



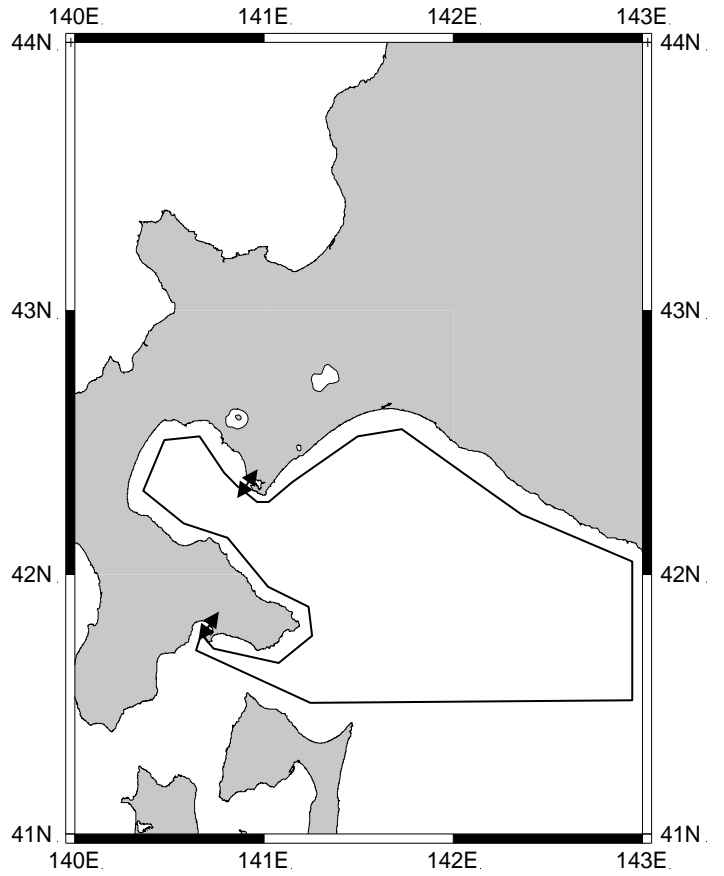
2008 8 30 9 11

1.	1
2.	1
3.	3
4.	3
5.	4
6.	4
6.1	4
6.2 CTD	9
6.3	11
6.4	13
6.5	14
6.6	17
7.	18
	19
	21
	23

1.

- 1
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- 1
- 2
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- 5

2.

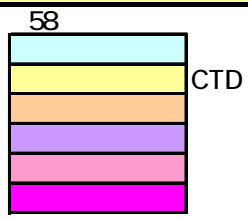


60

8 7

	08 30	08 30	7
	09 1	09 2	
	09 2	09 2	5
	09 4	09 5	
	09 5	09 5	
	09 7	09 8	
	09 8	09 8	
	09 10	09 11	
	09 11	09 11	TA

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11:30											
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16:00											
17:00	8	30									
19:15											
19:30	1-4										
20:30	5-8										
23:00											
				1	2	3	4	5	6	7	8
6:15		1,2,3	(4,5,6,8)								
7:00											
8:15											
9:00											
11:00	6										
12:00											
14:30											
17:00	5										
18:30											
19:00	1-4		(5-8)								
20:15	5-8		(1-4)								
23:00		2200-									
				1	2	3	4	5	6	7	8
6:15		6,7,8	(1,2,3,5)								
7:00	4										
8:00											
11:00	3										
11:30											
12:30											
13:00											
16:00											
21:00											
21:10											
23:00		2000-									
				1	2	3	4	5	6	7	8
6:00											
6:15		4,5	1,3,6,7,8								
7:00	2										
8:30											
10:00											
11:00	1										
12:00		(1,2,3)									
13:10											
13:40											
14:00											
16:30	E										



3.

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TEL 090-3023-2412
TEL 090-9801-5819

4.

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24

20

P.65

5.

5

- (1)
- (2)
- (3)

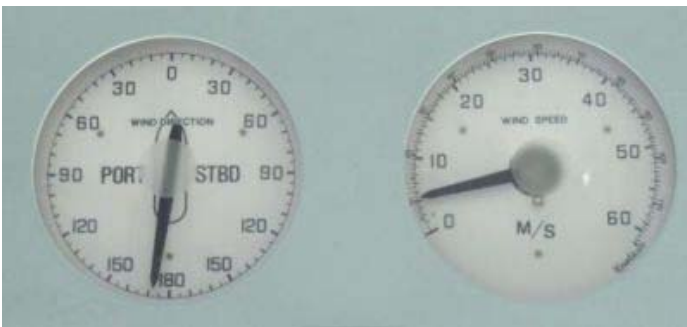
24

6.

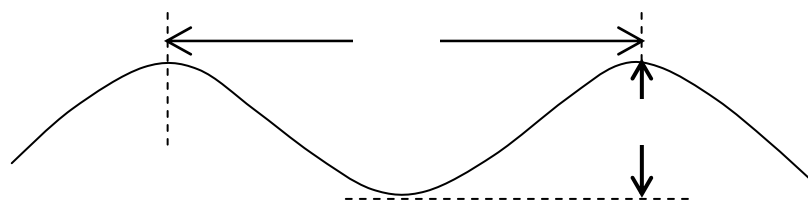
()



1.2



1.1



1.3

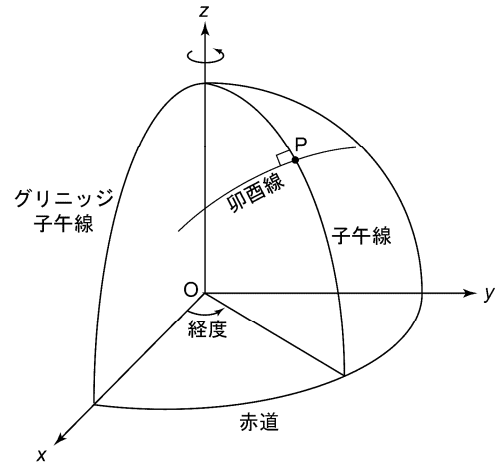
Weather Notation		
b		Blue sky (Cloud 0 2)
bc		Fine but Cloudy (Cloud 3 7)
c		Cloudy (Cloud 8 10)
f		Fog
h	()	Hail
m	()	Mist
p		Passing showers
r		Rain
s		Snow
t		Thunder

() Beaufort Scale				
		(knots)	(m/s)	
0		1	0 0.3	
1		1 4	0.3 1.6	0.1(0.1)
2	,	4 7	1.6 3.4	0.2(0.3)
3	,	7 11	3.4 5.5	0.6(1)
4		11 17	5.5 8.0	1(1.5)
5	()	17 22	8.0 10.8	2(2.5)
6	()	22 28	10.8 13.9	3(4)
7	,	28 34	13.9 17.2	4(5.5)
8		34 41	17.2 20.8	5.5(7.5)
9	,	41 48	20.8 24.5	7(10)
10		48 56	24.5 28.5	9(12.5)
11		56 64	28.5 32.7	11.5(16)
12		64	32.7	14

