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App. Table 1 Specifications of surface and sinking gillnet

Part	Specifications	Part	Specifications	Part	Specifications
Mesh size	73 mm	Mesh size	95 mm	Mesh size	100 mm
(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 51.0m Total length: 51.8m		(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 51.0m Total length: 51.8m		(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 51.0m Total length: 51.8m	
Float	N-22 Buoyancy: 220g 60pieces Total buoyancy: 13,200g	Float	N-22 Buoyancy: 220g 60pieces Total buoyancy: 13,200g	Float	N-22 Buoyancy: 220g 60pieces Total buoyancy: 13,200g
Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 49.0m Total length: 49.9m	Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 49.0m Total length: 49.9m	Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 49.0m Total length: 49.9m
Net-strip	Nylon Monofilament D/K #4 73mm 100G 1,370 mesh	Net-strip	Nylon Monofilament D/K #6 95mm 100G 1,050 mesh	Net-strip	Nylon Monofilament D/K #6 100mm 100G 1,000 mesh
Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg	Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg	Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg
Hanging	Upper: 49.0% Lower: 51.0%	Hanging	Upper: 48.9% Lower: 50.88%	Hanging	Upper: 49.0% Lower: 51.0%
Part	Specifications	Part	Specifications	Part	Specifications
Mesh size	123 mm	Mesh size	150 mm	Mesh size	160 mm
(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 51.0m Total length: 51.8m		(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 63.8m Total length: 54.6m		(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 63.8m Total length: 54.6m	
Float	N-22 Buoyancy: 220g 60pieces Total buoyancy: 13,200g	Float	N-22 Buoyancy: 220g 75 pieces Total buoyancy: 16,500g	Float	N-22 Buoyancy: 220g 75 pieces Total buoyancy: 16,500g
Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 49.0m Total length: 49.9m	Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 61.2m Total length: 62.1m	Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 61.2m Total length: 62.1m
Net-strip	Nylon Monofilament D/K #8 123mm 81G 810 mesh	Net-strip	Nylon Multifilament D/K #1.5/14 150mm 67G 830 mesh	Net-strip	Nylon Multifilament D/K #1.5/14 160mm 63G 780 mesh
Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg	Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg	Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg
Hanging	Upper: 48.8% Lower: 50.82%	Hanging	Upper: 48.8% Lower: 50.84%	Hanging	Upper: 48.9% Lower: 51.12%
Part	Specifications (Sinking gillnet)	Part	Specifications	Part	Specifications
Mesh size	100 mm	Mesh size	100 mm	Mesh size	100 mm
(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 51.0m Total length: 51.8m		(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 51.0m Total length: 51.8m		(U-Line) P.P. Dan-Line Rope 12.5g 6mm right and left each 1 Length of Float line: 51.0m Total length: 51.8m	
Float	N-22 Buoyancy: 220g 4 pieces Polyethylene buoy 2,300g 4 pieces Total buoyancy: 10,960g	Float	N-22 Buoyancy: 220g 4 pieces Polyethylene buoy 2,300g 4 pieces Total buoyancy: 10,960g	Float	N-22 Buoyancy: 220g 4 pieces Polyethylene buoy 2,300g 4 pieces Total buoyancy: 10,960g
Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 49.0m Total length: 49.9m	Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 49.0m Total length: 49.9m	Lead Line	(U-Line) P.P. Lead Core Rope 100g 6mm right and left each 1 Length of Lead Line: 49.0m Total length: 49.9m
Net-strip	Nylon Monofilament D/K #6 100mm 100G 1,000 mesh	Net-strip	Nylon Monofilament D/K #6 100mm 100G 1,000 mesh	Net-strip	Nylon Monofilament D/K #6 100mm 100G 1,000 mesh
Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg	Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg	Sewing Twine	Float - Float Line: KUREMONA 12#(W) Lead - Lead Line: KUREMONA 12#(GG) Net-Net: KUREMONA 15# 580m/kg
Hanging	Upper: 49.0% Lower: 51.0%	Hanging	Upper: 49.0% Lower: 51.0%	Hanging	Upper: 49.0% Lower: 51.0%

App. Table 2 The activities of R/V "BIEN DONG" during the 1st cruise

Date 1995	Activities	Date 1995	Activities
31/10	Departure from Hai Phong	26/11	Observation at B-26,B-27. Anchorage for refuge
01/11	Anchorage in Ha Long Bay for refuge from typhoon	27/11	Anchorage for refuge from rough sea
02/11	Heading for survey area	28/11	Observation at B-23,B-24
03/11	Anchorage in Hon la for refuge from typhoon	29/11	Observation at B-28. Proceeding to Vung Tau
04/11	Heading for Da Nang for refuge from typhoon	30/11	Anchorage in Vung Tau for supply of fuel oil
05/11	Anchorage in Da Nang for refuge from typhoon	01/12	Supplying fuel oil and water in Vung Tau
06/11	Anchorage in Da Nang for refuge from typhoon	02/12	Supplying fuel oil and water in Vung Tau
07/11	Departure from Da Nang. Proceeding to B-11	03/12	Supplying fuel oil and water in Vung Tau
08/11	Proceeding to B-11. B-11. Proceeding to Quy Nhon	04/12	Departure from Vung Tau. Proceeding to B-22
09/11	Anchorage in Quy Nhon for refuge	05/12	Observation at B-22. Anchorage off Phan Thiet
10/11	„ Anchorage in Quy Nhon for refuge „	06/12	Anchorage off Phan Thiet for refuge
11/11	Departure from Quy Nhon. Setting net & observation B13	07/12	Anchorage off Phan Thiet for refuge
12/11	Hauling nets at B-13. Anchorage in Nha Trang	08/12	Anchorage off Phan Thiet for refuge
13/11	Departure from Nha Trang. Observation at B-18	09/12	Anchorage off Phan Thiet for refuge
14/11	Observation at B-19,B-21	10/12	Departure from Phan Thiet. Proceeding to B-19
15/11	Observation at B-21,B-19. Setting nets & obs. at B-30	11/12	Observation at B-19. Anchorage in Quy Nhon
16/11	Hauling nets at B-30. Proceeding to B-34	12/12	Anchorage in Quy Nhon for refuge
17/11	Observation at B-34,B-29. Proceeding to B-33	13/12	Anchorage in Quy Nhon for refuge
18/11	Observation at B-33,B-31. Anchorage in Con Son	14/12	Departure from Quy Nhon. Observation at B-10
19/11	Anchorage in Con Son for refuge from rough sea	15/12	Observation at B-09,B-08,B-06. Setting net at B-06
20/11	Anchorage in Con Son for refuge from rough sea	16/12	Hauling nets at B-06. Observation at B-05
21/11	Anchorage in Con Son for refuge from rough sea	17/12	Observation at B-04, 03, 02, 01. Anchorage in Hon la for refuge
22/11	Anchorage in Con Son for refuge from rough sea	18/12	Anchorage in Hon la for refuge. Finishing the survey
23/11	Anchorage in Con Son for refuge from rough sea	19/12	Proceeding to Hai Phong
24/11	Anchorage in Con Son for refuge from rough sea	20/12	Proceeding to Hai Phong. Anchorage in Cat Ba
25/11	Departure from Con Son. Proceeding to B-26	21/12	Arriving in Hai Phong. Finishing the Survey cruise

