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P L A N K T O N - H A U L S

B u o y - V e r o n i c a    S c h e v e n i n g e n

10th October 1969 - 1st December 1970

by dr. Joh.a Muller

## I. Haul "Buoy" Scheveningen

Date: 10th October 1969

1. Place of hauling	I. "Buoy" Scheveningen
2. Situation	N.N.W. of "Buoy"
3. Weather forecast	Weather dry and sunny Locally mist Wind light to moderate, mainly between South and South-West.
4. Weather, while hauling	Clear sky and sunby, dry weather.
5. Time of hauling	11.45 - 12.- by sailing
6. Distance while hauling	+ 700/750 by sailing
7. Temperature	In the air 16°C In the water 15°C
8. Wind	on board ship: Direction: N.E. Force: 1½m/sec. Somaphore Direction: E.N.E. Force 2½m/sec.
9. Lighthours	11.02 a day
10. Tides	2nd H.W. 15.09
11. Water Levels in the harbour	1st H.W. + 135 cm. 1st L.W. - 54 cm 2nd H.W. + 90 cm. 2nd L.W. - 72 cm - 80 cm.
12. Direction of streams	3 hours before H.W.
13. Chemical analyses	Chloride 14,3 gr/l Phosphate 0,40 mgr/l Nitrate 7 mgr/l

I. Haul "Buoy" Scheveningen

Date: 10th October 1969

	Numbers of organisms found in hauls
1. B a c i l l a r i o p h y c e a e	<del>150</del>
Biddulphia alternans	150
"  mobiliensis	5000
"  regia	750
"  sinensis	69300
Coscinidiscus concinnus	2250
"  excentricus	1500
"  granii	6900
Rhizosolenia sp	300
2. P r o t o z o a	
Flagellata sp.	50
3. C o e l e n t e r a t a	
Leuckartiara octona	200
4. C r u s t a c e a	
C o p e p o d a	
Acartia clausi	14550
Centropages hamatus	1600
Microcalanus pusillus	23100
Nauplius larva Cop <del>a</del> sp	1300
Temora longicornis	1700
Temora longicornis with broken antennae	1400
C i r r i p e d i a	
Cypris larva Cirripedia sp	50
Nauplius " "	1400
H a r p a c t i c o i d a sp	150
D e c a p o d a	
Zoea larva Carcinus maenas	100
Megalopa larva Portunus puber	50
5. E g g s	
Gastropoda egg	100



SAMPLING DATA

OCTOBER 1969

II. Haul "Veronica" Scheveningen

Date: 10th October 1969

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|---------------------------------|---|
| 1. Place of hauling             | II. "Veronica Scheveningen"   |
| 2. Situation                    | S.S.E. of "Veronica"  |
| 3. Weather forecast             | Weather dry and sunny. Locally mist. Wind light to moderate, mainly between South and South-West. |
| 4. Weather, while hauling       | Clear sky and sunny   |
| 5. Time of hauling              | 12.30 - 12.45 by sailing  |
| 6. Distance while hauling       | ± 700/750 <sup>metres</sup> by sailing  |
| 7. Temperature                  | In the air 17°C<br>In the water 16°C  |
| 8. Wind                         | on board ship:<br>Direction: N.E. Force 1½m/sec.<br>Semaphore<br>Direction E.N.E. Force 3½m/sec.  |
| 9. Lighthours                   | 11.02 a day   |
| 10. Tides                       | 2nd H.W. 15.09  |
| 11. Water Levels in the harbour | 1st H.W. + 135 cm. 1st L.W. -54 cm<br>2nd H.W. + 90 cm. 2nd L.W. -72 cm - 80 cm.                  |
| 12. Direction of streams        | 2 hours before H.W.   |

13. Chemical analyses

Chloride 74.6 g/l  
Phosphate 0.40 mg/l  
Nitrate 5 mg/l

## II. Haul "Veronica" Scheveningen

Date: 10th October 1969

## II. Haul "Veronica" Scheveningen

Numbers of organisms found  
in hauls

1. B a c i l l a r i o p h y c e a e	
Biddulphia mobiliensis	6000
"      regia	900
"      sinensis	10800
Coscinodiscus concinnus	10000
"      excentricus	4300
"      granii	4650
Ditylum brightwelli	50
Leptocylindricus danicus	300
Rhizosolenia sp	50
2. P r o t o z o a	
Flagellata sp	150
Noctiluca miliaris	250
3. C o e l e n t e r a t a	
Bipinnaria larva	50
Leuckartiara octona	1700
Phialidium hemisphericum	1200
4. P o l y c h a e t a	
Polychaeta larva	50
Terebella "	50
5. C r u s t a c e a	
C o p e p o d a	
Acartia clausi	8450
Centropages hamatus	2000
Microcalanus pusillus	9550
Temora longicornis	100
Nauplius larva	400
Copepoda sp	
C i r r i p e d i a	
Nauplius larva	950
Cirripedia sp	
H a r p a c t i c o i d a	
Harpacticoida sp	2950
6. M o l l u s c a	
L a m e l l i b r a n c h i a t a	
Mactra corallina	50
(O.2 mm)	
G a s t r o p o d a	
Egg Gastropoda sp.	250
7. E c t o p r o c t a	
Cyphonautes larva	50
Membranipora membranaceus	

III. Haul "Buoy", Scheveningen

Date: 7th November 1969.

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1. Place of hauling	III. "Buoy" Scheveningen
2. Situation	South of "Buoy" Scheveningen
3. Weather forecast	Many clouds with locally showers; yet clearing of the sky too. Wind mostly moderate, as first. South to South-Eastern. Later on Western Night less cold. During the day- time temperature about the same as on the 6th.
4. Weather, while hauling	Misty; at short moments sun. Visibility 4 to 5 miles
5. Time of hauling	12.45 - 13.05 by sailing.
6. Distance while hauling	+ 750 meter by sailing
7. Temperature	In the air 5°C In the water 10°C
8. Wind	on board ship: Direction: S.E. Force 3m/sec Semaphore Direction: S.E. Force 6½ m/sec.
9. Lighthours	9.17 a day
10. Tides	2nd H.W. 13.23
11. Water Levels in the harbour	1st H.W. + 72 cm. 1st L.W. -80 cm 2nd H.W. + 102 cm. 2nd L.W. -70cm
12. Direction of streams	one our before H.W.
13. Chemical analysis	Chloride Phosphate Nitrate

## III. Haul "Buoy" Scheveningen

Date: 7th November 1969

## III. Haul "Buoy" Scheveningen

Numbers of organisms found  
in hauls

1. B A C I L L A R I O P H Y C E A E	
Biddulphia alternans	500
" mobiliensis	32500
" regia	62000
" sinensis	953750
Coscinodiscus concinnus	40750
" excentricus	12000
" granii	13500
Fragilaria sp.	2000
Skeletonema costatum	500
2. P r o t o z o a	
Noctiluca miliaris	500
3. C o e l e n t e r a t a	
Phialidium sp	4200
Young Steenstrupia	150
Mitans (0.5 mm)	
4. C r u s t a c e a	
C o p e p o d a	
Acartia sp	1800
Centropages hamatus	2150
Microcalanus pusillus	3900
Cypris larva Cop.sp	50
Nauplius " " "	200
C i r r i p e d i a	
Cypris larva Cirr.sp.	200
Nauplius " " "	550
H a r p a c t i c o i d a	
Harpacticoida sp	8400
5. M o l l u s c a	
Lamelli branchiata	50
Mytilus edulis (0.235 mm)	
6. E c t o p r o c t a	
Cyphonautes larva	50
Membranipora membranaceae	

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## IV. "Haul "Veronica" Scheveningen

Date: 7th November 1969

1. Place of hauling	"Veronica Scheveningen
2. Situation	South of "Veronica"
3. Weather forecast	Many clouds with locally showers; yet clearing of the sky too. Wind mostly moderate, at first South to South-Eastern. Later on Western. Night less cold. During the day-time temperature about the same as on the 6th.
4. Weather, while hauling	Misty, visibility 8 miles
5. Time of hauling	11.45 - 12.05 by sailing
6. Distance while hauling	+ 750 meter by sailing
7. Temperature	In the air 5°C In the water 11°C
8. Wind	on board ship: Direction: S.E. Force 2 à 3 m/sec. Semaphore Direction: S.E. Force 6 m/sec.
9. Lighthours	9.17 a day
10. Tides	2nd H.W. 13.23
11. Water Levels in the harbour	1st H.W. +72 cm. 1st L.W. -80cm 2nd H.W. + 102 cm. 2nd L.W. -70cm
12. Direction of streams	two hours before H.W.
13. Chemical analysis	Chloride Phosphate Nitrate



