl.) 7860

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 2.41

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 3.54

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .43

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .64

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	40	1	55
MOLLUSCA (L)	40	1	55
ANNELIDA (L)	20	0	27
CRUSTACEA	7600		
NAU.COP.	5640	258	
COPEPODS	1960	89	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	20	0	27
CHAETOGNATHA	0	0	0
ECHINOD. (L)	20	0	27
TUNICATA	100	4	138
PISCES (OVA)	20	0	27

STATION 20

M 20

03 05 73

-02 16.35

TOT.NUMB.INDIV./M3(Prot.Excl.) 10180

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 2.74

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 4.03

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .98

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= 1.44

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	40	1	11
MOLLUSCA (L)	440	15	121
ANNELIDA (L)	180	6	49
CRUSTACEA	8880		
NAU.COP.	7300	258	
COPEPODS	1580	55	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	20	0	5
CHAETOGNATHA	0	0	0
ECHINOD. (L)	140	4	38
TUNICATA	480	16	132
PISCES (OVA)	0	0	0

STATION 21

M 21

03 05 73

-02

06.45

TOT.NUMB.INDIV./M3(Prot.EXCL.) 7440

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 2.34

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 3.45

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .65

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .96

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	140	6	86
MOLLUSCA (L)	100	4	62
ANNELIDA (L)	180	8	111
CRUSTACEA	6980		
NAU.COP.	4680	226	
COPEPODS	2180	105	
N+C CIRR.	20	0	12
OTHERS	100	4	62
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	20	0	12
TUNICATA	0	0	0
PISCES (OVA)	20	0	12

STATION 22

M 22

03 05 73

-02

8.35

TOT.NUMB.INDIV./M3(Prot.EXCL.) 2160

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.26

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 1.85

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .34

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .5

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	20	3	45
MOLLUSCA (L)	0	0	0
ANNELIDA (L)	20	3	45
CRUSTACEA	2080		
NAU.COP.	1340	223	
COPEPODS	660	110	
N+C CIRR.	0	0	0
OTHERS	80	13	180
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	0	0	0
TUNICATA	40	6	90
PISCES (OVA)	0	0	0

STATION 23

M 23

030573

-02

10.10

TOT.NUMB.INDIV./M3(Prot.EXCL.) 3320

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.56

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 2.3

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .24

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .35

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	0	0	0
ANNELIDA (L)	20	2	90
CRUSTACEA	3260		
NAU.COP.	1760	190	
COPEPODS	1480	160	
N+C CIRR.	0	0	0
OTHERS	20	2	90
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	20	2	90
TUNICATA	20	2	90
PISCES (OVA)	0	0	0

STATION 24

M 24

030573

-02

11.45

TOT.NUMB.INDIV./M3(Prot.EXCL.) 2000

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.21

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 1.78

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .42

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .61

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	40	7	60
MOLLUSCA (L)	20	3	30
ANNELIDA (L)	100	18	150
CRUSTACEA	1760		
NAU.COP.	1400	252	
COPEPODS	360	64	
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	40	7	60
TUNICATA	40	7	60
PISCES (OVA)	0	0	0

STATION 25

M 25

030573 -02 13.15

TOT.NUMB.INDIV./M3(Prot.EXCL.) 1640

DIAGRAM CONSTRUCTION (WITH MAX.AREA R=4CM):R= 1.1

DIAGRAM CONSTRUCTION (NO MAX.AREA):R= 1.61

DIAGRAM CONSTRUCTION (WITH MAX.AREA) ORGAN.-10PC:R= .54

DIAGRAM CONSTRUCTION (NO MAX.AREA) ORGAN.-10PC:R= .79

	TOT.NUMB./M3	TOT.ANG.REPR.	ANG.REPR.-10PC
CNIDARIA	0	0	0
ACNIDARIA	0	0	0
NEMATHELMINT.	0	0	0
MOLLUSCA (L)	120	26	108
ANNELIDA (L)	60	13	54
CRUSTACEA	1380		
NAU.COP.	1240	272	
COPEPODS	140	30	126
N+C CIRR.	0	0	0
OTHERS	0	0	0
BRYOZOA (L)	0	0	0
CHAETOGNATHA	0	0	0
ECHINOD. (L)	20	4	18
TUNICATA	40	8	36
PISCES (OVA)	20	4	18