App. Table 3 The activities of R/V "BIEN DONG" during the 2nd cruise

Date 1996	Activities	Date 1996	Activities
08/05	Departure from Hai Phong	01/06	Supplying fuel oil and water in Vung Tau
09/05	Proceeding to Survey area	02/06	Departure from Vung Tau. Setting nets at B-27
10/05	Setting and hauling nets at B-02	03/06	Hauling and Observation at B-27. Setting nets at B-22
11/05	Observation at B-10,B-13. Anchorage in Quy Nhon for refuge	04/06	Hauling at B-22. Observation and Setting nets at B-20
12/05	Departure from Quy Nhon. Observation and Setting nets at B-14	05/06	Hauling at B-20. Observation and Setting nets at B-16
13/05	Hauling nets B-14. Observation and Setting nets at B-18	06/06	Hauling at B-16 Anchorage in Nha Trang for leaving ship of Dr.Takahashi
14/05	Hauling at B-18. Observation and Setting nets at B-21.	07/06	Anchorage in Nha Trang for repair
15/05	Hauling at B-21. Observation and Setting nets at B-25	08/06	Departure from Nha Trang. Observation and Setting nets at B-13
16/05	Hauling at B-25. Observation and Setting nets at B-30	09/06	Hauling at B-13. Observation and Setting nets at B-17
17/05	Hauling at B-30. Observation and Setting nets at B-35	10/06	Hauling at B-17. Observation and Setting nets at B-15
18/05	Hauling at B-35. Observation and Setting nets at B-34	11/06	Hauling at B-15. Observation and Setting nets at B-12
19/05	Hauling at B-34. Observation and Setting nets at B-29	12/06	Hauling at B-12. Observation and Setting nets at B-11
20/05	Hauling at B-29. Observation and Setting nets at B-24	13/06	Hauling at B-11. Observation and Setting nets at B-10
21/05	Hauling at B-24. Proceeding to Nha Trang	14/06	Hauling at B-10. Observation and Setting nets at B-09
22/05	Anchorage in Nha Trang for supplying water	15/06	Hauling at B-09. Observation and Setting nets at B-08
23/05	Departure from Nha Trang. Observation and Setting nets at B-19	16/06	Hauling at B-08. Observation and Setting nets at B-06
24/05	Hauling at B-19. Observation and Setting nets at B-23	17/06	Hauling at B-06. Observation and Setting nets at B-05
25/05	Hauling at B-23. Observation and Setting nets at B-28	18/06	Hauling nets at B-05. Anchorage in Thuan An for repair
26/05	Hauling at B-28. Observation and Setting nets at B-33	19/06	Anchorage in Thuan An for repair
27/05	Hauling at B-33. Observation and Setting nets at B-32	20/06	Departure from Thuan An. Observation and Setting nets at B-03
28/05	Hauling at B-32. Observation and Setting nets at B-31	21/06	Hauling nets at B-03. Observation at B-02
29/05	Hauling at B-31. Observation and Setting nets at B-26	22/06	Proceeding to Hai Phong. Anchorage in Cat Ba
30/05	Hauling at B-26 Anchorage in Vung Tau for supply of fueloil and water	23/06	Arriving in Hai Phong. Finishing the Survey cruise
31/05	Anchorage in Vung Tau for supply of fueloil and water	24/06	-----

App. Table 4 The activities of R/V "BIEN DONG" during the 3rd cruise

Data 1996	Activities	Data 1996	Activities
06/09	Departure from Hai Phong	02/10	Supplying fuel oil and water in Vung Tau
07/09	Proceeding to Survey area. Observation and Setting nets at B-02	03/10	Departure from Vung Tau. Observation and Setting nets at B-26
08/09	Hauling at B-02. Observation and Setting nets at B-03	04/10	Hauling at B-26. Observation and Setting nets at B-27
09/09	Hauling at B-03. Observation at B-05.	05/10	Hauling at B-27. Observation and Setting nets at B-28
10/09	Anchorage in Da Nang for refuge	06/10	Hauling at B-28. Observation and Setting nets at B-29
11/09	Departure from Da Nang. Setting nets at B-05	07/10	Hauling at B-29. Observation and Setting nets at B-30
12/09	Hauling at B-05. Anchorage in Quy Nhon for refuge	08/10	Hauling at B-30. Observation and Setting nets at B-35
13/09	Anchorage in Quy Nhon for refuge	09/10	Hauling at B-35. Observation and Setting nets at B-34
14/09	Departure from Quy Nhon. Observation and Setting nets at B-14	10/10	Hauling at B-34. Observation and Setting nets at B-33
15/09	Hauling at B-14. Observation and Setting nets at B-15	11/10	Hauling at B-33. Observation and Setting nets at B-32
16/09	Hauling at B-15. Observation and Setting nets at B-12	12/10	Hauling at B-32. Observation and Setting nets at B-31
17/09	Hauling at B-12. Observation and Setting nets at B-11	13/10	Hauling nets at B-31. Anchorage in Con Son for repair
18/09	Hauling nets at B-11. Observ. at B-13.	14/10	Departure from Con Son. Proceeding to B-23
19/09	Anchorage in Nha Trang for refuge	15/10	Observation and Setting nets at B-23
20/09	Anchorage in Nha Trang for refuge	16/10	Hauling nets at B-23. Anchorage in Bay of Kam Ranh
21/09	Departure from Nha Trang. Observation and Setting nets at B-16	17/10	Departure from Bay of Kam Ranh. Setting nets at B-13
22/09	Hauling at B-16. Observation and Setting nets at B-17	18/10	Hauling nets and Observation at B-13. Setting nets at B-10
23/09	Hauling at B-17. Observation and Setting nets at B-18	19/10	Hauling nets at B-10. Anchorage in Quy Nhon for refuge
24/09	Hauling at B-18. Observation and Setting nets at B-21	20/10	Anchorage in Quy Nhon for refuge
25/09	Hauling at B-21. Observation and Setting nets at B-25	21/10	Anchorage in Quy Nhon for refuge
26/09	Hauling at B-25. Observation and Setting nets at B-24	22/10	Departure from Quy Nhon. Proceeding to B-08
27/09	Hauling at B-24. Observation and Setting nets at B-20	23/10	Observation at B-08, 07. Proceeding to B-04
28/09	Hauling at B-20. Observation and Setting nets at B-19	24/10	Observation at B-04. Finishing the survey
29/09	Hauling at B-19. Observation and Setting nets at B-22	25/10	Proceeding to Hai Phong
30/09	Hauling at B-22. Anchorage in Vung Tau for supply	26/10	Arriving in Hai Phong. Finishing the Survey cruise
01/10	Anchorage in Vung Tau for supply for fuel oil	27/10	-----
01/10	Supplying fuel oil and water in Vung Tau		

App. Table 5 The activities of R/V "BIEN DONG" during the 4th cruise

Date 1997	Activities	Date 1997	Activities
10/05	Departure from Haiphong. Proceeding to survey area	03/06	Hauling nets and observation at B-26. Anchorage in Vung Tau.
11/05	Setting nets at B-02.	04/06	Anchorage in VungTau for suppling fuel and water.
12/05	Hauling nets and observation at B-02. Observation and setting nets at B-03.	05/06	Anchorage in VungTau for suppling fuel and water.
13/05	Hauling nets at B-03. Proceeding to B-05. Observation at B-03.	06/06	Proceeding to B-31. Setting nets at B-31.
14/05	Arrangement of entangled nets. Setting nets at B-05.	07/06	Hauling nets and observation at B-31. Proceeding to B-31. Setting nets at B-32.
15/05	Hauling nets at B-05. Proceeding to B-06. Observation and setting nets at B-06.	08/06	Hauling nets at B-32. Proceeding to B-33. Observation and setting nets at B-28.
16/05	Hauling nets at B-06. Proceeding to B-08. Setting nets and observation at B-08.	09/06	Hauling nets at B-33. Proceeding to B-28. Observation and setting nets at B-28.
17/05	Hauling nets at B-08. Proceeding to B-09. Observation and setting nets at B-09.	10/06	Hauling nets at B-28. Proceeding to B-29. Observation and setting nets at B-29.
18/05	Hauling nets at B-09. Proceeding to B-11. Setting nets and observation at B-11.	11/06	Hauling nets at B-29. Proceeding to B-34. Observation and setting nets at B-34.
19/05	Hauling nets at B-11. Proceeding to NhaTrang for repairing engine.	12/06	Hauling nets at B-34. Proceeding to B-35. Observation and setting nets at B-35.
20/05	Anchorage in NhaTrang for repairing engine.	13/06	Hauling nets at B-35. Proceeding to B-30. Observation and setting nets at B-30.
21/05	Anchorage in NhaTrang for repairing engine.	14/06	Hauling nets at B-30. Proceeding to B-25. Observation and setting nets at B-25.
22/05	Anchorage in NhaTrang for repairing engine.	15/06	Hauling nets at B-25. Proceeding to B-24. Observation and setting nets at B-24.
23/05	Anchorage in NhaTrang for repairing engine.	16/06	Hauling nets at B-24. Proceeding to B-20. Observation and setting nets at B-20.
24/05	Proceeding to B-18. Observation and setting nets at B-18	17/06	Hauling nets at B-20. Proceeding to B-17. Observation and setting nets at B-17.
25/05	Hauling nets at B-18. Proceeding to B-21. Observation and setting nets at B-21.	18/06	Hauling nets at B-17. Observatonn at B-16, B-13 and setting nets at B-13.
26/05	Hauling nets at B-21. Proceeding to B-19.	19/06	Hauling nets at B-13. Proceeding to QuiNhon Anchorage in QuiNhon for suppling water.
27/05	Observation and setting nets at B-19.	20/06	Proceeding to B-14. Obervation and setting nets at B-14.
28/05	Hauling nets at B-19. Anchorage off Phang Rang for reguge from T.D.	21/06	Hauling nets at B-14. Proceeding to B-15. Observation and setting nets at B-15.
29/05	Anchorage off Phang Rang for reguge.	22/06	Hauling nets at B-15. Observation and setting nets at B-12.
30/05	Proceeding to B-22. Setting nets at B-22.	23/06	Hauling nets at B-12. Proceeding to B-10. Observation and setting nets at B-10.
31/05	Hauling nets and observation at B-22. Proceeding to B-23. Setting nets at B-23.	24/06	Hauling nets at B-10. Proceeding to B-07. Observation at B-07. Proceeding to B-04.
01/06	Hauling nets at B-23. Proceeding to B-27. Setting nets at B-27.	25/06	Observation at B-04. Finished all survey. Proceeding to HaiPhong.
02/06	Hauling nets and observation at B-27. Proceeding to B-26. Setting nets at B-26.	26/06	Arriving in Haiphong Finished Sea-borne Survey.