## IV. Haul "Veronica" Scheveningen

Date: 7th November 1969

## IV. Haul "Veronica" Scheveningen

Numbers of organisms  
found in hauls

1. B a c i l l a r i o p h y c e a e	
Biddulphia aurita	750
" mobiliensis	12850
" regia	8850
" sinensis	66750
Coscinodiscus concinnus	9750
" excentricus	350
" granii	100
Ditylum brightwelli	750
Fragilaria sp.	100
Lauderia sp.	250
Melosita sp.	150
Skeletonema sp.	100
2. C o e l e n t e r a t a	
Phialidium hemisphericum	6450
3. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	3000
Centropages sp	200
Microcalanus pusillus	1400
Temora longicornis	100
Nauplius larva Cop.sp.	250
C i r r i p e d i a	
Nauplius larva Cir.sp.	450
H a r p a c t i c o i d a sp.	
Harpacticoida sp.	3500
C y c l o p o i d a	
Cyclopoida sp.	2100
4. M o l l u s c a	
Mutilus edulis (0.2mm)	

## I. Haul "Buoy" Scheveningen

Date: 9th December 1969

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- |                                 |   |
|---------------------------------|---|
| 1. Place of hauling             | I. "Buoy" Scheveningen  |
| 2. Situation                    | S.S.E. of "Buoy"  |
| 3. Weather forecast             | At most places dry weather; locally clearing of the sky and misty. Near the coast light than inland during the night and morning light frost. In the afternoon around freezing - point and light frost. Wind light to moderate. Northean. |
| 4. Weather, while hauling       | Misty, visibility 2 à 3 mile  |
| 5. Time of hauling              | 13.30 - 13.50 by sailing.   |
| 6. Distance, while hauling      | 750 meter by sailing  |
| 7. Temperature                  | In the air 6°C<br>In the water 7½°C   |
| 8. Wind                         | on board ship:<br>Direction: S. Force: 2 à 3 m/sec.<br>Semaphore:<br>Direction: -- Force: 1m/sec.   |
| 9. Lighthours                   | 7.53 a day  |
| 10. Tides                       | 2nd H.W. 14.48  |
| 11. Water Levels in the harbour | 1st H.W. 102 cm. 1st L.W. -95 cm.<br>2nd H.W. 98 cm. 2nd L.W. -88 cm.   |
| 12. Direction of streams        | One hour before H.W.  |

## 13. Chemical analyses

Chloride  
Phosphate  
Nitrate

137.800 mg/l

## I. Haul "Buoy" Scheveningen

Date: 9th December 1969

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**L. Haul "Buoy" Scheveningen.**

<b>1. B a c i l l a r i o p h y c e a e</b>	
Biddulphia alternans	300
" mobiliensis	3300
" regia	24900
" sinensis	80800
Chaetoceros sp.	150
Coscinodiscus concinnus	13250
" excentricus	11250
" granii	21000
Fragilaria sp	150
<b>2. C o e l e n t e r a t a</b>	
Phialidium sp.	50
<b>3. C r u s t a c e a</b>	
C o p e p o d a	
Acartia sp.	2300
Centropages hamatus	850
Microcalanus pusillus	2100
Nauplius larva Cop.sp.	200
Harpacticoida	
Harpacticoida sp.	1900
H y p e r i i d a e	
Mesoplodon slobberi	100



II. Haul "Veronica" Scheveningen

Date: 9th December 1969

1. Place of hauling	II. "Veronica" Scheveningen
2. Situation	S.S.E. of "Veronica"
3. Weather forecast	At most places dry weather; locally clearing of the sky and misty. Near the coast light than. Inland during the night and morning light frost. In the afternoon around freezing-point and light frost. Wind light to moderate. Northean. <span style="float: right;">/2</span>
4. Weather, while hauling	Misty; visibility 2 à 3 mile.
5. Time of hauling	12.30 - 12.50 by sailing
6. Distance, while hauling	750 meter by sailing
7. Temperature	In the air 6°C In the water 7°C
8. Wind	On board ship: Direction: S. Force: 2 à 3 m/sec Semaphore: Direction: S.E. Force 2m/sec.
9. Lighthours	7.53 a day
10. Tides	2nd H.W. 14.48
11. Water Levels in the harbour	1st H.W. 102 cm. 1st L.W. -95 cm 2nd H.W. 98 cm 2nd L.W. -88cm.
12. Direction of streams	Two hours before H.W.

13. Chemical analysis

Chloride  
Phosphate  
Nitrate

16000 mg/l  
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## II. Haul "Veronica" Scheveningen

Date: 9th December 1969.

II. Haul "Veronica" Scheveningen	Numbers of organisms found in hauls
1. B a c i l l a r i o p h y c e a e	
Biddulphia mobiliensis	550
"      regia	6900
"      sinensis	9300
Coscinodiscus concinnus	4550
"      excentricus	2500
"      granii	3000
Fragilaria sp.	50
2. P r o t o z o a	
Noctiluca miliaris	250
Vase Tintinnid sp	50
3. C o e l e n t e r a t a	
Phialidium sp	200
4. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	400
Calanus finmarchicus	250
Centropages sp.	500
Microcalanus pusillus	1100
Nauplius larva Cop.sp.	100
H a r p a c t i c o i d a	
Harpacticoida sp.	1200
Euphausiacea sp.	50
H y p e r i i d a e	
Mesoplodon slobberi	50
D e c a p o d a	
Zoea larva Decapoda sp	50
5. C h a e t o g n a t h a	
Sagitta sp	50
6. M o l l u s c a	
Lamelli brandiata	
Venus sp	100
7. E c t o p r o c t a	
Cyphonautes Larva	200
Electra pilosa	

## III. "Buoy" Scheveningen

Date: 7th January 1970.

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|---------------------------------|--|
| 1. Place of hauling             | III. "Buoy" Scheveningen.  |
| 2. Situation                    | S.S.E. of "Buoy"   |
| 3. Weather forecast             | At first very cloudy with snow-<br>and hailshowers. In the morning<br>some clearings of the sky too.<br>Wind light to moderate. Southern<br>to South-Western. Frost predomi-<br>nantly light, but inland moderate<br>locally. To morrow afternoon<br>temperature about freezing-point. |
| 4. Weather while hauling        | Clear sky; visibility 2 à 3 mile   |
| 5. Time of hauling              | 17.- - 17.20 by sailing  |
| 6. Distance while hauling       | 750 à 800 meter by sailing   |
| 7. Temperature                  | In the air 3°C<br>In the water 4°C   |
| 8. Wind                         | On board ship:<br>Direction: N.E. Force - 1m/sec.<br>Semaphore:<br>Direction: E.N.E. Force - 3m/sec  |
| 9. Lighthours                   | 7.59 a day   |
| 10. Tides                       | 2nd H.W. <del>14</del> 14.34   |
| 11. Water Levels in the harbour | 1st H.W. + 100 cm. 1st L.W. -98 cm<br>2nd H.W. + 10 cm 2nd L.W. - 95cm   |
| 12. Direction of streams        | 3 hours after high water   |

## 13. Chemical analysis

Chloride 16,20 mg/l  
Phosphate 0,20 mg/l  
Nitrate 4 mg/l

## IVI. Haul "Buoy" Scheveningen

Date: 7th January 1970

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III. Haul "Buoy" Scheveningen	Numbers of organisms found in hauls
1. B a c i l l a r i o p h y c e a e	
Biddulphia sinensis	100
Coscinidiscus concinnus	50
"          excentricus	50
"          granii	400
2. P r o t o z o a	
Noctiluca miliaris	200
3. C t e n o p h o r a	
Pleurobrachia pileus	50
4. C r u s t a c e a	
C o p e p o d a	
Acartia sp	650
Centropages hamatus	400
Microcalanus pusillus	600
H a r p a c t i c o i d a	
Harpacticoida sp	100

SAMPLING DATA

JANUARY 1970

IV. "Veronica" Scheveningen.

Date: 7th January 1970

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- 1. Place of hauling IV. "Veronica" Scheveningen
  - 2. Situation S.S.E. of "Veronica"
  - 3. Weather forecast At first very cloudy with snow- and hailshowers. In the morning some clearings of the sky too. Wind light to moderate, Southern to South-Western. Frost predominantly light, but inland moderate ~~temperature~~ Locally. To morrow afternoon temperature about freezing-point. /2
  - 4. Weather while hauling Clear sky, visibility 2 à 3 mile
  - 5. Time of hauling 16.00 - 16.20 by sailing.
  - 6. Distance while hauling 750 à 800 meter by sailing.
  - 7. Temperature In the air 3°C  
In the water 4°C
  - 8. Wind On board ship:  
Direction: N.E. Force: 1m/sec.  
Semaphore:  
Direction: E.N.E. Force 3m/sec.
  - 9. Lighthours 7.59 a day
  - 10. Tides 2nd H.W. 14.34
  - 11. Water Levels in the harbour 1st H.W. 100 cm 1st L.W. -98 cm  
2nd H.W. 10 cm 2nd L.W. -95 cm.
  - 12. Direction of streams 2 hours after high water

13. Chemical analysès

Chloride 16000 mg/l  
 Phosphate 0,25  
 Nitrate 4

## IV. "Haul"Veronica" Scheveningen

Date: 7th January 1970

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IV. Haul "Veronica" Scheveningen	Numbers of organisms found in hauls
1. B a c i l l a r i o p h y c e a e	
Biddulphia sinensis	100
Coscinodiscus concinnus	150
Coscinodiscus granii	450
"          excentricus	50
Fragilaria sp.	200
2. P r o t o z o a	
Noctiluca miliaris	4800
3. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	200
Centropages hamatus	200
Microcalanus pusillus	150
H a r p a c t i c o i d a	
Harpacticoida sp.	100
4. E c t o p r o c t a	
Cyphonautes Larva	
Electra pilosa	100