_____ GPS
 NM knots

Nautical Mile NM

$(1^\circ / 60)$
 1 (Nautical Mile)
 SI
 $NM = 40,000 / 360^\circ / 60 = 1,852m$
 $= 1,852m \times \cos(\quad)$



knots

NM

minute 1 = 60 (,second 24 60 1° = 60 (, 15°

° 360 60 1° = 60 () 1 = 60 () 1

60 360° 1 360

360°	24 h	15°
------	------	-----

(Steering)

Set Course

Altering Course

OFF

Course

- Starboard! °
- Starboard Easy! °
- Hard Starboard! °
- Port! °
- Port Easy! °
- Hard Port! °
- Midships °
- Steady!

Answer back

“Starboard easy (or ten, twenty, thirty, or forty degrees)!”

“Starboard easy (or ten, twenty, thirty, or forty degrees)!”

“Starboard easy (or ten, twenty, thirty, or forty degrees), Sir!”

“Thank you” etc.

“Midships!”

“Midships”

“Midship, Sir!”

“Thank you” etc.

“Steady (as she goes)!”

“Course (degrees)!”

“Steady (as she goes)!”

“Course (degrees)!”

“Steady on (degrees), Sir!”

“Course (degrees), Sir!”

“Thank you” etc.

Starboard (Starboard side)

(steer)

Steer Board

Starboard

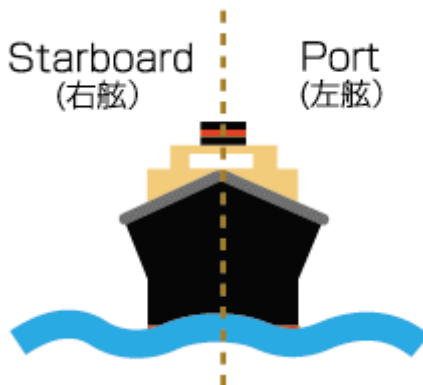
()

Port Port side

Portside()

Starboard
(右舷)

Port
(左舷)



”center line”

”Mid-ship”

”mid()” ”ship()”

0°

(1)

_____ ()

(2)

1.8km

		2		
		1		
		2		
		1		

(3)

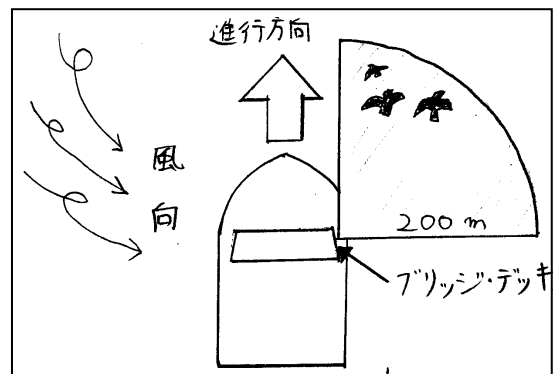
200m (1)

90°

200m ()

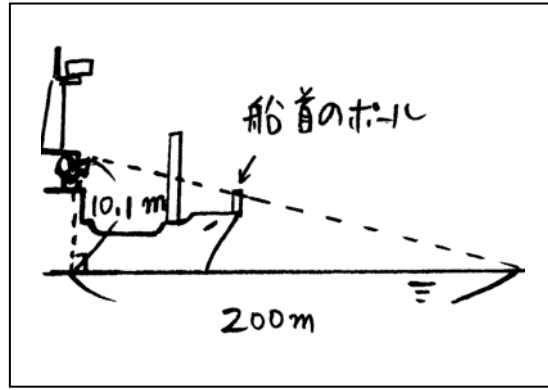
13k/t 30

200m (2)



1.4

8 9
 20
 1
 1
 100 1
 500 10 500 100



1.5 200m

CTD

2-3

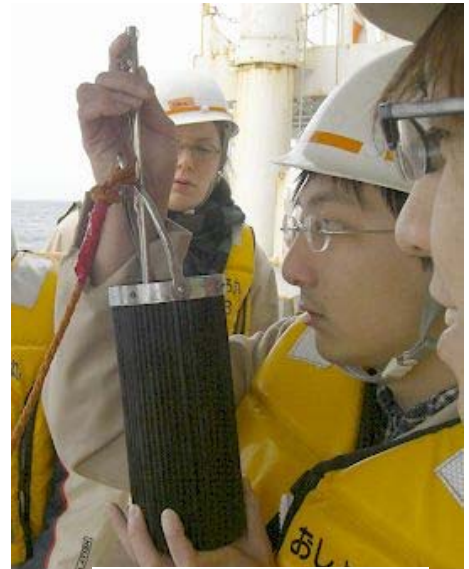
(

Secchi Disk 2.2

()

2.3

11



2

Euphotic Layer

CTD

2.4 C Conductivity
 T Temperature D Depth

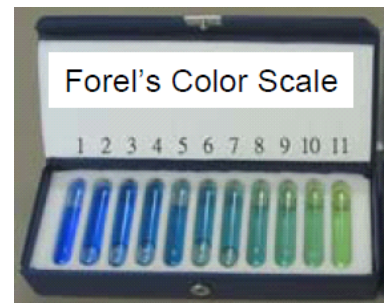
CTD

Rosette Multi Sampler

RMS



2.2



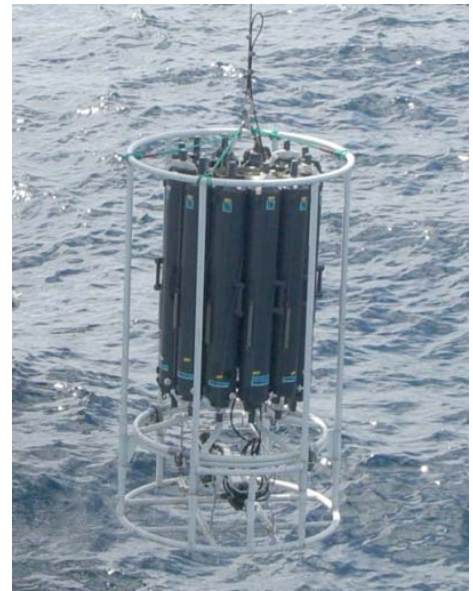
2.3

psu (practical salinity unit)