App. Table 6 Wind direction and velocity, and wave height of four cruises

The 1st Survey			The 2nd Survey			The 3rd Survey			The 4th Survey		
Date 1995	Wind (m/s)	Wave (m)	Date 1996	Wind (m/s)	Wave (m)	Date 1996	Wind (m/s)	Wave (m)	Date 1996	Wind (m/s)	Wave (m)
31/10	PORT	—	08/05	PORT	—	06/09	PORT	—	10/05	PORT	—
01/11	NW 12~15	3~4.0	09/05	SE 3~5	0.5~1	07/09	NNE 2~3	0.5	11/05	SSE 10~11	1.5~2
02/11	NW 10~12	2~3.0	10/05	SW 3~4	0.5~1	08/09	NNW 2~3	0.5~1	12/05	SSE 7~8	1~1.5
03/11	NE 10~13	3~4.0	11/05	E 3~4	0.5~1	09/09	W 7~8	1.5~2	13/05	SSE 8~9	1.5~2
04/11	NW 12~15	4~5.0	12/05	NE 4~5	0.5~1	10/09	NE 6~7	1~1.5	14/05	SSE 7~8	1.5~2
05/11	PORT	—	13/05	SSW 3~4	0.5~1	11/09	NE 7~9	1~1.5	15/05	SSE 8~9	1~1.5
06/11	PORT	—	14/05	SSE 5~7	1~1.5	12/09	PORT	—	16/05	SSE 7~8	1~1.5
07/11	NW 12~15	3~4.0	15/05	SW 7~8	2~2.5	13/09	PORT	—	17/05	S 6~7	0.5~1
08/11	NW 10~13	2~3.0	16/05	SW 8~10	2~2.5	14/09	SW 9~12	2~2.5	18/05	SSW 7~8	1~1.5
09/11	PORT	—	17/05	SW 12~13	2.5~3	15/09	SW 8~10	1.5~2	19/05	SSW 7~8	0.5~1
10/11	PORT	—	18/05	SW 8~11	2~2.5	16/09	SSW 7~8	1.5~2	20/05	PORT	—
11/11	NE 10~12	1.5~2	19/05	SW 7~8	2~2.5	17/09	SW 9~12	2~2.5	21/05	PORT	—
12/11	N 10~12	1.5~2	20/05	SW 6~7	1.5~2	18/09	SSW 9~12	1.5~2	22/05	PORT	—
13/11	PORT	—	21/05	SW 3~5	1~1.5	19/09	PORT	—	23/05	PORT	—
14/11	NE 10~12	2~3.0	22/05	PORT	—	20/09	SSW 11~13	2~2.5	24/05	W 7~8	1.5~2
15/11	NE 12~14	2~3.0	23/05	SSW 5~6	0.5~	21/09	SSW 9~10	2~2.5	25/05	W 3~5	1.5~2
16/11	NE 11~12	2~2.5	24/05	SW 7~8	1~1.5	22/09	SSW 9~10	1.5~2	26/05	SW 10~11	2.5~3
17/11	NE 12~14	2.5~3	25/05	SW 6~7	1~1.5	23/09	SSW 6~7	1~1.5	27/05	SW 10~13	2~2.5
18/11	NE 12~15	3~5.0	26/05	SW 5~6	1~1.5	24/09	WNW 6~7	1~1.5	28/05	SW 13~16	2~2.5
19/11	PORT	—	27/05	SW 5~7	1~1.5	25/09	WSW 4~5	0.5	29/05	PORT	—
20/11	PORT	—	28/05	WSW 5~7	1~1.5	26/09	NE 6~7	0.5~1	30/05	WSW 10~12	1.5~2
21/11	PORT	—	29/05	SSW 4~5	0.5	27/09	N 2~3	0.5	31/05	WSW 8~9	1.5~2
22/11	PORT	—	30/05	SW 1~2	0.5	28/09	SW 2~3	1~1.5	01/06	SW 10~11	1~1.5
23/11	PORT	—	31/05	PORT	—	29/09	SW 6~7	1~1.5	02/06	SW 9~10	1~1.5
24/11	PORT	—	01/06	PORT	—	30/09	PORT	—	03/06	SW 9~10	1~1.5
25/11	NE 10~12	2~3.0	02/06	NE 2~3	0.5	01/10	PORT	—	04/06	PORT	—
26/11	N 10~12	2~3.0	03/06	ENE 3~4	0.5~1	02/10	PORT	—	05/06	PORT	—
27/11	NE 12~15	3~4.0	04/06	NE 3~4	0.5~1	03/10	N 3~4	0.5	06/06	SW 7~8	0.5~1
28/11	NW 10~12	2~3.0	05/06	Calm	0.5	04/10	E 5~6	0.5~1	07/06	SSE 5~6	0.5~1
29/11	N 10~12	2~3.0	06/06	SW 2~3	0.5~1	05/10	E 2~3	0.5	08/06	S 2~3	0.5
30/11	PORT	—	07/06	PORT	—	06/10	E 2~3	0.5	09/06	WSW 3~5	0.5
01/12	PORT	—	08/06	NNE 4~5	1~1.5	07/10	NE 4~5	0.5	10/06	WSW 7~8	0.5~1
02/12	PORT	—	09/06	NNE 5~7	1.5~2	08/10	NE 6~8	1~1.5	11/06	WSW 3~5	0.5~1
03/12	PORT	—	10/06	ENE 5~7	1.5~2	09/10	NE 6~7	1~1.5	12/06	SW 2~3	0.5
04/12	NE 13~15	3~4.0	11/06	NE 8~12	1.5~2	10/10	NE 7~8	1~1.5	13/06	SW 2~3	0.5
05/12	NE 14~16	4~5.0	12/06	NE 2~3	0.5~	11/10	E 3~4	0.5	14/06	S 4~5	0.5
06/12	PORT	—	13/06	Calm	0.5	12/10	Calm	0.5	15/06	S 4~5	0.5
07/12	PORT	—	14/06	SE 4~5	0.5~	13/10	ENE 2~3	0.5	16/06	SSE 6~7	0.5~1
08/12	PORT	—	15/06	SSE 8~10	1.5~2	14/10	PORT	—	17/06	S 6~7	1~1.5
09/12	NE 15~17	4~5.0	16/06	S 8~11	2~2.5	15/10	ENE 6~8	1.5~2	18/06	SSE 6~7	1~1.5
10/12	NE 12~13	3~4.0	17/06	SSW 10~12	2.5~3	16/10	N 6~8	2~2.5	19/06	SW 6~7	0.5~1
11/12	NE 13~15	4~5.0	18/06	SSE 8~9	2~2.5	17/10	ENE 7~8	1~1.5	20/06	S 5~6	1~1.5
12/12	PORT	—	19/06	PORT	—	18/10	NE 7~8	1~1.5	21/06	SW 10~11	1.5~2
13/12	PORT	—	20/06	SSE 7~8	1~1.5	19/10	NNE 8~9	2~2.5	22/06	SW 9~11	1.5~2
14/12	NE 10~12	2~3.0	21/06	SE 2~3	0.5~	20/10	PORT	—	23/06	SW 5~6	1.5~2
15/12	NE 5~6	1~2.0	22/06	SE 3~4	0.5~	21/10	PORT	—	24/06	SW 6~7	1~1.5
16/12	N 2~5	1	23/06	PORT	—	22/10	PORT	—	25/06	SW 3~4	0.5
17/12	NW 5~8	1~2.0				23/10	NE 10~13	2~2.5	26/06	PORT	—
18/12	PORT	—				24/10	NE 7~8	1.5~2			
19/12	PORT	—				25/10	NE 9~11	1~1.5			
20/12	NW 12~15	3~4.0				26/10	PORT	—			
21/12	PORT	—									