Sampling data

FEBRUARY 1970

I. Haul "Buoy" Scheveningen

Date: 4th February 1970

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|---------------------------|---|
| 1. Place of hauling       | I. "Buoy" Scheveningen  |
| 2. Situation              | N.N.W. of "Buoy"  |
| 3. Weather forecast       | Clearing of the sky. In the afternoon gradually more cloudy later on some rain. At first moderate to strong Western wind; at the coast gradually less wind, wind becoming moderate. Little change in temperature. |
| 4. Weather, while hauling | Cloudy and sunshine, visibility 8 mile  |
| 5. Time of hauling        | 11.00 - 11.20 by sailing.   |
| 6. Distance of hauling    | 750 à 800 meter by sailing.   |
| 7. Temperature            | In the air 5°C<br>In the water 2½°C   |
| 8. Wind                   | on board ship:<br>Direction: S.W. Force: 2 à 3 m/sec.<br>Semaphore:<br>Direction: S.S.W. Force: 5½ m/sec.   |
| 9. Lighthours a day       | a day   |
| 10. Tides                 | 2nd H.W. 13.30  |
| 11. Water Levels          | 1st H.W. +120 cm; 2nd H.W. +138 cm<br>1st L.W. -55 cm. 2nd L.W. -45 cm  |
| 12. Direction of streams  |   |

13. Chemical analysis

Chloride 16200 mg/l  
Phosphate 0.15 mg/l  
Nitrate 3 mg/l

I. 1st Haul "Buoy" Scheveningen

Date: 4th February 1970

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**I. "Buoy" Scheveningen**

1. B a c i l l a r i o p h y c e a e	
Bellarocha malleus	50
Biddulphia aurita	150
" regia	450
" sinensis	600
Coscinodiscus concinnus	400
" excentricus	300
" granii	2600
Skeletonema costatum	50
2. P r o t o z o a	
Noctiluca miliaris	300
3. N e m a t o d a	
Nematoda sp.	50
4. C r u s t a c e a	
C o p e p o d a	
Acartia sp	350
Centropages hamatus	250
Microcalanus pusillus	1100
Nauplius larva Cop.sp	50
C i r r i p e d i a	
Nauplius larva Cir.sp	50
5. C h a e t o g n a t h a	
Sagitta sp.	50
6. E g g s	
Evertebrata egg	50
⊗ F i s h	
Limanda limanda	250
7. E c t o p r o c t o	
Cyphonautes larva	600
Electra pilosa	



II. Haul "Veronica", Scheveningen

Date: 4th February 1970

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- |                           |  |
|---------------------------|--|
| 1. Place of hauling       | II. "Veronica" Scheveningen  |
| 2. Situation              | S.W. of "Veronica"   |
| 3. Weather forecast       | Clearing of the sky. In the afternoon gradually more cloudy, later on some rain. At first moderate to strong Western wind, at the coast gradually less wind; wind becoming moderate. Little change in temperature. |
| 4. Weather, while hauling | Cloudy; visibility 8 mile  |
| 5. Time of hauling        | 12.00 - 12.20 by sailing   |
| 6. Distance of hauling    | 750 à 800 meter by sailing   |
| 7. Temperature            | In the air 5°C<br>In the water 3°C   |
| 8. Wind                   | on board ship<br>Direction: S.W. Force 2 à 3m/sec<br>Semaphore:<br>Direction: S.S.W. Force 5½m/sec.  |
| 9. Lighthours a day       |  |
| 10. Tides                 | 2nd H.W. 13.30   |
| 11. Water Levels          | 1st H.W. 120 cm. 1st L.W. -55 cm<br>2nd H.W. 138 cm. 2nd L.W. -45 cm   |
| 12. Direction of streams  | 1 hour before high water   |

13. Chemical analysis

Chloride 16400 mg/l  
Phosphate 0.25 mg/l  
Nitrate 3 mg/l

## II. 2nd Haul "Veronica" Scheveningen

Date: 4th February 1970

## II, "Veronica" Scheveningen

1. B a c i l l a r i o p h y c e a e	
Biddulphia regia	200
"    sinensis	200
Coscinodiscus concinnus	150
"    excentricus	100
"    granii	250
Fragilaria sp.	50
Skeletonema costatum	50
2. P r o t o z o a	
Noctiluca miliaris	550
3. C t e n o p h o r a	
Pleurobrachia pileus	50
4. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	200
Centropages hamatus	100
Microcalanus pusillus	350
C i r r i p e d i a	
Nauplius larva	50
Cirr.sp.	
C l a d o c e r a	
Podon sp	50
5. C h a e t o g n a t h a	
Sagitta sp.	100
6. E c t o p r o c t a	
Cyphonautes larva	50
Electra pilosa	
7. E g g s	
V e r t e b r a t a	
Limanda limanda	150

SAMPLING DATA

MARCH 1970

III. ~~W~~ "Buoy" Scheveningen

Date: 4th March 1970

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|---------------------------|---|
| 1. Place of hauling       | III. "Buoy" Scheveningen  |
| 2. Situation              | 300 meter N.N.W. of "Buoy"  |
| 3. Weather forecast       | Clearing of the sky. During the hight here and there mist. Wind light to moderate, Western. Some snow and hail showers. |
| 4. Weather, while hauling | cloudy, visibility all bright   |
| 5. Time pf hauling        | 12.15 - 12.35   |
| 6. Distence of hauling    | 750 à 800 meter by sailing  |
| 7. Temperature            | In the air 0°C<br>In the water - $\frac{1}{2}$ °C   |
| 8. Wind                   | On board ship:<br>Direction: S. Force 2 à 3 m/sec.<br>Semaphore:<br>Direction: S.S.E. Force 5 $\frac{1}{2}$ m/sec.      |
| 9. Lighthours a day       | 11.04 a day   |
| 10. Tides                 | 1st H.W. 12.18  |
| 11. Water Levels          | 1st H.W. 99 cm. 1st L.W. -62 cm<br>2nd H.W. 81 cm. 2nd L.W. -64 cm  |
| 12. Direction of streams  | H.W.  |

13. Chemical analysis

Chloride 12.600 mg/l (12600)  
Phosphate 0.80 mg/l (630)  
Nitrate 6 mg/l (6)

III. 3rd Haul "Buoy" Scheveningen

Date: 4th March 1970

## III. "Buoy" Scheveningen

1. B a c i l l a r i o p h y c e a e	
Biddulphia alternans	50
"    aurita	5400
"    regia	50
"    mobiliensis	200
"    sinensis	850
Coscinodiscus excentricus	50
"    granii	50
Rhizosolenia gr	150
Skeletonema costatum	300
Thalassiosira	150
2. P r o t o z o a	
Foraminifera sp.	50
3. C t e n o p h o r a	
Pleurobrachia pileus	50
4. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	50
Centropages hamatus	50
Microcalanus pusillus	350
C l a d o c e r a	
Evadna sp	50
5. M o l l u s c a	
Mactra corallina (0.3 mm)	50

## IV. "Veronica" Scheveningen

Date: 4th March 1970

1. Place of hauling	IV. "Veronica" Scheveningen
2. Situation	300 meter S.S.E. of "Veronica"
3. Weather forecast	Clearing of the sky. During the night here and there mist. Wind light to moderate, Western. Some snow and hail showers.
4. Weather, while hauling	Cloudy, visibility good, sun came through
5. Time of hauling	13.00 - 13.20
6. Distance of hauling	750 à 800 meter by sailing
7. Temperature	In the air 1°C In the water 4°C
8. Wind	on board ship: Direction South, Force: 2 à 3 m/sec. Semaphore: Direction: S.E. Force 6m/sec.
9. Lighthours a day	11.04 a day
10. Tides	1st H.W, 12.18
11. Water Levels	1st H.W. + 99 cm. 1st L.W. -62 cm. 2nd H.W.+ 81 cm. 2nd L.W. - 64 cm.
12. Direction of streams	

## 13. Chemical analysis

Chloride 14600 mg/l  
Phosphate 0.55 mg/l  
Nitrate 6 mg/l

## IV. "Veronica" Scheveningen

Date: 4th March 1970

## IV. "Veronica" Scheveningen.

1. B a c i l l a r i o p h y c e a e	
Bellarochea malleus	50
Biddulphia aurita	750
"      regia	150
"      sinensis	50
Eucampia sp	50
Fragilaria sp.	400
Coscinodiscus conninnus	50
"      excetricus	150
"      granii	100
Skeletonema costatum	200
Thalassiosira sp.	50
2. P r o t o z o a	
Dinoflagellata sp.	50
(Ceratium fusus)	
Noctiluca miliaris	50
3. C t e n o p h o r a	
Pleurobrachia pileus	100
4. C o e l e n t e r a t a	
Arachnactis larva	50
5. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	200
Centropages hamatus	100
Micracalanus pusillus	900
Cypris larva Cop.sp	100
Nauplius " " "	50
C i r r i p e d i a	
Cypris larva Cirr.sp.	50
H a r p a c t i c o i d a	
Harpacticoida sp	200
C l a d o c e r a	
Evadna sp.	200
6. E c h i n o d e r m a t a	
Bipinnaria larva	50