‰

(1025.4 kg/m³ $\sigma_t = 25.4$)

kg/m³

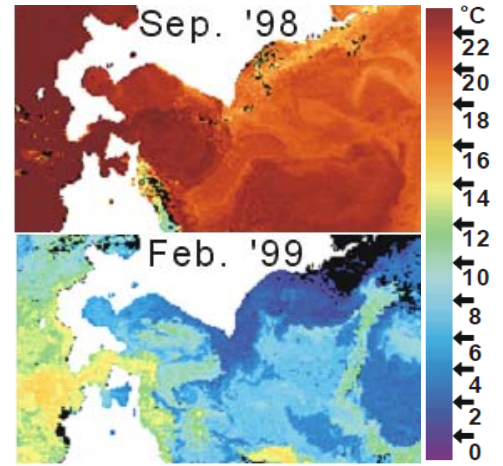


2.4 CTD RMS

Gyre Mode,

2.4
2.6

Coastal



2.6
:1998 9
:1999 2

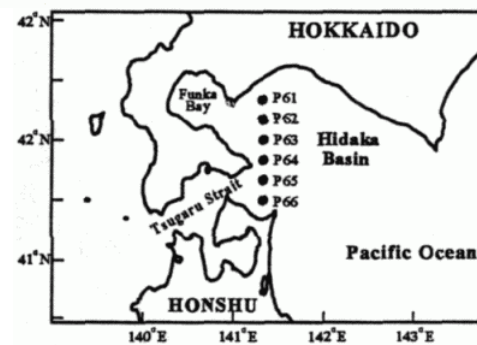
()

psu

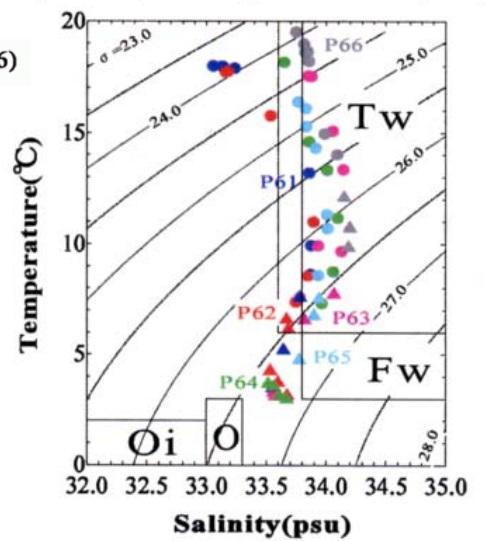
psu

2.7

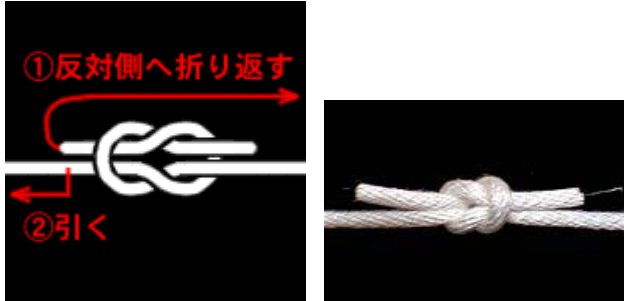
30 Sep. 1991 (P61-P64), 1 Oct. 1991 (P65,P66)



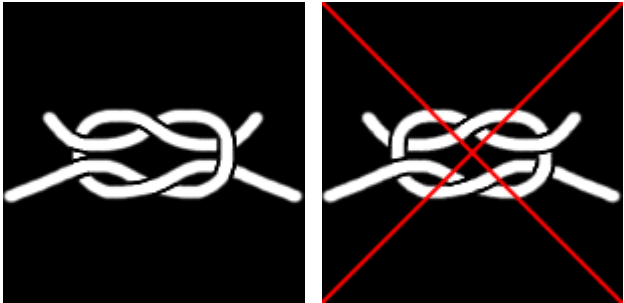
2.7 1991 9-10
Tw Fw Oi: O:



(1)



OK



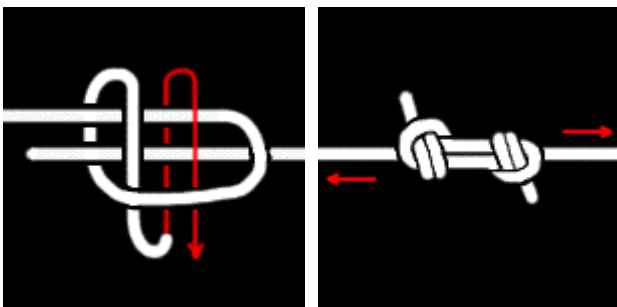
2)

(carrick bend)