App. Table 7 Summary of zooplankton in the whole survey period. (1)

Unit: Number of individual/m³

Station Survey	B-01				B-02				B-03				B-04			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	3820				3780	320	784	3760	1548	2280	3640	4460	1420	812	4500	1960
2 Cladocera						32	80			220	180	10	40	14	40	100
3 Ostracoda						16	16	20		220		20	60	42	220	180
4 Amphipoda					20		80	20			160	20	40		20	40
5 Lucifer					120	32	16	20	12	60	60	30	160	42	320	180
6 Euphausiacea												10				
7 Chaetognatha					340	16	272	100	240	320	400	250	120	140	580	360
8 Polycheata					20		60			20	20	20	40			20
9 Pteropoda					40		20		24	60		10			40	
10 Tunicata					740		60	16	24	100	80	60	120	14	60	120
11 Echinodermata					20		80	60		400		20			20	220
12 Bivalvia																
13 Mollusca																
14 Gastropoda							16									40
15 Brachyura																
16 Oplioroidea																
17 Limacina (Pteropoda)																
18 Heteropoda																
19 Decapoda																
20 Asteroidea																
21 shrimp larva					420		240	16	48	96	60	50	200	42	200	120
22 fish larva					40							10	3	3	40	
23 fish egg								40								20
24 crustacea egg																
25 squid egg																
26 squid larva																
27 Sepia																
28 Loligo																
29 Cavelina																
総計	7100	0	0	0	4620	464	1328	4200	1944	3680	4600	4970	2203	1106	6043	3360

App. Table 8 Summary of zooplankton in the whole survey period. (2)

Unit: Number of individual/m³

Station	B-05				B-06				B-07				B-08			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	3060	5032	1800	5400	2080	1580		3260					1716	5120	2300	3640
2 Cladocera		544				40								80		
3 Ostracoda	240	1938	40	440	64	340		60		448	60		12	240	280	140
4 Amphipoda			100	80	16		20			16	40			40	20	20
5 Lucifer	20	272		320	16	20				48	80			140	120	40
6 Euphausiacea																80
7 Chaetognatha	420	748	300	840	384	120		400		224	200		324	280	240	660
8 Polycheata		136	5	40	16	20		20		16	20		36	80	3	
9 Pteropoda	60	68	20	80	16			20		16	40		12		20	60
10 Tunicata	180	544	240	240	128	40		20		48	200		48	60	60	200
11 Echinodermata		204	480	80		40				32	40			40		60
12 Bivalvia	60												12			
13 Mollusca				60												20
14 Gastropoda			6							16						
15 Brachyura			20													
16 Ophiuroidea																
17 Limacina(Pteropoda)																
18 Heteropoda				40												
19 Decapoda																
20 Asteroidea																
21 shrimp larva	140	204	80	160	48	60		40					36	200	20	20
22 fish larva			2							48						40
23 fish egg								2								20
24 crustacea egg																
25 squid egg																
26 squid larva				20												
27 Sepia			20													
28 Loligo																
29 Cavolina																
総計	4180	9690	3113	7800	2768	2260	0	3842	0	0	3104	3200	2196	6280	3063	5080

App. Table 9 Summary of zooplankton in the whole survey period. (3)

Unit: Number of individual/m³

Station	B-09				B-10				B-11				B-12			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	2848	2160		3140	1696	5240	4020	3380	6380	1960	4140	2840		2460	1760	1660
2 Cladocera	16	40				20	90	40			40	20		100	40	90
3 Ostracoda	176	220		130	32	180	360	40	40		60	100		560	140	40
4 Amphipoda	32			20		150	18		20			20		20	20	10
5 Lucifer	16	20		10		20	120	20		80		40		40	40	30
6 Euphausiacea								8			120	40				
7 Chaetognatha	416	220		240	80	660	630	300	500	180	240	180		220	500	200
8 Polychaeta	16	40		20		40	90	20	60	20	40	20		20	20	10
9 Pteropoda				40					20	20	60	20		20	20	20
10 Tunicata	80	140		350	16	120	450	160	460	40	120	180		40	140	
11 Echinodermata				20		40	420			40	40				60	10
12 Bivalvia															20	
13 Mollusca									20			20				10
14 Gastropoda																
15 Brachyura																
16 Ophiuroidea																
17 Limacina(Pteropoda)																
18 Heteropoda																
19 Decapoda												20				10
20 Asteroidea																
21 shrimp larva	192	60		60	32	140	60	20	120		20	60		40	80	10
22 fish larva				2		20		3			60	20			4	
23 fish egg				40		20		20			100	20				20
24 crustacea egg					320	20										
25 squid egg														20		
26 squid larva																
27 Sepia																
28 Loligo							30								2	
29 Cavellina																
総計	3792	2900	0	4072	2176	6520	6420	4029	7620	2340	5040	3600	0	3480	2826	2120

App. Table 10 Summary of zooplankton in the whole survey period. (4)

Unit: Number of individual/m³

Station Survey	B-13				B-14				B-15				B-16			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	1176	4020	2432	2940	4160	2700	1770		1504	1840	2620		4512	1640	3520	1530
2 Cladocera		40		50	40		50			32	10		16			10
3 Ostracoda	252	200	112	30	260	100	30		288	240	20		112	20	100	20
4 Amphipoda	12	20	48	10	40	20	20		32	10	32		32	20	40	20
5 Lucifer	48		16	20	20	10			48	16	20		80		40	
6 Euphausiacea		13		10							10					10
7 Chaetognatha	156	340	432	610	220	260	250		16	336	280		176	80	640	250
8 Polychaeta	12	120	48	20	20	20	40		16	32	10				40	
9 Pteropoda	24			10	20	20	20		32	32	20					10
10 Tunicata	48	80	210		160	100	50		16	112	90		144	60	80	30
11 Echinodermata					240					80	20				100	30
12 Bivalvia	12		32								10					20
13 Mollusca					40					7						
14 Gastropoda																
15 Brachyura																100
16 Oploroidea																
17 Limacina(Pteropoda)																
18 Heteropoda																
19 Decapoda																
20 Asteroidea																
21 shrimp larva	180	180	32	70	60	120	40		48	48	20		128	20	20	20
22 fish larva				7						4	10					
23 fish egg	12		2	30		20	20		32							10
24 crustacea egg																
25 squid egg																
26 squid larva																
27 Sepia																20
28 Loligo						2				2						
29 Cavelina						2										
総計	1932	4933	3234	4017	0	4920	3684	2300	0	2000	2811	3150	5200	1840	4700	1960

App. Table 11 Summary of zooplankton in the whole survey period. (5)