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Onderzoek CIPS

Cruise 02 - 1973 april

	N01 180473 1300 -3m	N02 180473 1600 -2m	N03 180473 1830 -2m	N04 300473 1625 -2m
Vers gewicht ($\mu\text{g}/\text{m}^3$)	min.-max.	min.-max.	min.-max.	min.-max.
<u>Cnidaria</u>				
<u>Acnidaria</u>				
Ctenophora				
<u>Nemathelminthes</u>				
Rotatoria spec.				
Nematoda spec.	4 - 22		3 - 22	3 - 22
<u>Mollusca</u>				
Gasteropoda (1)			120	
Lamellibranchia (!)	1350	1400	4200	50
<u>Annelida</u>				
Polychaeta spec.	1800-3390	360-678	120-226	360-678
Lanice spec.	220-600			
<u>Crustacea</u>				
Copepoda nauplii	8100-34560	16050-68480	15990-68224	2610-11136
Copepoda copepodiet	28672-89600	3216-28800	16256-50800	1152-3600
Copepoda adult.	8996-25668	4576-10982	5460-14514	1948-3148
Cirripedia (1)	1080-1800	360-600	360-600	240-400
Ostracoda				
Decapoda (1)				
Mysidacea				
Cumacea				
Isopoda				
Amphipoda				
Cladocera	480-1400			
<u>Bryozoa (1)</u>				
<u>Chaetognatha Sagitta spec.</u>				
<u>Echinodermata Larvae spec.</u>				
<u>Tunicata Oikopleura</u>	19760-45980	12480-29040		2080-4840
<u>Pisces (e-1)</u>	5360-42892	10720-85784		5360-42892
TOTAAL	75822-247260	55162-225764	42508-138704	13802-66764
GEMIDDELDE	161540	140464	90606	40286
Drooggewicht ($\mu\text{g}/\text{m}^3$)	32308	28093	18121	8057
Koolstof ($\mu\text{g}/\text{m}^3$)	13923	11237	7248	3223
Stikstof ($\mu\text{g}/\text{m}^3$)	3554	3090	1993	886
Fosfor ($\mu\text{g}/\text{m}^3$)	323	281	181	81

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Onderzoek CIPS

Cruise 02-1973 april

	M05 240473 1530 -2m	M06 240478 1530 -2m	M07 260473 1845 -2m	M08 270473 1200 -2m
Vers gewicht ($\mu\text{g}/\text{m}^3$)	min.-max.	min.-max.	min.-max.	min.-max.
<u>Cnidaria</u>				
<u>Acnidaria</u>				
<u>Ctenophora</u>				
<u>Nemathelminthes</u>				
Rotatoria spec.				
Nematoda spec.				
<u>Mollusca</u>				
Gasteropoda (1)	120		240	
Lamellibranchia (1)	8300	1300	31400	100
<u>Annelida</u>				
Polychaeta spec.	2160-4068	600-1130	4560-8588	
Lanice spec.				
<u>Crustacea</u>				
Copepoda nauplii	12150-51840	1470-6278	13350-59520	17790-75904
Copepoda copepodiet	19368-62400	512-1600	16768-52400	7040-22000
Copepoda adult.	38392-118698	7338-20724	5974-12122	17288-32652
Cirripedia (1)	360-600		240-400	
Ostracoda				
Decapoda (1)				
Mysidacea				
Cumacea				
Isopoda				
Amphipoda				
Cladocera				
<u>Bryozoa (1)</u>				
<u>Chaetognatha Sagitta spec.</u>	220-3640		220-3640	
<u>Echinodermata Larvae spec.</u>				
<u>Tunicata Oikopleura</u>	5200-12100	2080-4840		
<u>Pisces (e-1)</u>				
TOTAAL	87470-215710	13900-36466	63478-158310	42218-130656
GEMIDDELDE	151590	25184	110894	86440
Drooggewicht $\mu\text{g}/\text{m}^3$	30318	5037	22179	17288
Koolstof $\mu\text{g}/\text{m}^3$	12127	2015	8872	6915
Stikstof $\mu\text{g}/\text{m}^3$	3335	554	2440	1902
Fosfor $\mu\text{g}/\text{m}^3$	303	50	222	173