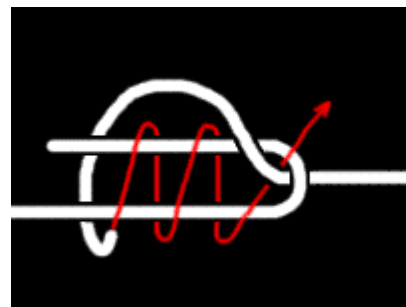


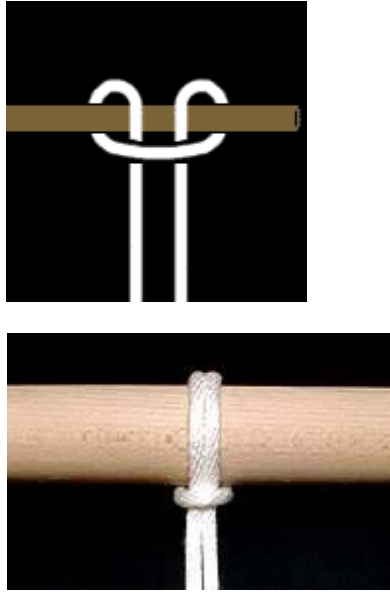
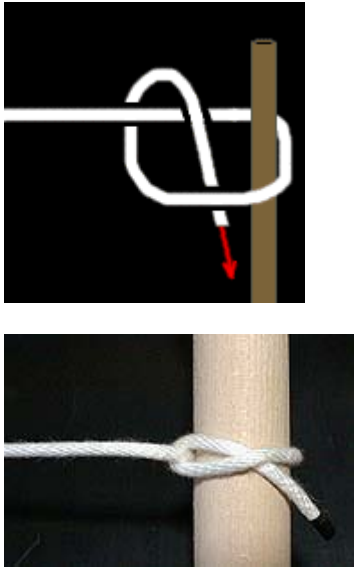
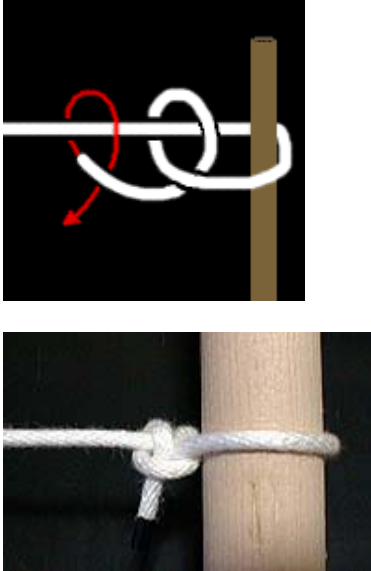
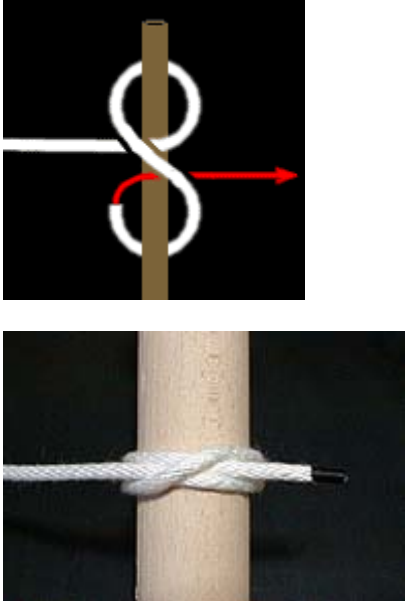
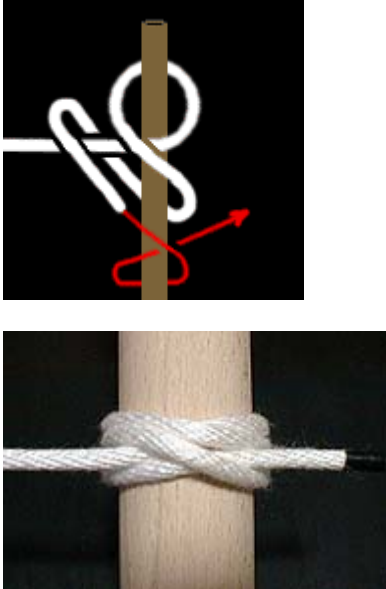
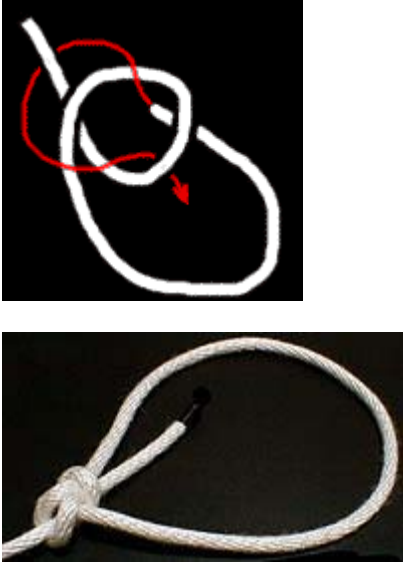
(3)

double sheet bend



(4)



<p>(1) ring hitch</p>  <p>The diagram shows a white rope with two loops on either side of a horizontal brown bar. The photo shows the completed knot on a wooden dowel, with the rope passing through the bar and forming a central loop.</p>	<p>(2) half hitch</p>  <p>The diagram shows a white rope with one loop on one side of a vertical brown bar. A red arrow indicates the rope's path. The photo shows the completed knot on a wooden dowel, with the rope passing through the bar and forming a single loop.</p>	<p>(3) (two half hitch) 2</p>  <p>The diagram shows a white rope with two loops on one side of a vertical brown bar. Red arrows indicate the rope's path. The photo shows the completed knot on a wooden dowel, with the rope passing through the bar and forming two loops.</p>
<p>(4)</p>  <p>The diagram shows a white rope with two loops on one side of a vertical brown bar. A red arrow indicates the rope's path. The photo shows the completed knot on a wooden dowel, with the rope passing through the bar and forming two loops.</p>	<p>(5) 2</p>  <p>The diagram shows a white rope with two loops on one side of a vertical brown bar. A red arrow indicates the rope's path. The photo shows the completed knot on a wooden dowel, with the rope passing through the bar and forming two loops.</p>	<p>(6) bowline knot</p>  <p>The diagram shows a white rope with two loops on one side of a vertical brown bar. Red arrows indicate the rope's path. The photo shows the completed bowline knot on a wooden dowel, with the rope forming a fixed loop.</p>

URL <http://www1.ocn.ne.jp/~tatsujin/ropework/index.html>

1

5

1

NORPAC

NORPAC

NORth PACific

Standard Net:

0

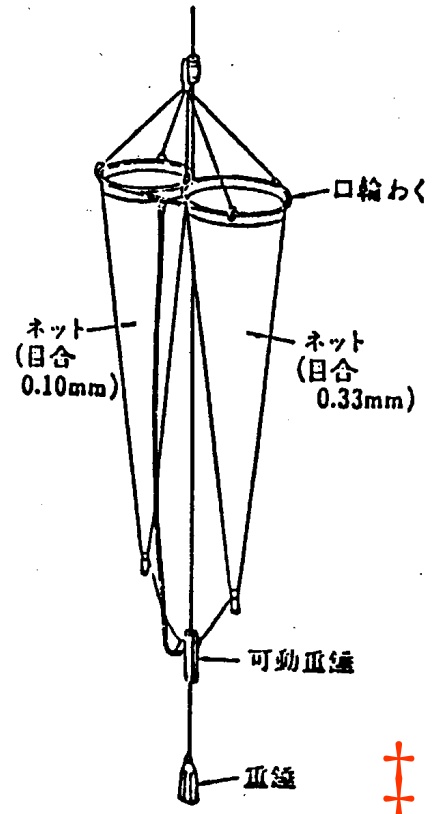
U

150 m

150 m

[-5 m]

m



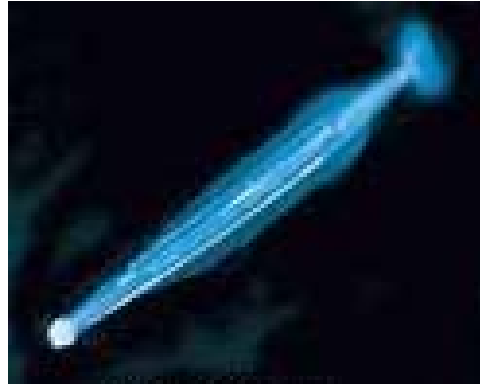
4.1 NORPAC
(Motoda, S. 1957. North Pacific standard plankton net.)