Unit: Number of individual/m³

Station Survey	B-17				B-18				B-19				B-20			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	1744	4880	8100	2272	2540	6360	4700	1848	1460	5640	1350					
2 Cladocera	48				20	20	20									
3 Ostracoda	96	80	60	208	200	140	40	84	280	20	20		112	50	20	
4 Amphipoda	32	40	20		20	20	20	12	20	20	20			25		
5 Lucifer	32	100	100		80	40	20	132	440	10				525		
6 Euphausiacea				4												
7 Chaetognatha	64	320	760	304	100	260	280	72	140	600	120		28	825	260	
8 Polycheata		80	40			40	20	12			10			50	60	
9 Pteropoda	16	20	20		40	4					20			50		
10 Tunicata	48	300	440	112	80	40	140	24	120	100	20		28	50	200	
11 Echinodermata					20	60	30							150	120	
12 Bivalvia										20				75		
13 Mollusca				32							40					
14 Gastropoda																
15 Brachyura						40										
16 Oploroidea			20													
17 Limacina(Pteropoda)																
18 Heteropoda																
19 Decapoda				20												
20 Asteroidea																
21 shrimp larva	32	40	60	80	20	120	80	84	200	40	40		14	175	20	
22 fish larva			5		5				20		20			25	3	
23 fish egg						3								75		
24 crustacea egg								588								
25 squid egg																
26 squid larva													14			
27 Sepia															25	
28 Loligo																
29 Cavellina																
総計	0	2112	5860	9645	3008	3069	7107	5380	2856	1820	7360	1680	0	1456	10650	5443

App. Table 12 Summary of zooplankton in the whole survey period. (6)

Unit: Number of individual/m³

Station Survey	B-21				B-22				B-23				B-24			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	1384	1320	1648	2720	640	350	3328	3700	2768	840	3840	2660	1440	25	1120	1230
2 Cladocera	16	20	48	20		10						10	144	1	16	20
3 Ostracoda	112	240	512	40	40	50	16	20	32	60	220	50		2	384	120
4 Amphipoda	8	20	32	20		10			16		60	11				10
5 Lucifer	16		32	20	10		128	240	80		20	14	16		32	
6 Euphausiacea									16			40				
7 Chaetognatha	104	14	128	140	20	20	228	360	224	36	620	410	224	1	208	300
8 Polychaeta	24	20	16	20		10		20	96		40		16		48	
9 Pteropoda			32		10	10	32		16		20	40	32		6	20
10 Tunicata	64	80	32	120	20	10	32	20	32	48	220	90	64			50
11 Echinodermata				20			48	40		12		30			32	400
12 Bivalvia																
13 Mollusca																
14 Gastropoda										20	20	1				
15 Brachyura																
16 Oploroidea							32									
17 Limacina(Pteropoda)								20				20				
18 Heteropoda																10
19 Decapoda																
20 Asteroidea																
21 shrimp larva	32		32	40	20	20	64	160	112	12	100	130	96		16	20
22 fish larva				3				3			5	4				5
23 fish egg								28				6	11			20
24 crustacea egg					50				400							
25 squid egg									16							
26 squid larva				2												
27 Sepia																
28 Loligo																
29 Cavellina																
総計	1760	1714	2512	3165	810	490	3908	4611	3808	1040	5165	3516	2059	29	1862	2205

App. Table 13 Summary of zooplankton in the whole survey period. (7)
Unit: Number of individual/m³

Station Survey	B-25				B-26				B-27				B-28			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	680	2840	1920	2640	2532	90	1560	448	924	180	2360	3280	1632	826	3640	1700
2 Cladocera	20		40					8						14		
3 Ostracoda	30	140	240	40	144		20	16	36		40	180	24	70	80	10
4 Amphipoda	40	40	16	20	24	10			12				12		32	10
5 Lucifer	20				144	10	160	8	36		340		12		128	
6 Euphausiacea			16					160							20	
7 Chaetognatha	60	180	304	560	204	80	340	96	108	12	480		132	14	288	260
8 Polycheata	20	40	96	20			20		12		20		24		16	10
9 Pteropoda	10		16	40			20	4	12		40	20	12		16	20
10 Tunicata	50	60	64	80	60	10	80	24	36	12	60	20	36	14	32	100
11 Echinodermata				160			90	820	72	48	1260	80		14		
12 Bivalvia							20									
13 Mollusca				20	12											
14 Gastropoda								8							32	10
15 Brachyura																
16 Oplioroidea																
17 Limacina(Pteropoda)																
18 Heteropoda							40					20				
19 Decapoda																
20 Asteroidea																
21 shrimp larva	40	40	16	20	228	10	220	48	72	100	40	72	72	64	10	
22 fish larva		20		20						12	2			5		
23 fish egg								2			20					
24 crustacea egg	60															
25 squid egg																
26 squid larva																
27 Sepia																
28 Loligo																
29 Cavellina																
総計	950	3400	2688	3700	3348	320	3260	726	1224	288	4720	3810	1956	952	4353	2130

App. Table 14 Summary of zooplankton in the whole survey period. (8)

Unit: Number of individual/m³

Station Survey	B-29				B-30				B-31				B-32			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1	804	420	1456	750	1008	1572	1344	1510	2436	270	1880	580				
2	14				12			10			20				14	30
3	72	28	154	10	252		72	20	24		180			100		20
4	24			8			24	10			40	10		20	14	6
5			14		24		12	10	72		160			80	56	10
6														20		
7	84	14	322	60	120	36	96	180	72	60	280	40		140	224	180
8	14	14	14	10	12	12	10	10	24		80	30		20	14	10
9	12			10		12	24	10			40	10			14	10
10	36		112	30	36	12	36	20	48	30	120	20		260	28	70
11			56					50		70	220			60	224	150
12	12											10				
13																
14			14				24								28	
15																
16																
17																
18																
19																
20																
21	24	5	28		60	12	12	40	84	20	80	50		60	98	10
22										10		10				
23			14	6								10			14	10
24																
25																
26																
27																
28																
29																
	1068	495	2184	884	1524	1656	1644	1870	2760	460	3100	770		0	2180	3136
	総計															

App. Table 15 Summary of zooplankton in the whole survey period. (9)

Unit: Number of individual/m³

Station Survey	B-33				B-34				B-35			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Copepoda	528	516	1140	740	1246	1560	1792	1120			1988	1330
2 Cladocera											28	
3 Ostracoda	12	12	60	20	140	40	32	20			196	10
4 Amphipoda	24		30	10	14						28	10
5 Lucifer			10		14		48	10			56	10
6 Euphausiacea			10			8						
7 Chaetognatha	60	36	150	70	98	120	304	60			238	180
8 Polycheata			10	10		9	10	10				10
9 Pteropoda				10				10				
10 Tunicata	24		50	40	28	40	48	50			84	80
11 Echinodermata			10	20		20	16				112	
12 Bivalvia												
13 Mollusca					28			20				
14 Gastropoda			20								28	
15 Brachyura												
16 Oploroidea							16	10				
17 Limacina(Pteropoda)												
18 Heteropoda												
19 Decapoda												
20 Asteroidea												
21 shrimp larva	24	12	10	10	14	20	48	10			56	10
22 fish larva			3	10		7	3				2	
23 fish egg			9									
24 crustacea egg												
25 squid egg												
26 squid larva												
27 Sepia												
28 Loligo												
29 Cavelina												
総計	672	576	1512	940	1582	1824	2307	1320	0	0	2816	1640

App. Table 16 Summary of phytoplankton in the whole survey period. (1)

Unit: Number of individual/m³

Station Survey	B-01				B-02				B-03				B-04				B-05				B-06				B-07			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Bacillariaceae																												
1	Actinocyclus																											
2	Bacteriasterum																											
3	Biddulphia	4	17	4	23	4	8	92	22																			
4	Campylodiscus																											
5	Ceratulina																											
6	Chaetoceros	296	241	74	27	18	51	28	67																			
7	Climacodium		25	8			37	22	17																			
8	Climacospheria	96																										
9	Conothron																											
10	Coscinodiscus	14	8	6	30	6	60	100	26																			
11	Cyclotella																											
12	Daetykokolen		2		13																							
13	Diatoma																											
14	Ditylum		3	2	1		6	3	1																			
15	Eucampia																											
16	Grossienella																											
17	Guinardia																											
18	Hemiaulus																											
19	Hemidiscus	1	3	1			11	80	58																			
20	Laudena		17																									
21	Leptocylindrus																											
22	Navicula																											
23	Nitzschia	2	5	9			25	25	6																			
24	Planktoniella																											
25	Plaucoema																											
26	Rhizolenia	29	55	34	108	12	44	38	143																			
27	Schroederella																											
28	Stelatonema																											
29	Stephanopyxis		31	6																								
30	Stigmaphora																											
31	Streptotheca	2	5		3		31	5	43																			
32	Thalassonema		7	119			8	22																				
33	Thalassira	7	37	305	208																							
34	Thalassiothrix	2		16	106	13	49	33	22																			
35	Trochysis																											
36	Troeratum																											
Dinoflagellata																												
37	Amphisolenia																											
38	Ceratium	16																										
39	Ceratocorye																											
40	Cleodopyxis																											
41	Dinophysis																											
42	Omnithoderous																											
43	Pardinium	1																										
44	Phaeosphaera																											
45	Pyrocystis	6																										
46	Tropocolania																											
Total amount of Bacillariaceae																												
482 0 0 0 483 610 527 60 356 739 966 0 3345 317 842 685 590 994 216 402 114 238 0 573 0 0 383 625																												
Total amount of Dinoflagellata																												
23 0 0 0 0 7 18 28 24 27 34 0 35 20 15 25 74 20 16 25 29 33 0 17 0 0 71 24																												
Total amount of Phytoplankton																												
505 0 0 0 0 463 617 545 88 380 766 1000 0 3380 397 857 710 664 1014 232 427 143 271 0 595 0 0 454 649																												