SAMPLING DATA

El970

I. Haul "Buoy" Scheveningen

Date: 1st April 1970

1. Place of hauling	I. "Buoy" Scheveningen
2. Situation	S.S.E. of "Buoy"
3. Weather forecast	Changing cloudiness: occasionally showers with hail or wet snow. Wind moderate to strong near the coast, temporarily hard wind, North-Western. Cold weather
4. Weather, while hauling	Cloudy, snowshowers
5. Distance, while hauling	750 à 800 meter by sailing.
6. Time of hauling	12.30 - 12.50 by sailing
7. Temperature	In the air 7°C In the water 4°C
8. Wind	on board ship: Direction N.W. Force: 2 à 3 m/sec Senaphore: Direction: <del>N</del> -N.W. Force 6½ m/sec
9. Lighthouse a day	12.57 a day
10. Tides	1st H.W. 10.30
11. Water Levels	1st H.W. -74cm; 2nd H.W. + 124 cm 1st L.W. -59 cm; 2nd L.W. -42 cm.
12. Direction of streams	two hours after H.W.

13. Chemical analyses

Chloride 12100 mg/l  
Phosphate 0,20 mg/l  
Nitrate 4 mg/l

## SAMPLING DATA

APRIL 1970

I. Haul "Buoy" Scheveningen

Date: 1st April 1970

I. Haul "Buoy" Scheveningen	Total numbers of organisms found in hauls
1. B a c i l l a r i o p h y c e a e	
Bellarochea malleus	100
Biddulphia sp.	70100
" aurita	5000
" mobiliensis	100
" regia	200
" rhombus	2000
" sinensis	1100
Chaetoceros sp.	100
Cerataulina bergonii	100
Coscinodiscus excentricus	100
" granii	200
Ditylum brightwelli	100
Fragilaria sp.	100
Lauderia sp.	500
Skeletonema costatum	200
2. P r o t o z o a	
Foraminifera sp.	100
3. C o e l e n t e r a t a	
C o p e p o d a	
Acartia sp.	150
Centropages sp.	50
C i r r i p e d i a	
Nauplius larva Verruca stroemia	100
4. M o l l u s c a	
Mytilus edulis (0.2mm)	100



II. Haul "Veronica" Scheveningen  
 Date: 1st April 1970

1. Place of hauling	II. "Veronica" Scheveningen
2. Situation	S.S.E. of "Veronica"
3. Weather forecast	Changing cloudiness: occasionally showers with hail or wet snow. Wind moderate to strong near the coast, temporarily hard wind. North-western. Cold weather
4. Weather while hauling	snowshowers
5. Distance, while hauling	750 à 800 meter by sailing
6. Time of hauling	13.30 - 13.50 by sailing
7. Temperature	In the air 7°C In the water 4°C
8. Wind	on board ship Direction N.W. Force 2/3m.sec Semaphore Direction N.N.W. Force 6m/sec
9. Lighthours a day	12.57 a day
10. Tides	1st H.W. 10.30
11. Water Levels	1st H.W. + 74cm. 1st L.W. -59cm. 2nd H.W. +14 cm. 2nd L.W. -42 cm
12. Direction of streams	three hours after H.W.

13. Chemical analysis

Chloride 14100 mg/l  
 Phosphate 0,25 mg/l  
 Nitrate 2 mg/l

## II. "Veronica" Scheveningen

Date: 1st May 1970

*April*

II. Haul "Veronica" Scheveningen.	Total numbers of organisms found in hauls
1. B a c i l l a r i o p h y c e a e	
Bellarocha malleus	700
Biddulphia sp.	, 1871450
" aurita	12950
" alternans	700
" rhombus	3500
" sinensis	2450
Chaetoceros sp.	1050
Coscinodiscus granii	1400
Lauderia sp.	1400
Rhizosolenia sp.	1400
Skeletonema costatum	2450
Thalassiosira sp.	350
2. P r o t o z o a	
Dinoflagellata sp.	1400
(Ceratium fusus)	
3. C o e l e n t e r a t a	
Archnactis larva	500
4. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	4650
Centropages sp.	350
Microcallanus pusillus	2000
Nauplius larva Cop.sp.	550
C i r r i p e d i a	
Cypris larva Cirr.sp.	50
Nauplius " " "	500
5. P o l y c h a e t a	
Polychaeta sp.	50
6. E c t o p r o c t a	
Cyphonautes larva	
Membranipora membranacea	50
7. E c h i n o d e r m a t a	
Bipinnaria larva	50
8. M o l l u s c a	
Mytilus edulis (0.2mm)	150
9. E g g s	
Evertebrata egg	50
F i s h	
Pleuronectes platessa	50

## III. "Buoy" Scheveningen

Date: 1st May 1970

- |                            |  |
|----------------------------|--|
| 1. Place of hauling        | III. "Buoy" Scheveningen   |
| 2. Situation               | S.S.E. of "Buoy"   |
| 3. Weather forecast        | Wind gradually less cold. Weather becoming more stable and during the weekend the temperature will be 12°C to 15°C. Today (1st of May) less bleak showers than yesterday |
| 4. Weather, while hauling  | Clear sky, visibility good   |
| 5. Distance, while hauling | 750 à 800 meter by sailing   |
| 6. Time of hauling         | 13.00 - 13.20 by sailing   |
| 7. Temperature             | In the air 11°C<br>In the water 10°C<br>on board ship:   |
| 8. Wind                    | Direction: W. Force 0 à 1m/sec.<br>Semaphore<br>Direction: W. Force 1½m/sec.   |
| 9. Lighthouse a day        | 14.50 a day  |
| 10. Tides                  | 1st H.W. 11.37   |
| 11. Water Levels           | 1st H.W. +54 cm 2nd H.W. + 75 cm<br>1st L.W. -102cm. 2nd L.W. -102cm   |
| 12. Direction of streams   | Two hours after H.W.   |

## 13. Chemical analysis

Chloride 153.00 mg/l  
Phosphate 0,25 mg/l  
Nitrate 3 mg/l

## III. Haul "Buoy" Scheveningen

Date: 1st May 1970

III. Haul "Buoy" Scheveningen	Total numbers of organisms found in hauls.
1. B a c i l l a r i o p h y c e a e	
Bellarochea malleus	7050
Biddulphia sp.	227000
" alternana	800
" mobiliensis	800
" rhombus	800
" sinensis	3300
Chaetoceros sp.	400
Coscinodiscus granii	4550
Cerataulina bergonii	2050
Eucampia zoodiacus	4550
Fragilaria sp.	400
Lauderia sp.	3300
Leptocylindricus danicus	400
Phaeocytis sp.	present
Skeletonema costatum	5000
Rhizosolenia sp.	100250
2. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	50
Centropages hamatus	150
Microcalanus pusillus	600
Nauplius larva Copepoda sp.	200
Temora longicornis	50
Cirripedia	
Nauplius larva Cir.sp.	250
C l a d o c e r a	
Evadna sp.	50
3. M o l l u s c a	
Mytilis edulis(0.15mm-0,2mm)	400
4. E c h i n o d e r m a t a	
Bipinnaria larva	50
Echinopluteus "	50
5. E g g s	
Evertebrata egg	600
F i s h	
Pleuronectus platessa	50

## IV. "Veronica" Scheveningen

Date: 1st May 1970

- |                            |  |
|----------------------------|--|
| 1. Place of hauling        | IV. "Veronica" Scheveningen  |
| 2. Situation               | S.S.E. of "Veronica"   |
| 3. Weather forecast        | Wind gradually less cold. Weather becoming more stable and during the weekend the temperature will be 12°C to 15°C. Today (1st of May) less bleak showers than yesterday |
| 4. Weather while hauling   | Clear sky, visibility good   |
| 5. Distance, while hauling | 750 - 800 meter by sailing   |
| 6. Time of hauling         | 12.15 - 12.35 by sailing   |
| 7. Temperature             | In the air 11°C<br>In the water 9°C  |
| 8. Wind                    | On board ship:<br>Direction: W. Force 1½ m/sec<br>Semaphore:<br>Direction: W. Force 1½ m/sec.  |
| 9. Lighthours a day        | 14.50 a day  |
| 10. Tides                  | 1st H.W. 11.37   |
| 11. Water Levels           | 1st H.W. +54 cm. 2nd H.W. +75 cm<br>1st L.W. -102 cm 2nd L.W. -102 cm  |
| 12. Direction of streams   | One hour after H.W.  |