Copepoda:

Chaetognatha:



4.2 Copepoda:



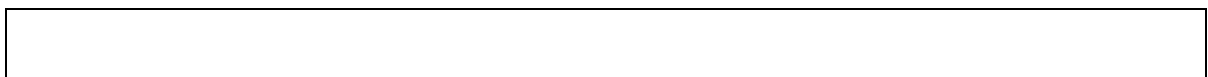
4.3 Chaetognatha:

80%

NORPAC

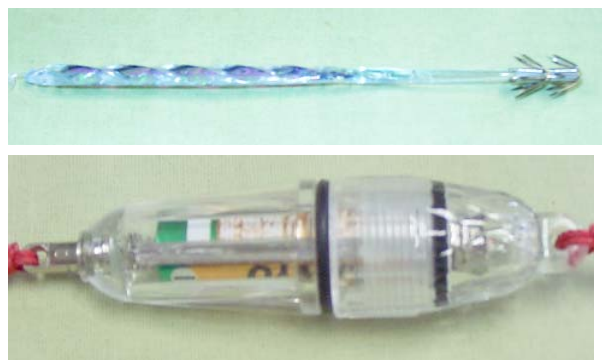
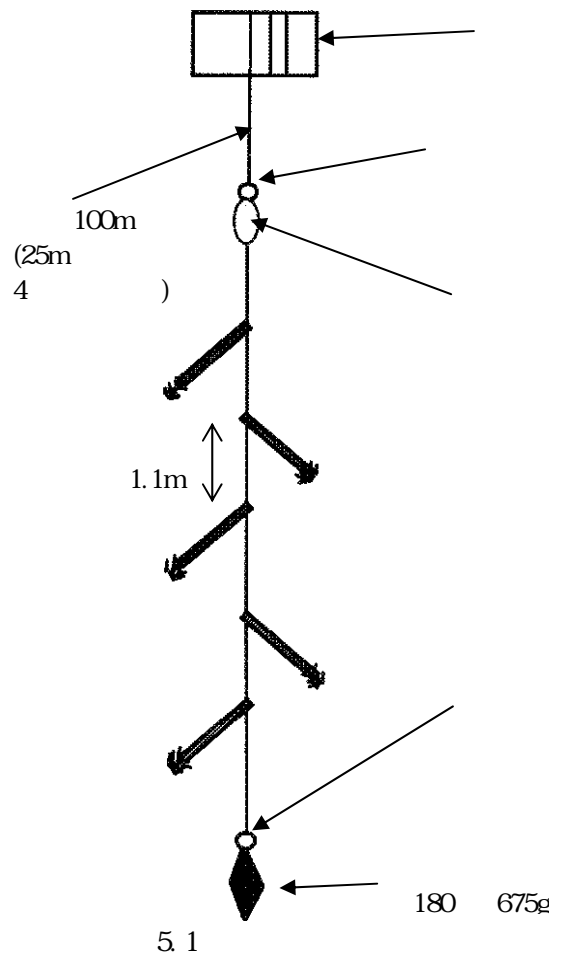
$$\begin{aligned}
 & \times \quad [m] \quad \times \quad v: m^3 \text{ NORPAC} \quad 45 \text{ cm} \\
 = & \left(\times (0.45/2)^2 \times \quad [m] \div \right) \\
 & \quad V: m^3 \quad [m] \div \\
 = & \quad \quad \quad \times v
 \end{aligned}$$

CC:	Abundant	>45%
C:	Frequent	30%
+:	Common	15%
R:	Rare	8%
RR:	Very rare	2%



5.1

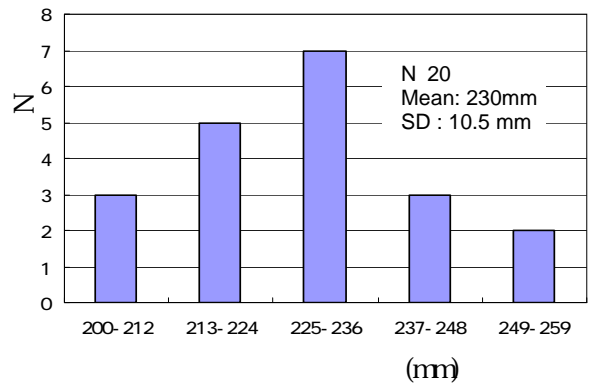
5.2
18 21cm
1cm 2
" "



1

5.2

(5.3)



5.3

	N	E	

	mm	g				mm	g		
1					31				
2					32				
3					33				
4					34				
5					35				
6					36				
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23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

Todarodes pacificus Steenstrup

Japanese flying squid

170



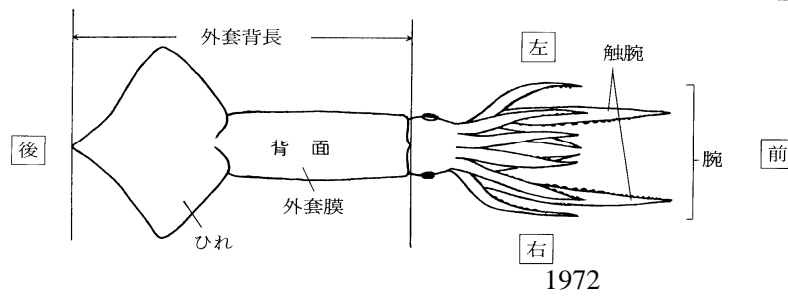
170

3

12 3

9 11
2

	cm	g
6	15	60
8	21	179
10	24	276
12	24	276



1972

12 3

5
12 3

8

9
1

9 11

8

8 9

5

1

6 1 1

360

2)

1,2 / / /

3)
(1)

cm



61



62

(2)