App. Table 17 Summary of phytoplankton in the whole survey period. (2)

Unit: Number of individual/m³

Station Survey	B-08				B-09				B-10				B-11				B-12				B-13				B-14				
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Bacillariacea																													
1	2			2				3							2				2						4	2	2	2	
2	4				15	18	7		3	11	60								4					4	4	15	73	23	
3	3	11		8	13		11		2	14	24	5							8	22	1			17	8	5	4	6	
4 <i>Campylodiscus</i>																													
5	118																												
6	22	99	5	15	86	14	127	57	49	54	28	224	62					57	3	28			68	98	242	208	16	91	
7	Chetoceros			17			61	23	27			22	24					16					62	5	22	49			
8	Climateosphenia			48								60																	
9	Corethron																												
10	Coscinodiscus	4	6	4	5	3	1	9	2	6	3	2	2	4				2	1				56	4			2	1	
11	Cyclotella											2	3										3						
12	Dactyliosolen				3							4							4	2			14				2	24	28
13	Diatoma																												
14	Ditylum																												
15	Ecumphia																												
16	Grossiellia	2	3		3		1				2	6	4	2	3								8				1	8	4
17	Guinardia																												
18	Hemiatlure	5	12		2		12	12	7		10							1	8				58	5			12	9	
19	Hemidiscus																												
20	Lauderia																												
21	Leptocylindrus																												
22	Navicula																												
23	Nitzschia	5			12			28	18	16		11	9					22					44				2	2	
24	Planktoniella	1	3	3	6	3	29	11		5	10	2	13	7	7			17	4	11			15	18	31	32	4	6	
25	Pleurosigma	2			7																								
26	Rhizosolenia	54	84	116	22	20	45	36	81	112	37	13	11	43	47	59		25	42	54			56	78		52	9	115	
27	Schroederella																												
28	Skeletonema																												
29	Stephanopyxis	10																											
30	Stigmaphora																												
31	Streptotheca																												
32	Thalassionema	7																											
33	Thalassocera	5																											
34	Thalassothrix	12	37	28	20	23	64	2	89	40	92	48	298	195	22	57		113	22	2			216	46	160	576	6	24	
35	Trachionis																												
36	Triceratium																												
Dinoflagellata																													
37	Amphioxys	1	4	9	8	13		13	2	30	2	17	3	1	5			3	1	14			4	11	2	4	1	12	
38	Ceratium	16	14	22	19	6	22	32	34	33	12	58	8	31	14	22		7	12	18			23	52	11	11	4	16	
39	Ceratocorys	2	2																										
40	Claodopyxis																												
41	Dinophysis	2																											
42	Ornithodanscus	1																											
43	Perridinum	2																											
44	Phaeophucus	9	12	4	5	14		34	9	14	7	8	1	11	3	6		7	12	33			12	2	6	3	20	10	
45	Pyrocystis																												
46	Triposolenia																												
Total amount of Bacillariacea																													
206 217 339 101 92 287 0 151 354 313 274 226 384 735 142 330 0 289 136 102 0 796 268 508 0 1036 35 315																													
Total amount of Dinoflagellata																													
27 20 49 33 12 51 0 82 51 88 23 90 11 49 19 38 0 20 25 66 0 51 67 24 0 22 30 46																													
Total amount of Phytoplankton																													
233 237 388 134 104 338 0 233 405 401 297 316 395 784 161 368 0 309 161 168 0 847 335 532 0 1058 65 361																													

App. Table 19 Summary of phytoplankton in the whole survey period. (4)

Station Survey	B-22				B-23				B-24				B-25				B-26				B-27				B-28				
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Bacillariaceae																													
1 Actinocyclus																													
2 Bacillariastrum	12	153	47					36			21																		
3 Biddulphia	10	326	4			5	13	82	3	1	14	5																	
4 Campylodiscus																													
5 Ceratullina	25	175	5	232		102	84	16	180	11	13	27	28																
6 Chaetoceros	7	210	33	27	53	8					180	56	18																
7 Climacodium																													
8 Cimicosphenia																													
9 Corethron	119	1	8			7	41	36			5	17	3																
10 Coscinodiscus																													
11 Cyclotella	4	17	10					2			3																		
12 Dactylosolen																													
13 Datona	7	1	4																										
14 Ditylum																													
15 Eucampia	2																												
16 Gossamerella																													
17 Guillardia	16	128	14					21			1	17	2																
18 Hamulus																													
19 Hemidiscus																													
20 Laudona																													
21 Leptocylindrus																													
22 Navicula																													
23 Nitzschia	2	6	10					6			5																		
24 Planktonella	2																												
25 Pleurosigma	5	67	76	100				8	41	17	285																		
26 Rhizosolenia																													
27 Sphaerella																													
28 Sphaerostoma																													
29 Stephanopyxis																													
30 Stigmaphora																													
31 Streptothoea	9	16	57	12				27																					
32 Thalassionema																													
33 Thalassioira	11	97	183	68				23	24		139																		
34 Thalassiothrix																													
35 Trachys																													
36 Trocerarium																													
Dinoflagellata																													
37 Amphioxenia	1	2						3	12	1	1	3	6	1															
38 Ceratium	16	6	4	11				13		18	6	26	29	26	11														
39 Ceratocorys																													
40 Cladopyxis																													
41 Dinophysis																													
42 Ornithodorus																													
43 Peridinium																													
44 Protophaea																													
45 Pyrocystis																													
46 Tripodionia																													
Total amount of Bacillariaceae	205	558	1122	601	174	353	190	687	24	333	351	498	52	403	396	224	852	391	764	501	768	832	881	388	79	405	502	51	
Total amount of Dinoflagellata	23	11	7	18	29	22	19	10	33	50	76	29	34	42	149	14	44	10	1	2	18	11	7	23	14	58	19	36	
Total amount of Phytoplankton	228	569	1129	619	203	375	209	697	57	383	426	525	86	445	545	238	896	401	765	503	786	843	888	411	93	463	521	87	

App. Table 20 Summary of phytoplankton in the whole survey period. (5)