## 13. Chemical analysis

Chloride 16000 mg/l  
Phosphate 0.25 mg/l  
Nitrate 3 mg/l



## IV. Haul "Veronica" Scheveningen

Date: 1st May 1970

IV. Haul "Veronica" Scheveningen	Total numbers of organisms found in hauls
1. B a c i l l a r i o p h y c e a e	
Bellarochea malleus	10750
Biddulphia sp.	17188750
" alternans	500
" aurita	11750
" mobiliensis	2000
" regia	250
" rhombus	2250
" sinensis	3250
Chaetoceros sp.	1250
Coscinodiscus concinnus	250
" excentricus	1000
" granii	3000
Ditylum brightwelli	500
Eucampia zodiacus	12250
Fragilaria sp.	3500
Lauderia sp.	5000
Leptocylindricus danicus	2500
Phaecocystis sp.	present
Rhizosolenia sp.	1157500
" alata	250
Skeletonema costatum	5750
2. P r o t o z o a	
Dinoflagellata sp.	250
3. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	200
Centropages hamatus	150
Microcalanus pusillus	950
C i r r i p e d i a	
Nauplius larva Cirr.sp.	100
Cypris " " "	50
4. M o l l u s c a	
Mactra corallina	50
Mytilis edulis	650
5. E c h i n o d e r m a t a	
Bipinnaria larva	50
Echinopluteus "	100
6. E g g s	
F i s h	
Pleuronectes platessa	150
Fish egg	50

## I. Haul "Buoy" Scheveningen

Date: 12th June 1970

- |                                |  |
|--------------------------------|--|
| 1. Place of hauling            | I. "Buoy" Scheveningen   |
| 2. Situation                   | S.S.E. of "Buoy"   |
| 3. Weather forecast            | Dry and sunny weather, near the coast more cloudy. Wind light to moderate. Northern Generally less warm.   |
| 4. Weather, while hauling      | Cloudy, visibility good  |
| 5. Time of hauling             | 1.20 - 1.40  |
| 6. Distance while hauling      | 700 à 800 meter  |
| 7. Wind on board ship          | Direction:<br>Northern 2/3 <del>m/sec.</del>   |
| 8. Semaphore indications       | Direction: N Force: 4/m/sec.   |
| 9. Lighthours a day            | 16.40  |
| 10. Temperature                | In the air 19½°C<br>" " water 15°C   |
| 11. Tides                      | 1st H.W. 8.27  |
| 12. Waterlevels in the harbour | a. 1st H.W. + 58cm H.W.+ 94 cm.<br>b. 1st L.W. -62cm 2nd H.W. -84 cm<br>c. at the moment of hauling -25 cm |
| 13. Direction of streams       | 5 hours after H.W.   |
| 14. Chemical analysis          | Chloride 15400<br>14900 mg/l<br>Phosphate 0,10 mg/l<br>Nitrate 1 mg/l                                      |
| 15. Water                      | Calm sea, colour lighter, than in May Ebb  |

I. "Buoy" Scheveningen

Date: 12th June 1970

## I. Haul "Buoy" Scheveningen

1. B a c i l l a r i o p h y c e a e	
Bellarochella malleus	50
Biddulphia sp.	700
" mobiliensis	100
" sinensis	500
Coscinodiscus concinnus	300
" excentricus	600
" granii	1950
Eucampia zoodiacus	100
Leptocylindricus danicus	150
Rhizosolenia sp	4050
Skeletonema costatum	9250
2. P r o t o z o a	
Dinoflagellata	
(Ceratium fusus)	100
Noctiluca miliaris	5850
3. C o e l e n t e r a t a	
Steenstrupia nutans	1500
4. C t o n o p h o r a	
Pleurobrachia pileus	150
5. P o l y c h a e t a	
Polychaeta sp	300
Polychaeta larva	100
Terebella "	150
Vase Terebella larva	800
6. C r u s t a c e a	
C o p e p o d a	
Acartia sp	150
Centropages hamatus	50
Microcalanus pusillus	150
C i r r i p e d i a	
Nauplius larva Cis.sp	150
D e c a p o d a	
Zoea larva Carcinus maenas	150
7. E c h i n o d e r m a t a	
Bipinnaria larva	50
Echinopluteus "	109250
Ophiopluteus "	1500
8. S a l p i d a	
Oikopleura dioica	500
9. E g g s	
Evertebrata egg	50
F i s h	
Limanda limanda	200
10. F i s h	
Clupea pilchardus (6mm)	50



## II. Haul "Veronica" Scheveningen

Date: 12th June 1970

- |   |   |
|---|---|
| II. Place of Hauling                      | II. "Veronica" Scheveningen   |
| 2. Situation                              | S.S.E. of "Veronica"  |
| 3. Weather forecast                       | Dry and sunny weather, near the coast more cloudy. Wind light to moderate Northern Generally less warm.   |
| 4. Weather, while hauling                 | Cloudy visibility good  |
| 5. Time of hauling                        | 12.30 - 12.50   |
| 6. Distance while hauling                 | 700 à 800 meter   |
| 7. Wind on board ship                     | Direction Northern 2/3 m/sec  |
| 8. Semaphore indications                  | Direction N. Force 4m/sec.  |
| 9. Lighthouse a day                       | 16.40   |
| 10. Temperature                           | In the air 19°C<br>In the water 15°C  |
| 11. Tides                                 | 1st H.W. 8.27   |
| 12. Waterlevels in the Harbour            | a. 1st H.W. +58cm 2nd H.W. +94cm<br>b. 1st L.W. -62 cm 2nd H.W. -84cm<br>c. at the moment of hauling +2cm |
| 13. Direction of streams                  | 4 hours after H.W.  |
| 14. Chemical analysis                     | Chloride 14900 mg/l<br>Phosphate 0,05 mg/l<br>Nitrate 1 mg/l  |
| Water                                     |   |
| 15. Calm sea, colour lighter than in May. |   |

## II. Haul "Veronica" Scheveningen

Date: 12th June 1970

## II. Haul "Veronica" Scheveningen.

1. B a c i l l a r i o p h y c e a e	
Biddulphia sp.	100
" mobiliensis	100
Coscinodiscus concinnus	400
" excentricus	250
" granii	500
Eucampia zoodiacus	150
Rhizosolenia sp.	450
Skeletonema costatum	350
2. P r o t o z o a	
Noctiluca miliaris	5250
3. C o e l e n t e r a t a	
Bougainvillea ramosa	100
Steenstrupia nutans	500
4. C t e n o p h o r a	
Pleurobrachia pileus	50
5. P o l y c h a e t a	
Polychaeta sp.	100
" larva	350
Terebella larva	50
Vase Terebella larva	100
6. N e m a t o d a	
Nematoda sp.	50
7. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	900
Centropages hamatus	200
Microcalanus pusillus	150
Nauplius larva	50
Cop.sp.	
C i r r i p e d i a	
Nauplius larva Cir.sp.	150
D e c a p o d a	
Zoea larva Carcinus maenas	50
8. E c h i n o d e r m a t a	
Bipinnaria larva	50
Echinopluteus "	6350
Ophiopluteus "	1800
Young Echinodermata sp(0.3mm)	50
9. S a l p i d a	
Oikopleura dioica	1250
10. E g g s	
F i s h	
Limanda limanda	850

The water was very brownish, not in the usual way but like colloid fluid. Besides many organisms were brownish and the medusae had put the manubrium outside.

*manubrium*

## III. Haul "Buoy" Scheveningen

Date: 7th August 1970

1. Place of hauling	III. "Buoy" Scheveningen,
2. Situation	N.W. of <sup>i</sup> "Buoy"
3. Weather forecast	Periods with sun. Locally rain or thunder. Wind light, directions varying (divergent)
4. Weather, while hauling	Misty and hazy
5. Time of hauling	12.15 - 12.35
6. Distance, while hauling	700 à 800 meter
7. Wind on board ship	Direction W. Force $\frac{1}{2}$ m/sec.
8. Semaphore indications	Direction W. Force 3 m/sec.
9. Lighthours a day	15.10
10. Temperature	In the air 19°C In the water 16°C
11. Tides	2nd H.W. 18.07 (still ebb)
12. Waterlevels in the harbour	a. 1st H.W. + 94 cm    2nd H.W. + 88 cm b. 1st L.W. - 64 cm    2nd L.W. - 92 cm c. at the moment of hauling
13. Direction of streams	6 hours before H.W. <span style="float: right;">52 cm</span>
14. Chemical analysis	Chloride 16600 mg/l Phosphate 0,05 mg/l Nitrate 2 mg/l
15. Water	

## III. Haul "Buoy" Scheveningen

Date: 7th August 1970

## III. "Buoy" Scheveningen.

1. B a c i l l a r i o p h y c e a e	
Biddulphia sp.	56500
"    aurita	1500
"    mobiliensis	394250
"    regia	78500
"    sinensis	43250
Chaetoceros sp.	250
Coscinodiscus concinnus	8750
"    excentricus	14750
"    granii	84000
Ditylium brightwelli	750
Eucampia sp	48000
Lauderia borealis	500
Leptocylindricus danicus	500
Rhizosolenia alata	500
Skeletonema sp	19250
2. P r o t o z o a	
Ceratium fusus	88250
Noctiluca miliaris	1250
3. C o e l e n t e r a t a	
Phialidium hemi-sphericum	100
4. P o l y c h a e t a	
Empty vase Terebella	50
Larva	
Terebella larva	50
5. C r u s t a c e a	
C i r r i p e d i a	
Nauplius larva Cir.sp	750
C l a d o c e r a	
Evadna sp.	100
C o p e p o d a	
Acartia sp	1850
Calanus finmarchicus	200
Centropages hamatus	800
Microcalanus pusillus	1000
Nauplius larva Cop sp	2550
Temora longicornis	1750
6. M o l l u s c a	
L a m e l l i b r a n c h i a t a	
Mytilus edulis (0.2mm)	50
7. C h a e t o g n a t h a	
Sagitta sp	100
8. E c h i n o d e r m a t a	
Echinopluteus larva	100
9. S a l p i d a	
Oikopleura dioica	950