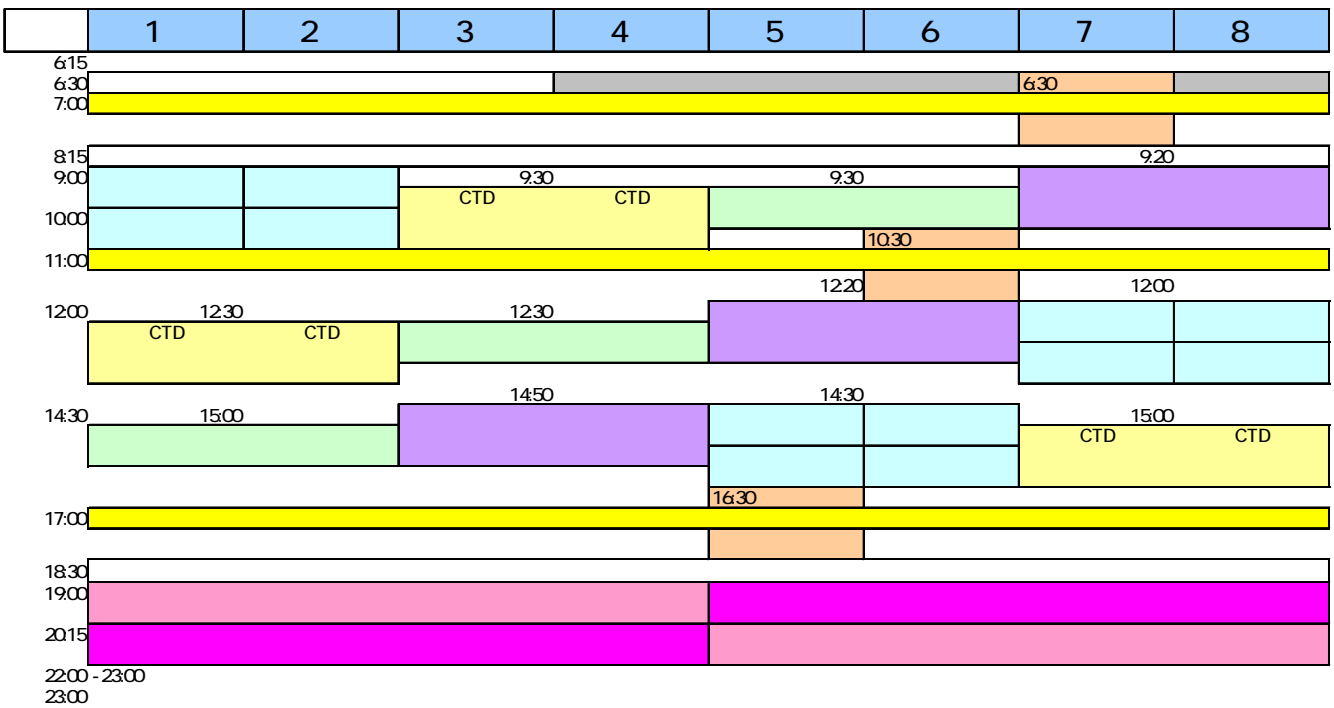
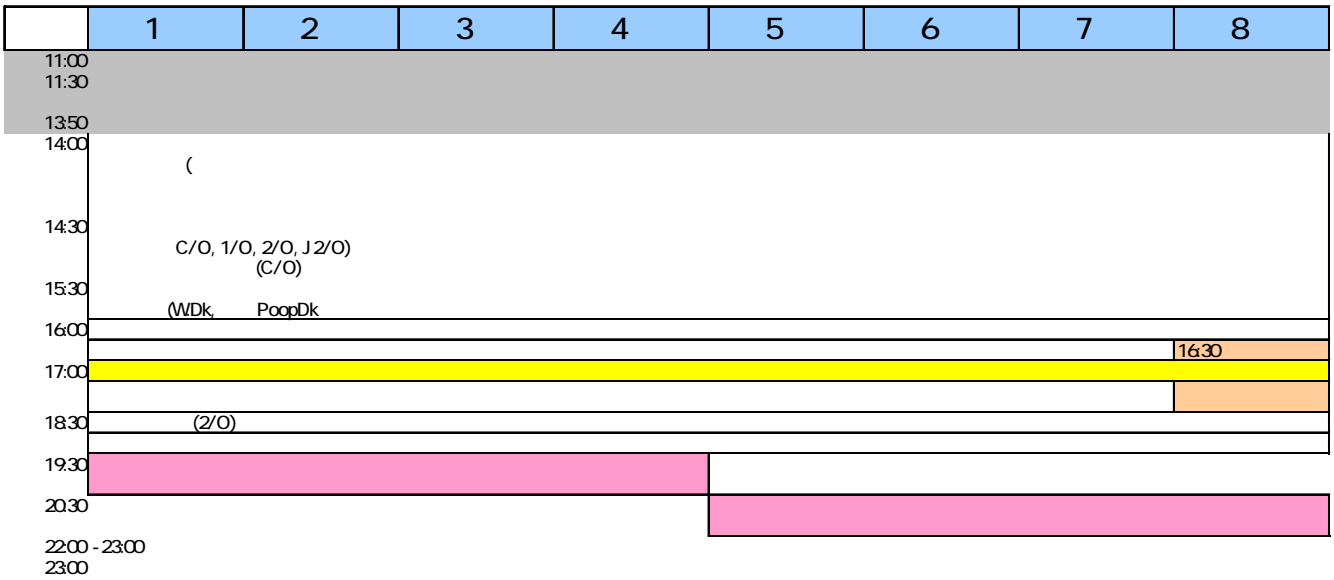
(3)