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Onderzoek CIPS

Cruise 02 - 1973 aG3

	H09 270473 09.30 - 2m	M10 270473 08.00 - 2m	M11 260473 12.00	M12 260473 14.15 - 2m
	min.-max.	min.-max.	min.-max.	min.-max.
<u>Vers gewicht</u> ($\mu\text{g}/\text{m}^3$)				
<u>Cnidaria</u>				
<u>Acnidaria</u>				
<u>Ctenophora</u>				
<u>Nemathelminthes</u>				
Rotatoria spec.				
Nematoda spec.				
<u>Mollusca</u>				
Gasteropoda (1)			240	
Lamellibranchia (1)		1150	1300	100
<u>Annelida</u>				
Polychaeta spec.			3120-5876	360-678
Lanice spec.			220-600	
<u>Crustacea</u>				
Copepoda nauplii	2910-12416	15540-66304	18330-78464	13350-56960
Copepoda copepodiet	1380-4000	4864-15200	9984-31200	8320-26000
Copepoda adult.		678-312	14044-46294	1768-6096
Cirripedia (1)		600-1000		
Ostracoda				
Decapoda (1)				
Mysidacea				
Cumacea				
Isopoda				
Amphipoda				
Cladocera				
<u>Bryozoa (1)</u>				
<u>Chaetognatha Sagitta spec.</u>				
<u>Echinodermata Larvae spec.</u>				
<u>Tunicata Oikopleura</u>		5200-12100	1040-2420	
<u>Pisces (e - 1)</u>		5360-42892		
TOTAAL	4130-16416	33392-135458	48338-166394	23898-89834
GEMIDDELDE	10304	86425	107366	56866
<u>Drooggewicht</u> $\mu\text{g}/\text{m}^3$	2061	17285	21473	11373
<u>Koolstof</u> $\mu\text{g}/\text{m}^3$	824	6914	8589	4549
<u>Stikstof</u> $\mu\text{g}/\text{m}^3$	227	1901	2362	1251
<u>Fosfor</u> $\mu\text{g}/\text{m}^3$	21	173	215	113

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Onderzoek CIPS

Cruise 02 - 1973 april

	M13 020573 1740 -2m	M14 020573 1430	M15 020573 1430	M16 070573 1830 -2m
Vers gewicht ($\mu\text{g}/\text{m}^3$)	min.-max.	min.-max.	min.-max.	min.-max.
<u>Cnidaria</u>				
<u>Acnidaria</u>				
Ctenophora				
<u>Nemathelminthes</u>				
Rotatoria spec.				
Nematoda spec.	4 - 22	4 - 22		
<u>Mollusca</u>				
Gasteropoda (1)		120	360	
Lamellibranchia (1)	50	450	350	
<u>Annelida</u>				
Polychaeta spec.		120 - 226	360 - 678	
Lanice spec.				
<u>Crustacea</u>				
Copepoda nauplii	3480 - 14848	6390 - 29824	18030 - 76428	4890 - 20864
Copepoda copepodiet	4224 - 13200	4864 - 15200	8064 - 25200	2048 - 6400
Copepoda adult.	5804 - 16386	11646 - 23916	12398 - 29442	672 - 812
Cirripedia (1)				1560 - 2600
Ostracoda				
Decapoda (1)				
Mysidacea				
Cumacea				
Isopoda				
Amphipoda				
Cladocera				
<u>Bryozoa (1)</u>				
<u>Chaetognatha</u> Sagitta spec.				
<u>Echinodermata</u> Larvae spec.				
<u>Tunicata</u> Oikopleura		2080 - 4840	32240 - 75020	1040 - 2420
<u>Pisces</u> (e - 1)				
TOTAAL	13562 - 44506	26274 - 74598	73352 - 208578	10216 - 30496
GEMIDDELDE	29034	50436	140965	20356
Drooggewicht $\mu\text{g}/\text{m}^3$	5807	10087	28193	4071
Koolstof $\mu\text{g}/\text{m}^3$	2323	4035	11277	1628
Stikstof $\mu\text{g}/\text{m}^3$	639	1110	3101	448
Fosfor $\mu\text{g}/\text{m}^3$	58	101	282	41