## DATA SAMPLING

AUGUST 1970

## IV. Haul "Veronica" Scheveningen

Date: 7th August 1970

1. Place of hauling	IV. "Veronica" Scheveningen
2. Situation	S.E. of "Veronica"
3. Weather forecast	Periods with sun. Locally rain or thunder. Wind light, directions varying (divergent)
4. Weather, while hauling	Misty and hazy
5. Time of hauling	1.30 - 1.50
6. Distance while hauling	700 à 800 meter
7. Wind on board ship	Direction: W. Force <del>1/2</del> 1/2
8. Semaphore indications	Direction: W Force 3m/sec
9. Lighthours a day	15.10
10. Temperature	In the air 19°C In the water 16°C
11. Tides	2nd H.W. 18.07
12. Waterlevels in the Harbour	a. 1st H.W. +34cm 2nd H.W. +10cm b. 1st L.W. -64cm 2nd L.W. -92cm c. at the moment of hauling -61cm
13. Direction of streams	4 hours before H.W.
14. Chemical analysis	Chloride 16900 mg/l Phosphate absent Nitrate 1 mg/l



## IV. Haul "Veronica" Scheveningen

Date: 7th August 1970

## IV. Haul "Veronica" Scheveningen

1. B a c i l l a r i o p h y c e a e	
Biddulphia sp	12800
"    aurita	1400
"    mobiliensis	45400
"    regia	31800
"    sinensis	13200
Chaetoceros sp	400
Coscinodiscus concinnus	1000
"    excentricus	1000
"    granii	11800
Eucampia sp	6200
Thalassiosira sp	400
Skeletonema sp	111600
2. P r o t o z o a	
D i n o f l a g e l l a t a	
Ceratium fusus	24000
"    tripus	400
Noctiluca miliaris	600
3. C o e l e n t e r a t a	
Leucartiata octona	100
Obelia sp	100
Phialidium hemisphericum	50
4. P o l y c h a e t a	
Polychaeta sp	100
Terebella larva	150
5. C r u s t a c e a	
C i r r i p e d i a	
Nauplius larva Cir.sp	200
C l a d o c e r a	
Evadna sp.	50
Podon sp.	50
C o p e p o d a	
Acartia sp	1700
Calanus finmarchicus	100
Centropages hamatus	600
Microcalanus pusillus	400
Nauplius larva	450
Cop.sp	
Temora longicornis	50
6. M o l l u s c a	
Lamellibranchiata	
Mytilis edulis (0.2mm)	250
7. E c h i n o d e r m a t a	
Echinopluteus larva	500
8. S a l p i d a	
Oikopleura dioica	5750
9. E g g s	
E v e r t e b r a t a	
Gastropoda egg	50

## I. Haul "Buoy" Scheveningen

Date: 18th September 1970

---

1. Place of hauling	I. "Buoy" Scheveningen
2. Situation	S.S.E. of "Buoy"
3. Weather forecast	Dry weather with sunny periods Wind mostly moderate, Southern Rather warm.
4. Weather while hauling	Misty visibility 2 à 3 miles
5. Time of hauling	1.20 - 1.40 by sailing
6. Distance, while hauling	700 à 800 meter by sailing
7. Temperature	In the air 20½°C In the water 16°C
8. Wind	On board ship Dir.S.E. Force 3(Beaufort) Semaphore Dir:W. Force 5m/sec.
9. Lighthours	12.31
10. Tides	2nd H.W. 17.01
11. Water Levels in the harbour	1st H.W. + 122 cm. 2nd H.W. + 126 cm 1st L.W. -88 cm 2nd L.W. - 48 cm
12. Direction of streams	6 hours before H.W. H.W. coming
13. Direction of streams at Scheveningen	
14. Chemical analysis	Chloride Phosphate Nitrate

L. Haul "Buoy" Scheveningen

Date: 18th September 1970

I. Haul "Buoy" Scheveningen	
1. B a c i l l a r i o p h y c e a e	
Biddulphia sp	4200
" mobiliensis	8850
" regia	8100
" sinensis	14250
Coscinodiscus concinnus	84000
" excentricus	25350
" granii	23100
Eucampia <del>zoodia</del> zoodiacus	150
Fragilaria sp	150
Rhizosolenia sp	600
2. P r o t o z o a	
Noctiluca miliaris	300
3. C o e l e n t e r a t a	
Obelia sp	300
Phialidium hemisphericum	100
4. C h a e t o g n a t h a	
Sagitta sp	50
5. P o l y c h a e t a	
Polychaeta sp	150
Teräbella larva	50
Vase Terebella larva	150
6. C r u s t a c e a	
C o p e p o d a	
Acartia sp	1700
Centropages hamatus	1100
Nauplius larva Cop sp	650
Microcalanus pusillus	1150
Temora longicornis	450
C i r r i p e d i a	
Cypris larva Cir.sp	50
Nauplius " " "	600
H a r p a c t i c o i d a	
Harpacticoida sp	1800
C y c l o p o i d a	
Cyclopoida sp.	200
D e c a p o d a	
Zoea larva Carcinus maenas	50
7. M o l l u s c a	
G a s t r o p o d a	
Young Gastropoda sp	50
L a m e l l i b r a n c h i a t a	
Mytilus edulis	200
8. E c h i n o d e r m a t a	
Echinophitens larva	150
Ophoopluteus "	50
9. E c t o p r o c t a	
Cyphonautes larva	
Membranipora membranacea	50
10. E g g s	
Evertebrata eggs	3350
C o p sp.(packets)	

## II. "Veronica" Scheveningen

Date: 18th September 1970

- 
- |   |   |
|---|---|
| 1. Place of hauling                         | II. "Veronica Scheveningen"   |
| 2. Situation                                | S.S.E. of "Veronica"  |
| 3. Weather forecast                         | Dry weather with sunny periods.<br>Wind mostly moderate. Southern<br>Rather warm. |
| 4. Weather, while hauling                   | Misty, visibility 2 à 3 miles   |
| 5. Time of hauling                          | 12.30 - 12.50   |
| 6. Distance, while hauling                  | 700 à 800 meter by sailing  |
| 7. Temperature                              | In the air 20°C<br>In the water 16°C  |
| 8. Wind                                     | On board ship<br>Dir: S. Force 3 (Beaufort)<br>Semaphore<br>Dir: W. Force 5m/sec. |
| 9. Lighthours                               | 12.31   |
| 10. Tides                                   | 2nd H.W. 17.01  |
| 11. Water Levels in the harbour             | 1st H.W. + 122 cm. 2nd H.W. + 126cm<br>1st L.W. - 88 cm 2nd L.W. - 48cm           |
| 12. Direction of streams                    | 5 hours before H.W.<br>H.W. coming  |
| 13. Direction of streams at<br>Scheveningen |   |
| 14. Chemical analysis                       | Chloride<br>Phosphate<br>Nitrate  |



## II. Haul "Veronica" Scheveningen

Date: 18th September 1970

## II. Haul "Veronica" Scheveningen.

1. B a c i l l a r i o p h y c e a e	
Biddulphia sp.	100
" mobiliensis	250
" regia	500
" sinensis	3100
Cöscinodiscus concinnus	12500
" excentricus	14250
" granii	11500
Fragilaris sp.	250
2. P r o t o z o a	
Ceratium fusus	250
Noctiluca miliaris	100
3. C o e l e n t e r a t a	
Obelia sp.	150
Phialidium hemisphericum	150
N e m a t o d a	
Nematoda sp.	50
5. C h a e t o g n a t h a	
Sagitta sp.	200
6. P o l y c h a e t a	
Polychaeta sp.	150
Vase Terebella larva	50
7. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	3550
Centropages hamatus	850
Microcalanus pusillus	1650
Nauplius larva Cop.sp	150
Temora longicornis	200
C i r r i p e d i a	
Nauplius larva Cir.sp.	200
C y c l o p o i d a	
Cyclopoida sp.	50
H a r p a c t i c o i d a	
Harpacticoida sp.	500
A m p h i p o d a <del>sp.</del>	
Amphipoda sp.	100
8. M o l l u s c a	
L a m e l l i b r a n c h i a t a	
Mactra corallina (0.2mm)	50
Mytilus edulis (0.2mm)	100
9. E c t o p r o c t a	
Cyphonautes larva	50
Membranipora membranacea	
10. E g g s	
Evertibrate	200
Copepoda eggs	