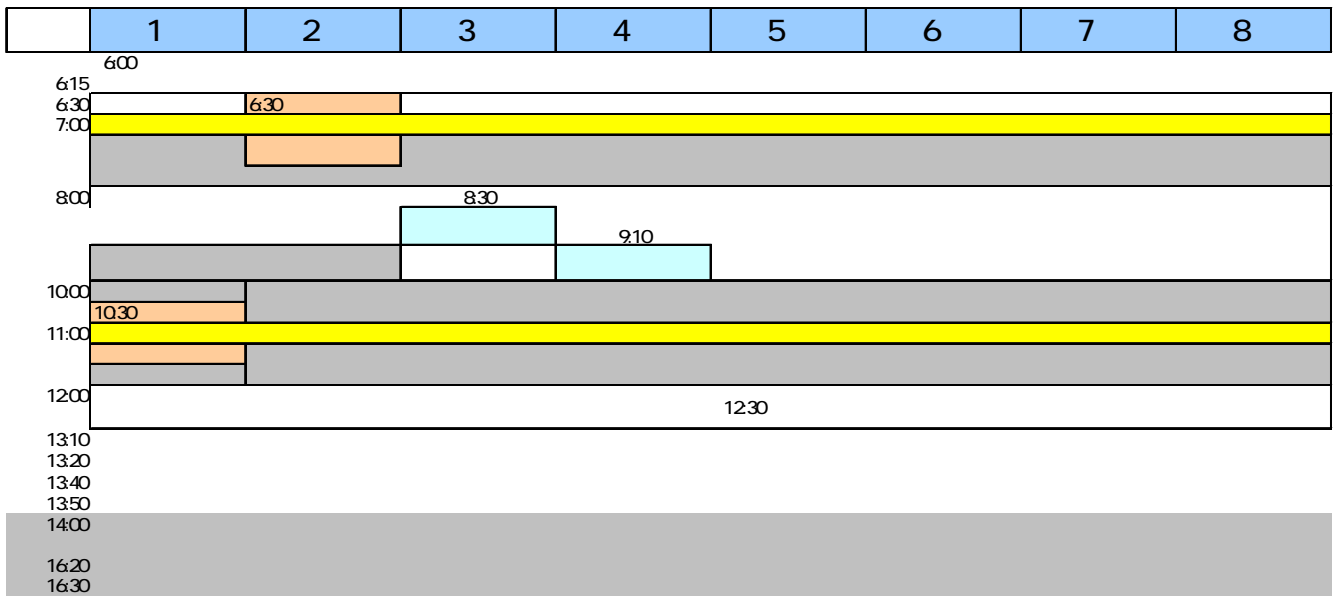
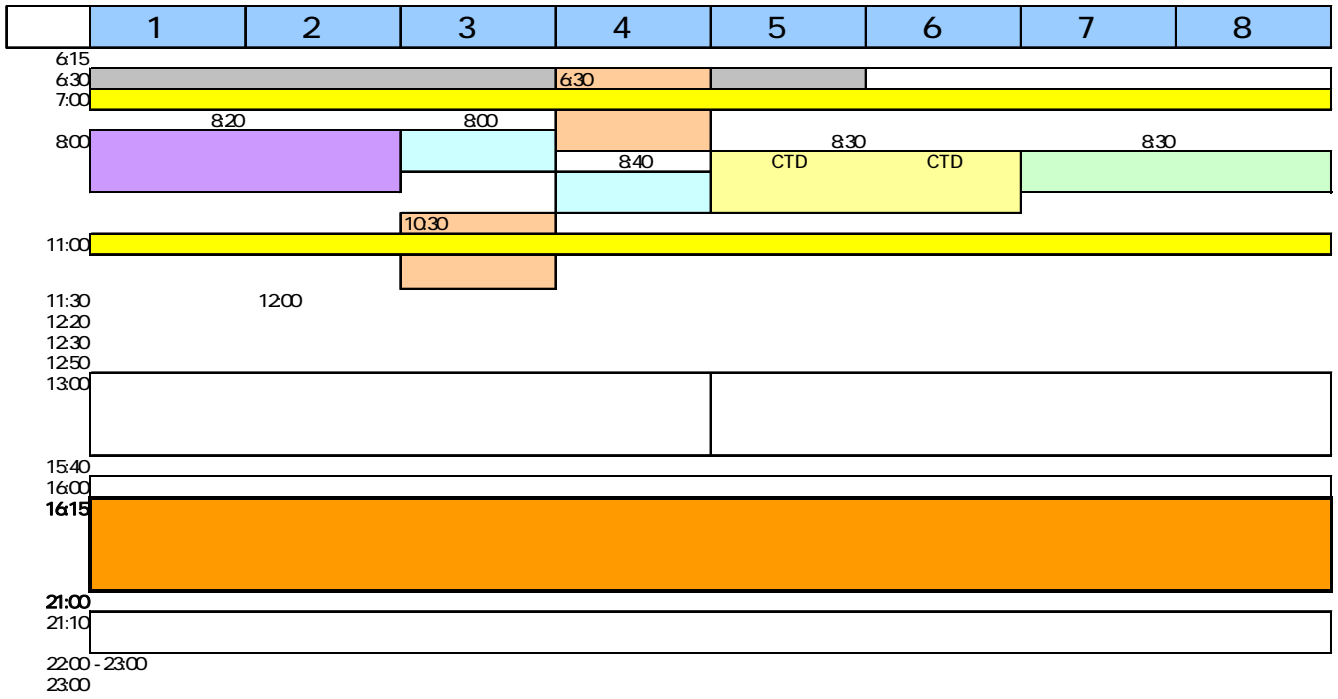
7.










800

A4 800

CTD




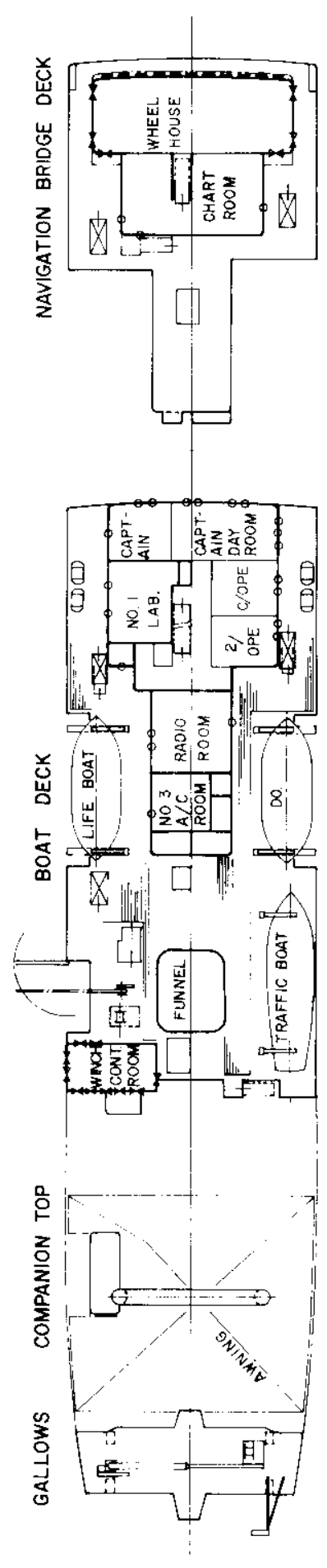
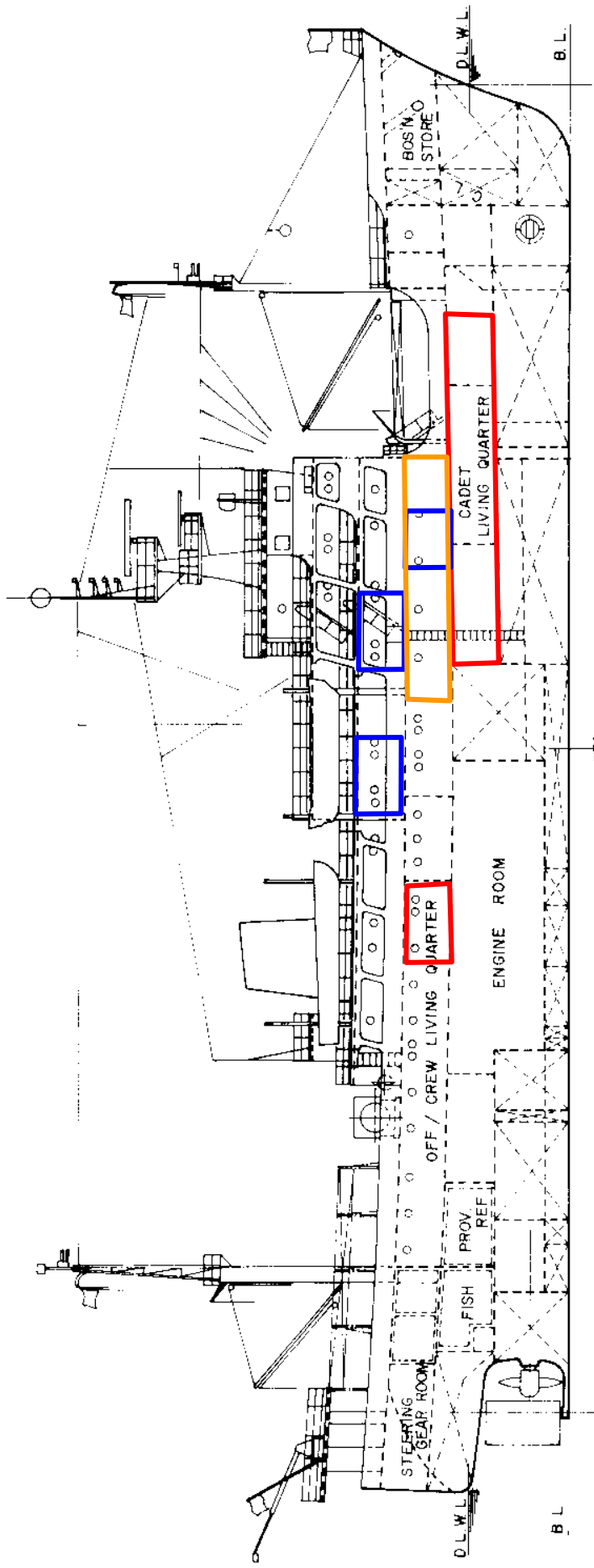