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Onderzoek CIPS

Cruise 02 - 1973 *asil*

	1117 040573 0615 - 2m	1118 030573 0830 - 2m	1119 030573 1830 - 2m	1120 030573 1635 - 2m
	min.-max.	min.-max.	min.-max.	min.-max.
<u>Vers gewicht</u> ($\mu\text{g}/\text{m}^3$)				
<u>Cnidaria</u>				
<u>Acnidaria</u>				
<u>Ctenophora</u>				
<u>Nemathelminthes</u>				
Rotatoria spec.				
Nematoda spec.	4 - 22	8 - 44		8 - 44
<u>Mollusca</u>				
Gasteropoda (1)				120
Lamellibranchia (1)	250	300	100	1050
<u>Annelida</u>				
Polychaeta spec.	480 - 904	480 - 904	120 - 226	1080 - 2034
Lanice spec.				
<u>Crustacea</u>				
Copepoda nauplii	4290 - 18304	4320 - 18432	8460 - 36096	10950 - 46720
Copepoda copepodiet	6144 - 19200	5760 - 18000	10752 - 33600	8704 - 27200
Copepoda adult.	8706 - 19248	11644 - 24958	6690 - 11614	6114 - 13750
Cirripedia (1)				
Ostracoda				
Decapoda (1)				
Mysidacea	19460 - 30400			
Cumacea				
Isopoda				
Amphipoda				
Cladocera				
<u>Bryozoa (1)</u>				
<u>Chaetognatha Sagitta spec.</u>				
<u>Echinodermata Larvae spec.</u>				
<u>Tunicata Oikopleura</u>	4160 - 9680	1040 - 2420	5200 - 12100	24960 - 58080
<u>Pisces (e - 1)</u>		5360 - 42892	5360 - 42892	
TOTAAL	43494 - 98008	28912 - 107350	36682 - 136628	52986 - 148998
GEMIDDELDE	70751	68431	86655	100992
<u>Drooggewicht</u> ($\mu\text{g}/\text{m}^3$)	14150	13686	17331	20198
<u>Koolstof</u> ($\mu\text{g}/\text{m}^3$)	5660	5474	6932	8079
<u>Stikstof</u> ($\mu\text{g}/\text{m}^3$)	1557	1505	1906	2222
<u>Fosfor</u> ($\mu\text{g}/\text{m}^3$)	142	137	173	202