Unit: Number of individual/m³

Station Survey	B-29			B-30			B-31			B-32			B-33			B-34			B-35						
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Bacillariacea																									
1 Actinocyclus	1				3																				
2 Bacterastrum	27				17	27	42	6	85	62	421														
3 Biddulphia	4	20	21	1	21	18	5	5	5	2	39														
4 Campyloides																									
5 Cerataulina	21	172	22	5	26	46	47	14	272	368	797	172													
6 Chastoceros	31	99			11			5	34	3	17	38													
7 Climacodinium					20																				
8 Climacospheria																									
9 Corethron	3	15	3		8	29			58	2	21	13													
10 Coscinodiscus																									
11 Cyclotella	41				7	12		4																	
12 Dactyliosolen																									
13 Diatoma	3								13																
14 Ditylum																									
15 Euaempha	4	4			3																				
16 Grossicella																									
17 Guillardia	36	4			4	6		4	21	16	172	16													
18 Hemialve					2				1																
19 Hemidiscus									12																
20 Leuderia																									
21 Leptocylindrus																									
22 Navicula	15	2			15																				
23 Nitzschia	5	8	5		5	11	8	1																	
24 Planktonella																									
25 Pleurosira	14	47	61	494	26	95	137	351	121	130	461	153													
26 Rhizosolenia																									
27 Schroederella																									
28 Skeletonema																									
29 Stephanopyxis									21																
30 Stigmaphora																									
31 Streptothoe																									
32 Thalassionema	2								34																
33 Thalassiosira									12	7	31														
34 Thalassiothrix	49	137	13	3	6	68	11	12	72		173	14													
35 Trachyois											9														
36 Tricardium									5																
Dinoflagellata																									
37 Amphioxenia	1	3	1	5	8	5	4	2	2	2															
38 Ceratium	59	42	26	11	31	19	43	13	19	18	21	24													
39 Ceratocorys											3														
40 Cladopyxis					1																				
41 Dinophysis																									
42 Ornithodermus	1				1																				
43 Peridinium																									
44 Phaeoacis	3	2									1														
45 Pyrocystis	31	13	7	3	15	6	23	1																	
46 Tiniosolenia																									
Total amount of Bacillariacea	128	624	137	504	132	331	292	407	781	607	2357	455													
Total amount of Dinoflagellata	91	61	39	20	47	35	73	21	21	19	26	26													
Total amount of Phytoplankton	219	685	176	524	179	366	365	428	802	626	2383	481													

App. Table 21 Total number of zooplankton in the whole survey period (Unit: Number of individual/m³)

Survey	Total			
	1st	2nd	3rd	4th
1 Copepoda	54462	52401	90150	85278
2 Cladocera	244	1217	600	838
3 Ostracoda	2246	5434	4592	1906
4 Amphipoda	478	212	1081	533
5 Lucifer	1289	816	2997	1232
6 Euphausiacea	72	45	166	288
7 Chaetognatha	6193	4375	11029	8716
8 Polycheata	432	569	875	600
9 Pteropoda	296	310	522	564
10 Tunicata	2670	2142	3074	3344
11 Echinodermata	20	1098	4520	1732
12 Bivalvia	72	0	167	10
13 Mollusca	104	0	0	180
14 Gastropoda	0	20	331	19
15 Brachyura	0	0	60	0
16 Ophiroidea	0	0	132	30
17 Limacina (Pteropoda)	0	0	16	0
18 Heteropoda	0	0	0	100
19 Decapoda	0	0	0	100
20 Asteroidea	0	0	0	20
21 shrimp larva	2838	1147	2247	1488
22 fish larva	43	106	164	177
23 fish egg	23	68	277	344
24 crustacea egg	1418	20	0	0
25 squid egg	16	20	0	0
26 squid larva	0	14	0	22
27 Sepia	0	0	45	0
28 Loligo	0	0	54	0
29 Cavellina	0	0	2	0
Total	72520	70014	123047	107581

App. Table 22 Total number of zooplankton in the whole survey period (Unit: Number of individual/m³)

	Total			
	1st	2nd	3rd	4th
Bacillariacea				
1 Actinopterygus	6	15	12	21
2 Bacterasterium	1597	717	2099	518
3 Biddulphia	267	359	886	137
4 Campyrodiscus	0	0	0	1
5 Cerataulina	17	0	19	0
6 Chamaeceros	3980	3056	3813	3163
7 Climacodinium	284	1257	481	573
8 Climacospheria	133	104	0	1
9 Corethron	11	0	1	1
10 Coccinodiscus	988	555	269	80
11 Cyclotella	0	18	16	3
12 Dactylosolen	71	175	210	290
13 Diatoma	0	3	0	0
14 Dietylum	112	46	219	29
15 Eucampia	8	57	52	6
16 Groeslenella	30	66	13	47
17 Guinardia	0	63	37	9
18 Hemidius	265	1191	800	234
19 Hemidiscus	28	16	37	33
20 Leudera	89	12	40	44
21 Leptocylindrus	0	10	36	70
22 Navicula	3	2	3	17
23 Nitrochla	152	345	314	53
24 Planktoniella	41	396	120	138
25 Pleurossima	15	5	14	4
26 Rhizosolenia	926	1846	3007	3790
27 Schroederella	0	0	0	7
28 Skeletonema	0	0	0	32
29 Stephanopyxis	325	139	123	68
30 Stigmophora	0	10	0	10
31 Streptotheca	106	165	158	123
32 Thalassionema	137	417	426	142
33 Thalassiosira	217	1302	862	418
34 Thalassiothrix	927	2508	3215	1955
35 Trachycis	25	56	6	6
36 Triceratium	15	0	1	0
Dinoflagellata				
37 Amphioxenia	44	164	78	172
38 Ceratium	617	686	607	551
39 Ceratocorys	16	27	7	29
40 Cladopyxis	4	0	4	5
41 Dinophysis	0	5	5	0
42 Omnithodenus	7	29	27	14
43 Pendiium	41	27	23	18
44 Phropheus	0	37	31	7
45 Pyrocystis	187	186	269	270
46 Triposolenia	19	4	10	33
Total amount of Bacillariacea	10795	14911	17289	12082
Total amount of Dinoflagellata	935	1065	1061	1099
Total	11730	15976	18350	13181

App. Table 23. Total number and weight of each species caught in 1996 ~1997-(1).

	species	No.	Wt.(kg)
1	<i>Stegostoma fasciatum</i>	1	3.4
2	<i>Pseudocarcharias kamoharai</i>	4	13.9
3	<i>Galeocerdo cuvier</i>	1	23
4	<i>Prionace glauca</i>	2	73
5	<i>Carcharhinus sorrah</i>	2	9.6
6	<i>Carcharhinus brevipinna</i>	2	32.8
7	<i>Carcharhinus falciformis</i>	15	52.83
8	<i>Sphyrna lewini</i>	1	45
9	<i>Isistius brasiliensis</i>	5	1.67
10	<i>Manta birostris</i>	2	628
11	<i>Mobula japonica</i>	14	1189
12	<i>Chirocentrus dorab</i>	6	4.68
13	<i>Saurida sp.</i>	3	0.88
14	<i>Diaphus gigas</i>	1	0.02
15	<i>Diaphus watasei</i>	1	0.01
16	<i>Exocoetus volitans</i>	1	0.15
17	<i>Cypselurus sp.</i>	9	1.25
18	<i>Cypselurus atrisignis</i>	5	0.95
19	<i>Cypselurus poecilopterus</i>	5	0.65
20	<i>Cypselurus cyanopterus</i>	8	1.91
21	<i>Cypselurus spilonotopterus</i>	10	2.4
22	<i>Cypselurus unicolor</i>	2	0.49
23	<i>Cypselurus longibarbus</i>	1	0.2
24	<i>Cypselurus naresii</i>	2	0.24
25	<i>Ablennes hians</i>	14	7.59
26	<i>Tylosurus acus melanotus</i>	1	2.64
27	<i>Paraexocoetus sp.</i>	1	0.06
28	<i>Terapon jarbua</i>	1	0.5
29	<i>Priacanthus macracanthus</i>	46	5.6
30	<i>Rachycentron canadum</i>	4	14
31	<i>Parastromateus niger</i>	3	5.6
32	<i>Elagatis bipinnulata</i>	2	0.55
33	<i>Naucrates ductor</i>	14	3.75
34	<i>Seriolina nigrofasciata</i>	15	11.55
35	<i>Scomberoides commersonianus</i>	15	3.79
36	<i>Seriola rivoliana</i>	23	11.85
37	<i>Scomberoides lysan</i>	4	6.35
38	<i>Scomberoides tol</i>	12	3.5
39	<i>Trachinotus baillonii</i>	2	0.85
40	<i>Megalaspis cordyla</i>	5	1.64
41	<i>Decapterus russelli</i>	4	0.23
42	<i>Decapterus macrosoma</i>	10	0.98

App. Table 24. Total number and weight of each species caught in 1996 -1997.-(2)