## III. Haul "Buoy" Scheveningen

Date: 15th October 1970

- 
- |  |   |
|--|---|
| 1. Place of hauling                      | III. "Buoy" Scheveningen.   |
| 2. Situation                             | N.N.W. of "Buoy" Scheveningen   |
| 3. Weather forecast                      | At most places dry weather. Generally much clouded and almost nowhere mist. Wind light to moderate, Eastern. The same temperature as yesterday or somewhat lower. |
| 4. Weather while hauling                 | Clear sky, visibility good  |
| 5. Time of hauling                       | 11.30 - 11.50   |
| 6. Distance while hauling                | 700 à 800 meter by sailing  |
| 7. Temperature                           | In the air 15°C<br>In the water 14°C  |
| 8. Wind                                  | Dir: N.E. Force 2/3 (Beaufort)<br>Semaphore:<br>Dir. E.E.N.E. Force 5½ m/sec.   |
| 9. Lighthours                            | 10.43   |
| 10. Tides                                | 2nd H.W. 15.13  |
| 11. Water Levels in the harbour          | 1st H.W. +98cm 2nd H.W. +106½cm<br>1st L.W. - 110 cm. 2nd L.W. -65cm  |
| 12. Direction of streams                 | 4 hours before H.W.   |
| 13. Direction of streams at Scheveningen |   |
| 14. Chemical analysis                    | Chloride<br>Phosphate<br>Nitrate  |

## III. Haul "Buoy" Scheveningen

Date: 15th October 1970

## III. Haul "Buoy" Scheveningen

1. B a c i l l a r i o p h y c e a e	
Bellarochea malleus	500
Biddulphia sp.	280000
" alternans	4500
" aurita	4950
" mobiliensis	16000
" regia	59750
" sinensis	38750
Coscinodiscus concinnus	86000
" excentricus	64000
" granii	66750
Chaetoceros sp.	250
Eucampia zoodiacus	6000
Fragilaria sp	100
Lauderia borealis	500
Leptocylindricus danicus	500
Rhizosolenia alata	33250
Rhizosolenia sp.	5750
Skeletonema costatum	750
Thalassiosira sp	500
2. P r o t o z o a	
Ceratium fusus	59750
" tripos	250
Noctiluca miliaris	750
3. C o e l e n t e r a t a	
Obelia sp.	50
Phialidium homisphericum	100
4. P o l y c h a e t a	
Polychaeta larva	100
" sp	50
Terebella larva	50
5. C r u s t a c e a	
C l a d o c e r a	
Evadna sp.	50
C o p e p p o d a	
Acartia sp.	700
Centropages hamatus	150
Microcalanus pusillus	750
Nauplius larva Cop sp.	100
C i r r i p e d i a	
Cypris larva Cir sp.	150
Nauplius " " "	50
C y c l o p o i d a	
Cyclopoida sp	100
H a r p a c t i c o i d a	
Harpacticoida sp	400
Harpacticoida sp with eggs	100
6. C h a e t o g n a t h a	
Sagitta sp	100
7. E c t o p r o c t a	
Cyphonaules larva	
Membranipora membrana Cea	1350
8. S a l p i d a	
Oikopleura dioica	800
9. E g g s	
Gastropoda egg	50

## IV. Haul "Veronica" Scheveningen

Date: 15th October 1970

- 
- |  |   |
|--|---|
| 1. Place of hauling                      | IV. "Veronica" Scheveningen   |
| 2. Situation                             | South of "Veronica"   |
| 3. Weather forecast                      | At most places dry weather. Generally much clouded and almost nowhere mist. Wind light to moderate. Eastern. The same Temperature as yesterday or somewhat lower. |
| 4. Weather, while hauling                | Clear sky, visibility good  |
| 5. Time of hauling                       | 12.15 - 12.40   |
| 6. Distance, while hauling               | 700 à 800 meter by sailing  |
| 7. Temperature                           | In the air 15°C<br>In the water 14½°C   |
| 8. Wind                                  | On board ship<br>Dir: N.E. Force 2/3 (Beaufort)<br>Semaphore<br>Dir: E-E.N.E. Force ½m/sec.   |
| 9. Lighthours                            | 10.43   |
| 10. Tides                                | 2nd H.W. 15.13  |
| 11. Water Levels in the harbour          | 1st H.W. +98 cm 2nd H.W. +106cm<br>1st L.W. -110cm 2nd L.W. -65cm   |
| 12. Direction of streams                 | 3 hours before H.W.   |
| 13. Direction of streams at Scheveningen |   |
| 14. XChemical analysis                   | Chloride<br>Phosphate<br>Nitrate  |

## IV. Haul "Veronica" Scheveningen

Date: 15th October 1970

IV. Haul "Veronica" Scheveningen	
1. B a c i l l a r i o p h y c e a e	
Bellarocha malleus	1400
Biddulphia sp	46200
" alternans	800
" aurita	1400
" mobiliensis	3600
" regia	54800
" sinensis	17400
Chaetoceros sp.	3400
Coscinodiscus concinnus	54000
" excentricus	124800
" granii	111400
Eucampia zoodiacus	13200
Fragilaria sp	600
Lauderia <del>sp</del> borealis	2600
Rhizosolenia sp.	3400
" alata	34200
Skeletonema costatum	600
Thalassiosira sp	400
2. P r o t o z o a	
Ceratium pusum	
Noctiluca miliaris	
3. C o e l e n t e r a t a	
Obelia sp	50
Leukartiara octona	<del>200</del> 50
Phialidium hemisphericum	<del>200</del>
4. P o l y c h a e t a	
Polychaeta larva	50
" sp.	300
5. C r u s t a c e a	
Copepoda	
Acartia sp.	3100
Anomalocera sp.	50
Calanus finmarchicus	100
Centropages hamatus	550
Microcalanus pusillus	850
Nauplius larva Cop sp.	50
Temora longicornis	300
Harpacticoida	
Harpacticoida sp.	750
" " with eggs	200
Cyclopoida	
Cyclopoida sp.	350
6. C h a e t o g n a t h a	
Sagitta sp	100
7. M o l l u s c a	
Mytilus edulis (0.2mm)	50
8. E c t o p r o c t a	
Cyphonautes larva	
Membranipora membranacea	550
9. S a l p i d a	
Oikopleura dioica	1150
10. E c h i n o d e r m a t a	
Echinopluteus larva	100
11. E g g s	
Gastropoda egg	50
Packet egg	50



## I. Haul "Buoy" Scheveningen

Date: 4th November 1970

- 
- |   |  |
|---|--|
| 1. Place of hauling                             | I. "Buoy" Scheveningen   |
| 2. Situation                                    | S.S.E. of "Buoy"   |
| 3. Weather forecast                             | Clearing of the sky, but also some showers. Wind at first strong to gale force, Western. Later on going down. Temperature getting lower. |
| 4. Weather, while hauling                       | Sky overcast. Visibility good.   |
| 5. Time of hauling                              | 13.00 - 13.20  |
| 6. Distance, while hauling                      | 700 - 800 meter  |
| 7. Temperature                                  | In the air 11 <sup>0</sup> C<br>In the water 12 <sup>0</sup> C   |
| 8. Wind<br>On board ship. Given<br>by semaphore | Dir: W.S.W. Force 3/5 (Beaufort)<br>" W.N.W. Force 9m/sec.<br>(Beaufort.5 m.)  |
| 9. Lighthours                                   | 11.27 a day  |
| 10. Tides                                       | 2nd H.W. 18.53   |
| 11. Water Levels in the harbour                 | 1st H.W. + 130cm, 2nd H.W.+ 160cm<br>1st L.W. -45 cm 2nd L.W. + 13 cm  |
| 12. Direction of streams                        | 4 hours before H.W. (H.W. coming<br>up)  |
| 13. Direction of streams<br>at Scheveningen     |  |
| 14. Chemical analysis                           | Chloride 1,400 mg/l<br>Phosphate 0,20 mg/l<br>Nitrate 2 mg/l<br>Sediment + $\frac{1}{20}$ contents                                       |



## SAMPLING DATA

NOVEMBER 1970

I. Haul "Buoy" Scheveningen

Date: 4th November 1970

I. Haul "Buoy" Scheveningen		
1. Bacillariophyceae		
Biddulphia sp.		34200
" alternans		300
" mobiliensis		2500
" regia		13800
" sinensis		7900
Coscinodiscus concinnus		10000
" granii		15200
" excentricus		41100
Eucampia zoodiacus		100
Fragilaria sp.		400
Rhizosolenia sp.		200
2. Ctenophora		
Pleurobrachia pileus		100
3. Coelenterata		
Phialidium hemisphericum		150
4. Crustacea		
Copepoda		
Acartia sp.		3050
Anomalocera sp.		50
Centropages hamatus		700
Microcalanus pusillus		1200
Nauplius larva Cop.sp.		100
Temora longicornis		150
Cirripedia		
Cypris larva Cir.sp		50
Harpacticoida		
Harpacticoida sp		6600
Harpacticoida sp.with eggs		50
Cyclopoida		
Cyclopoida sp		1350
Mysidacea		
Mesopodopsis slabberi		100
Amphipoda		
Amphipoda sp		50
Decapoda		
Megalopa larva Cancer sp		50
Cumacea		
Cumacea sp		100
5. Polychaeta		
Polychaeta sp.		100
6. Chaetognatha		
Sagitta sp.		100
7. Ectoprocta		
Cyphonautes larva		550
Membranipora membranaceus		