Onderzoek CIPS

Cruise 02 - 1993 april

	M21 030573 0645 -2m	M22 030573 0835 -2m	M23 030573 1010 -2m	M24 030573 1145 -2m
Vers gewicht (kg/m^3)	min.-max.	min.-max.	min.-max.	min.-max.
<u>Cnidaria</u>				
<u>Acnidaria</u>				
Ctenophora				
<u>Nemathelminthes</u>				
Rotatoria spec.				
Nematoda spec.				
<u>Mollusca</u>				
Gasteropoda (1)	120			
Lamellibranchia (1)	200			50
<u>Annelida</u>				
Polychaeta spec.	1080-2034	120-226	120-226	600-1130
Lanice spec.				
<u>Crustacea</u>				
Copepoda nauplii	7020-29950	2010-8576	2640-11264	2100-8980
Copepoda copepodiet	11904-37200	3968-12400	6528-20400	1920-6000
Copepoda adult.	9354-21062	494-1706	15460-27152	902-1254
Cirripedia (1)	120-200			
Ostracoda				
Decapoda (1)		19460-30400	19460-30400	
Mysidacea				
Cumacea				
Isopoda				
Amphipoda				
Cladocera	2400-7000	1920-5600		
<u>Bryozoa (1)</u>				
<u>Chaetognatha Sagitta spec.</u>				
<u>Echinodermata Larvae spec.</u>				
<u>Tunicata Oikopleura</u>		2080-4840	1040-2420	2080-4840
<u>Pisces (e - 1)</u>	5360-42892			
TOTAAL	37558-140658	30052-63748	45248-91862	7652-22234
GEMIDDEELDE	89108	46900	68555	14943
Drooggewicht kg/m^3	17822	9380	13711	2989
Koolstof kg/m^3	7129	3752	5484	1196
Stikstof kg/m^3	1960	1032	1508	329
Fosfor kg/m^3	178	94	137	30

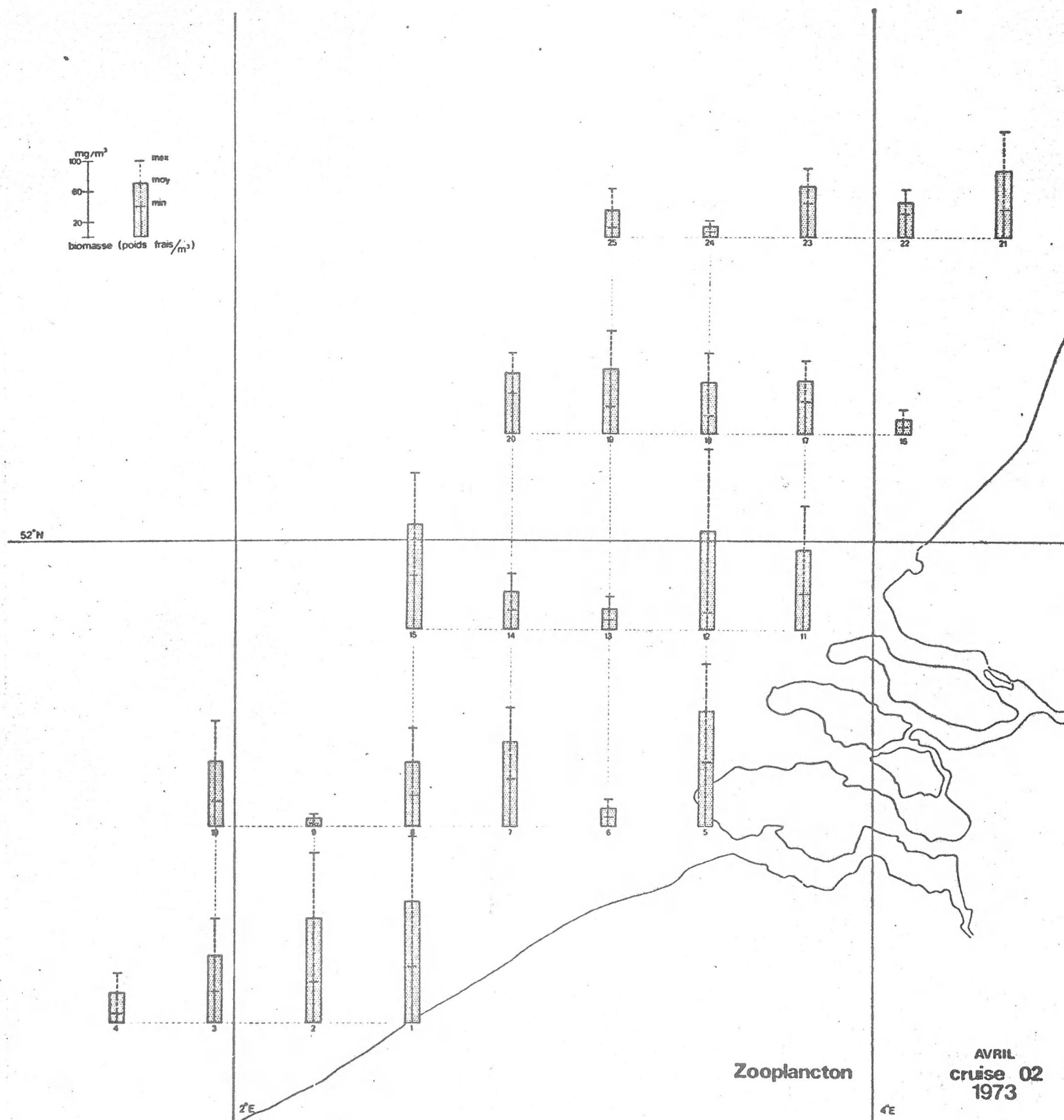
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Onderzoek CIPS