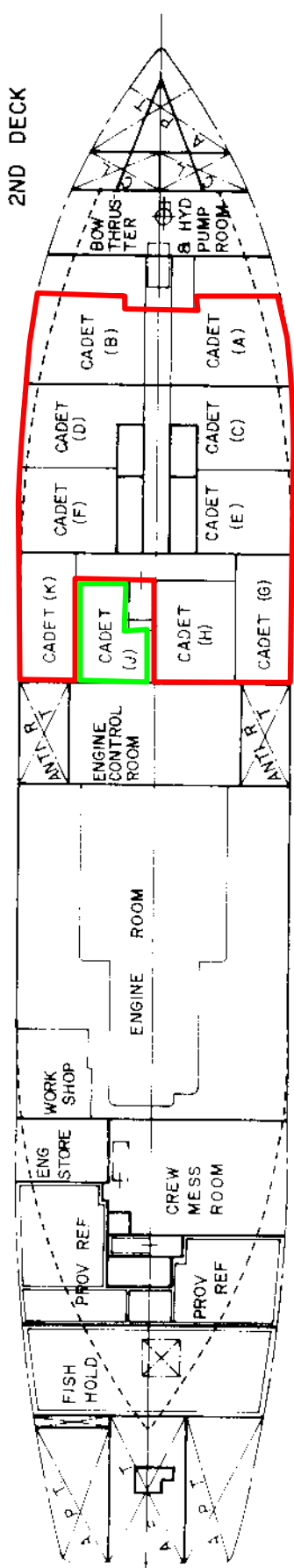
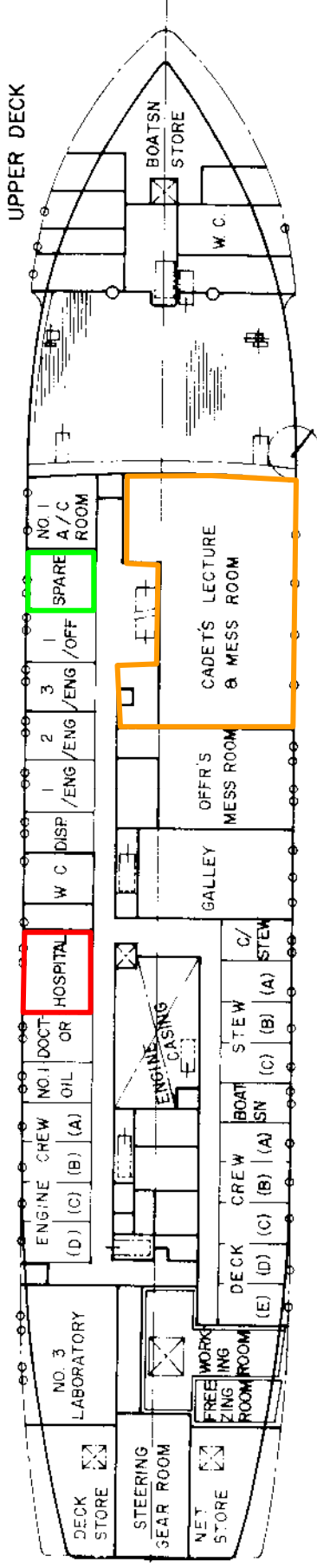
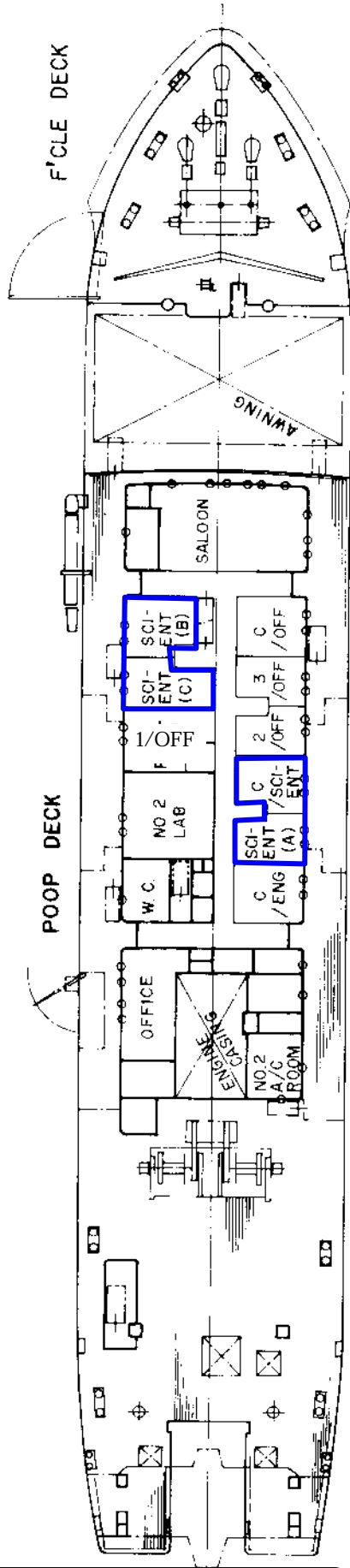
			CS
			S(B)
			S(C)
			S(C)
			S(C)
	<	>	S(A)
	<	>	S(A)
	<	>	S(A)
	<	>	S(A)

TA

	M2		Sp
	M1		J

		Cap.
		C/O
	nektion XCP	1/O
		3/O
		2/O
		C/E





組 なまえ