## II. "Veronica" Scheveningen

Date: 4th November 1970

- |  |   |
|--|---|
| 1. Place of hauling                      | II. "Veronica" Scheveningen   |
| 2. Situation                             | S.S.E. of "Veronica"  |
| 3. Weather forecast                      | Clearing of the sky, but also some showers. Wind at first strong to gale force. Western. Later on going down. Temperature getting lower |
| 4. Weather, while hauling                | Sky overcast, visibility good.  |
| 5. Time of hauling                       | 11.40 - 12.00   |
| 6. Distance, while hauling               | 700 - 800 meter   |
| 7. Temperature                           | In the air 11°C<br>In the water 12°C  |
| 8. Wind                                  |   |
| On board ship                            | Dir: W.S.W. Force 3/5 (Beaufort)  |
| Given by semaphore                       | Dir: W.N.W. Force 10m/sec.<br>(Beaufort 5)  |
| 9. Lighthours                            | 11.27 a day   |
| 10. Tides                                | 2nd H.W. 18.53  |
| 11. Water Levels in the harbour          | 1st H.W. + 130cm. 2nd H.W. + 160cm<br>1st L.W. -45 cm 2nd L.W. + 13cm   |
| 12. Direction of streams                 | 6 hours before H.W.   |
| 13. Direction of streams at Scheveningen |   |
| 14. Chemical analysis                    | Chloride 16200 mg/l<br>Phosphate 0.20 mg/l<br>Nitrate 3 mg/l<br>Sediment + $\frac{1}{19}$ contents                                      |

## II. Haul "Veronica" Scheveningen

Date: 4th November 1970

## II. Haul "Veronica" Scheveningen.

1. B a c i l l a r i o p h y c e a e	
Biddulphia sp	18100
"  alternans	1600
"  mobiliensis	300
"  regia	15600
"  sinensis	11500
Coscinodiscus concinnus	43900
"  excentricus	89200
"  granii	3700
Fragilaria sp	700
2. P r o t o z o a	
Foraminifera sp	200
3. C t e n o p h o r a	
Pleurobrachia pileus	100
4. C o e l e n t e r a t a	
Phialidium hemisphericum	100
5. P o l y c h a e t a	
Polychaeta larva	100
"  sp.	150
Terebella larva	50
6. N e m a t o d a	
Nematoda sp.	50
7. C h a e t o g n a t h a	
Sagitta sp.	100
8. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	14400
Centropages hamatus	200
Microcalanus pusillus	2050
Temora longicornis	300
C i r r i p e d i a	
Nauplius larva Cir sp.	150
Cypris " " "	150
C y c l o p o i d a	
Cyclopoida sp	2000
H a r p a c t i c o i d a	
Harpacticoida sp <del>with eggs</del>	14900
"  with eggs	250
A m p h i p o d a	
Amphipoda sp	100
M y s i d a c e a	
Mesopodopsis slabben	100
9. E c t o p r o c t a	
Cyphonautes larva of Membranipora	
membranaceus	1350
10. S a l p i d a	
Oikopleura divica	200
11. M o l l u s c a	
Young Gastropoda sp	50
12. E g g s	
Evertabrata eggs	
Packet eggs Harpacticoida	100

SAMPLING DATA

DECEMBER 1970.

III. "Buoy" Scheveningen

Date: 1st December 1970

- 
- 1. Place of hauling III. "Buoy" Scheveningen
  - 2. Situation N.N.W. of "Buoy"
  - 3. Weather forecast Locally showers but also clearing of the sky. Wind mostly moderate Southern. During the night temperature lower, during the day temperature the same as the day before.
  - 4. Weather, while hauling Clouded, weather mild. Visibility 5 miles
  - 5. Time of hauling 11.45 - 12.05
  - 6. Distance, while hauling 700 à 800 meter
  - 7. Temperature In the air 6°C  
In the water 5°C
  - 8. Wind  
On board ship Dir: West to North-West  
Force: 3/4 (Beaufort)  
*Semaphores:*  
8.08 a day *Dir: WNW Force gm/sec*
  - 9. Lighthouses
  - 10. Tides 2nd H.W. 16.39
  - 11. Water Levels in the harbour 1st H.W.+ 150cm. 2nd H.W.+120cm  
1st L.W. -41 cm 2nd L.W. -54 cm.
  - 12. Direction of streams 5 hours before H.W.
  
  - 13. Direction of streams at Scheveningen
  
  - 14. Chemical analysis Chloride  
Phosphate  
Nitrate



## III. "Buoy" Scheveningen

Date: 1st December 1970

## III. "Buoy" Scheveningen

1. B a c i l l a r i o p h y c e a e	
Biddulphia mobiliensis	600
"      regia	27900
"      sinensis	28200
Coscinodiscus concinnus	500
"      excentricus	2200
"      granii	2700
Rhizosolenia sp	800
Fragilaria sp	200
2. P r o t o z o a	
Ceratum fusus	100
Noctiluca miliaris	1700
3. C t e n o p h o r a	
Pleurobrachia pileus	50
4. C o e l e n t e r a t a	
Phialidium hemisphericum	50
5. P o l y c h a e t a	
Poluchaeta larva	50
6. C r u s t a c e a	
C o p e p o d a	
Acartia sp.	200
Centropages hamatus	100
Microcalanus pusillus	150
C i r r i p e d i a	
Nauplius larva Cir.sp	50
C y c l o p o i d a	
Cyclopoida sp	1100
H a r p a c t i c o i d a	
Harpacticoida sp	6100
"      " with eggs	150
A m p h i p o d a	
Amphipoda sp	100
H y p o r i i d a e	
Hyperiididae sp.	50
7. C h a e t o g n a t h a	
Sagitta sp.	100
8. M o l l u s c a	
Mactra corallina (0.225 mm)	50
9. E c h i n o d e r m a t a	
Echinopluteus larva	50
10. E c t o p r o c t a	
Cypñonantes larva	300
Membranapora membranacea	



## IV. "Veronica" Scheveningen

Date: 1st December 1970.

- 
- |   |   |
|---|---|
| 1. Place of hauling                         | IV. "Veronica" Scheveningen   |
| 2. Situation                                |   |
| 3. Weather forecast                         | Locally showers but also clearing of the sky. Wind mostly moderate Southern. During the night temperature lower, during the day temperature the same as the day before. |
| 4. Weather, while hauling                   | Clouded weather mild, visibility 5 miles  |
| 5. Time of hauling                          | 12.45 - 13.05   |
| 6. Distance, while hauling                  | 700 à 800 meter   |
| 7. Temperature                              | In the air 6°C<br>In the water 9°C  |
| 8. Wind<br>On board ship                    | Dir: W.N.W. Force: 3/4 (Beaufort)<br><i>Semaphore: Dir W.N.W. 9m/sec</i>  |
| 9. Lighthours                               | 8.08 a day  |
| 10. Tides                                   | 2 <sup>nd</sup> H.W. 16.39  |
| 11. Water Levels in the harbour             | 1st H.W.                      2nd H.W.<br>1st L.W.                      2nd L.W.  |
| 12. Direction of streams                    | 4 hours before H.W.   |
| 13. Direction of streams<br>at Scheveningen |   |
| 14. Chemical analysis                       | Chloride<br>Phosphate<br>Nitrate  |

## IV. "Veronica" Scheveningen

Date: 1st December 1970

## IV. "Veronica" Scheveningen.

1. B a c i l l a r i o p h y c e a e	
Biddulphia sp	9800
" alternans	250
" aurita	550
" mobiliensis	1550
" regia	38800
" sinensis	75800
Chaetoceros sp	50
Coscinodiscus concinnus	12900
" excentricus	17650
" granii	6650
Fragilaria sp.	550
Rhizosolenia sp	300
2. P r o t o z o a	
Foraminifera sp	50
Noctiluca miliaris	1000
3. C t e n o p h o r a	
Pleurobrachia pileus	150
4. C o e l e n t e r a t a	
Phialidium hemisphericum	250
5. P o l y c h a e t a	
Polychaeta sp	100
6. C r u s t a c e a	
C o p e p o d a	
Acartia sp	9050
Anomalo <del>cerasp</del>	100
Centropages hamatus	1700
Microcalanus pusillus	1750
Nauplius larva Cop.sp	150
C i r r i p e d i a	
Nauplius larva Cir.sp	100
C y c l o p o i d a	
Cyclopoida sp	2500
H a r p a c t i c o i d a	
Harpacticoida sp	15750
" " with eggs	350
A m p h i p o d a	
Amphipoda sp	150
7. C h a e t o g n a t h a	
Sagitta sp	300
8. S a l p i d a	
Oikopleura dioica	50
9. E c t o p r o c t a	
Cyphonautes larva	
Membranapora membranacea	1300
10. E g g s	
Evertebrata eggs	700