Cruise 02 - 1973 april.

H25 030573
1315 - 2m

Vers gewicht. ($\mu\text{g}/\text{m}^3$)		min.-max.	min.-max.	min.-max.	min.-max.
<u>Cnidaria</u>					
<u>Acnidaria</u>					
Ctenophora					
<u>Nemathelminthes</u>					
Rotatoria spec.					
Nematoda spec.					
<u>Mollusca</u>					
Gasteropoda (1)					
Lamellibranchia (1)		300			
<u>Annelida</u>					
Polychaeta spec.		360 - 678			
Lanice spec.					
<u>Crustacea</u>					
Copepoda nauplii		1860 - 7936			
Copepoda copepodiet		512 - 1600			
Copepoda adult.		2138 - 4898			
Cirripedia (1)					
Ostracoda					
Decapoda (1)					
Mysidacea					
Cumacea					
Isopoda					
Amphipoda					
Cladocera					
<u>Bryozoa (1)</u>					
<u>Chaetognatha Sagitta spec.</u>					
<u>Echinodermata Larvae spec.</u>					
<u>Tunicata Oikopleura</u>		2080 - 4840			
<u>Pisces (e - 1)</u>		5360 - 42892			
TOTAAL		12610 - 63144			
GEMIDDELOE		37872			
— Drooggewicht $\mu\text{g}/\text{m}^3$		7575			
— Koolstof $\mu\text{g}/\text{m}^3$		3030			
— Stikstof $\mu\text{g}/\text{m}^3$		833			
— Fosfor $\mu\text{g}/\text{m}^3$		76			



COMMENTAIRE

Cette croisière d'avril 1973 nous montre une distribution de la biomasse zooplanctonique qui suit un gradient décroissant du sud vers le nord d'une part, et de la côte vers le large d'autre part, ce second gradient étant surtout visible dans les trois premiers transects.

Ces biomasses ne sont pas très élevées (en tout cas beaucoup moins qu'au mois de juillet) ce qui nous donne à penser que le "bloom" du zooplancton n'a pas encore eu lieu.

Le fait remarquable de cette croisière de prélèvements est que la biomasse zooplanctonique est dominée par la biomasse des Copépodes.

La biomasse moyenne des Copépodes des points 1 à 15 est de 64 mg/m^3 .

La biomasse moyenne des Copépodes des points 16 à 25 est de $33,5 \text{ mg/m}^3$.

Dans les mêmes zones, la biomasse moyenne d'Oikopleura des points 1 à 15 est de 9 mg/m^3 et la biomasse moyenne d'Oikopleura des points 16 à 25 est de 7 mg/m^3 .