43	<i>Decapterus maruadsi</i>	5	1
44	<i>Decapterus akaadsi</i>	8	1.09
45	<i>Selar crumenophthalmus</i>	26	4.38
46	<i>Atule mate</i>	7	0.14
47	<i>Alectis ciliaris</i>	1	0.44
48	<i>Uraspis helvola</i>	4	1.1
49	<i>Carangoides ferdau</i>	1	0.1
50	<i>Carangoides orthogrammus</i>	41	7.69
51	<i>Coryphaena hippurus</i>	632	720.94
52	<i>Coryphaena equiselis</i>	109	48.13
53	<i>Mene maculata</i>	9	0.9
54	<i>Brama orcini</i>	676	212.34
55	<i>Lobotes surinamensis</i>	132	365.45
56	<i>Kyphosus vaigiensis</i>	3	0.6
57	<i>Pseudocallurichthys sp.</i>	1	0.1
58	<i>Naso brevirostris</i>	1	0.35
59	<i>Lepidocyblum flavobrunneum</i>	3	13.7
60	<i>Ruvettus pretiosus</i>	8	1.58
61	<i>Gemphus serpens</i>	16	10.55
62	<i>Promethichthys promerheus</i>	1	0.01
63	<i>Rastrelliger kanagurta</i>	11	1.4
64	<i>Scomber australasicus</i>	26	4.61
65	<i>Auxis thazard</i>	658	621.86
66	<i>Auxis rochei</i>	838	239.25
67	<i>Sarda orientalis</i>	4	2.25
68	<i>Euthynnus affinis</i>	62	63.66
69	<i>Katsuwonus pelamis</i>	642	1765.3
70	<i>Thunnus tonggol</i>	111	66.55
71	<i>Thunnus albacares</i>	19	85.35
72	<i>Thunnus obesus</i>	78	40.75
73	<i>Acanthocybium solandri</i>	2	13.2
74	<i>Scomberomorus commerson</i>	1	1.1
75	<i>Istiophorus platypterus</i>	44	506.35
76	<i>Makaira indica</i>	12	351
77	<i>Makaira mazara</i>	16	542.8
78	<i>Tetrapterus audax</i>	3	171
79	<i>Xiphias gladius</i>	1	24
80	<i>Psenes arafurensis</i>	5	1.45
81	<i>Psenes maculatus</i>	3	0.35
82	<i>Psenes cyanophrys</i>	20	3.5
83	<i>Cubiceps squamiceps</i>	34	1.46
84	<i>Cubiceps pauciradiatus</i>	25	1.95
85	<i>Cubiceps baxteri</i>	1	0.45
86	<i>Nomeus gronovii</i>	1	0.45

App. Table 25. Total number and weight of each species caught in 1996 ~1997.-(3)

87	<i>Arlomna indica</i>	5	0.8
88	<i>Remorina albescens</i>	1	0.05
89	<i>Echenais naucrates</i>	12	11.35
90	<i>Remora remora</i>	1	0.3
91	<i>Melichthys vidua</i>	1	0.05
92	<i>Canthidermis maculata</i>	17	4.77
93	<i>Aluterus monoceros</i>	137	31.17
94	<i>Aluterus scriptus</i>	4	2.14
95	<i>Lagocephalus sp.</i>	1	0.3
96	<i>Lagocephalus lagocephalus oceanicus</i>	1	0.3
97	<i>Diodon holocanthus</i>	2	0.05
98	<i>Diodon eydouxii</i>	17	9.14
99	<i>Diodon hystrix</i>	19	13.3
100	<i>Thysanoteuthis rhombus</i>	1	0.75
101	<i>Sthenoteuthis ovalaniensis</i>	383	163.44
102	<i>Tremoctopus violaceus</i>	1	1.3
103	<i>Globicephala macrorhynchus</i>	1	60
104	<i>Stenella coeruleoalba</i>	2	166
105	<i>Stenella longirostris</i>	6	372
106	<i>Stenella attenuata</i>	8	345
107	<i>Lagenodelphis hosei</i>	1	180
108	<i>Chelonia mydas</i>	1	1.5
109	<i>Eretmochelys imbricata</i>	3	5.9
110	<i>Lepidochelys olivacea</i>	1	30
111	<i>Sula leucogaster</i>	1	1.4
	Total:	5183	8306.9

App. Table 26. Total number and weight of each species caught in May - June, 1996 - (1).

	species	No.	Wt.(kg)
1	<i>Galeocerdo cuvier</i>	1	23
2	<i>Prionace glauca</i>	2	73
3	<i>Carcharhinus sorrah</i>	1	4.8
4	<i>Carcharhinus brevipinna</i>	1	0.8
5	<i>Carcharhinus falciformis</i>	4	16.08
6	<i>Isistius brasiliensis</i>	1	0.4
7	<i>Manta birostris</i>	1	178
8	<i>Mobula japonica</i>	7	593
9	<i>Chirocentrus dorab</i>	2	1.28
10	<i>Saurida sp.</i>	1	0.08
11	<i>Exocoetus volitans Linnaeus</i>	1	0.15
12	<i>Cypselurus sp.</i>	2	0.35
13	<i>Cypselurus poecilopterus</i>	1	0.1
14	<i>Cypselurus cyanopterus</i>	5	1.36
15	<i>Cypselurus spilonopterus</i>	1	0.3
16	<i>Cypselurus unicolor</i>	1	0.24
17	<i>Cypselurus longibarbus</i>	1	0.2
18	<i>Ablennes hians</i>	3	0.54
19	<i>Tylosurus acus melanotus</i>	1	2.64
20	<i>Priacanthus macracanthus</i>	12	2.25
21	<i>Rachycentron canadum</i>	1	5
22	<i>Parastromateus niger</i>	1	4.2
23	<i>Naucrates ductor</i>	3	0.75
24	<i>Scomberoides commersonianus</i>	2	0.64
25	<i>Seriola rivoliana</i>	13	6.35
26	<i>Scomberoides lysan</i>	2	3.3
27	<i>Scomberoides tol</i>	9	2.6
28	<i>Megalaspis cordyla</i>	4	1.04
29	<i>Decapterus maruadsi</i>	1	0.3
30	<i>Selar crumenophthalmus</i>	5	1.1
31	<i>Alectis ciliaris</i>	1	0.44
32	<i>Uraspis helvola</i>	1	0.2
33	<i>Carangoides ferdau</i>	1	0.1
34	<i>Carangoides orthogrammus</i>	4	0.65
35	<i>Coryphaena hippurus</i>	179	218.6
36	<i>Coryphaena equiselis</i>	13	6.33

App. Table 27. Total number and weight of each species caught in May - June, 1996.-(2)

37	<i>Brama orcini</i>	122	45.48
38	<i>Lobotes surinamensis</i>	48	83.1
39	<i>Naso brevirostris</i>	1	0.35
40	<i>Lepidocybium flavobrunneum</i>	1	4.8
41	<i>Ruvettus pretiosus</i>	2	0.6
42	<i>Gemphus serpens</i>	1	1
43	<i>Promethichthys promerheus</i>	1	0.01
44	<i>Scomber australasicus</i>	3	0.33
45	<i>Auxis thazard</i>	127	154.01
46	<i>Auxis rochei</i>	189	58.08
47	<i>Sarda orientalis</i>	4	2.25
48	<i>Euthynnus affinis</i>	6	15.24
49	<i>Katsuwonus pelamis</i>	144	518.76
50	<i>Thunnus albacares</i>	1	12.6
51	<i>Thunnus obesus</i>	15	6
52	<i>Acanthocybium solandri</i>	1	4.2
53	<i>Istiophorus platypterus</i>	10	249.5
54	<i>Makaira indica</i>	4	85
55	<i>Makaira mazara</i>	6	365
56	<i>Psenes arafurensis</i>	5	1.45
57	<i>Psenes maculatus</i>	3	0.35
58	<i>Psenes cyanophrys</i>	8	1.43
59	<i>Cubiceps pauciradiatus</i>	3	0.31
60	<i>Cubiceps baxteri</i>	1	0.45
61	<i>Echeneis naucrates</i>	1	1.25
62	<i>Canthidermis maculata</i>	2	0.35
63	<i>Aluterus monoceros</i>	4	1.9
64	<i>Aluterus scriptus</i>	2	1.54
65	<i>Diodon holocanthus</i>	2	0.05
66	<i>Diodon eydouxii</i>	3	1.94
67	<i>Diodon hystrix</i>	1	4
68	<i>Sthenoteuthis oualaniensis</i>	76	36.91
69	<i>Tremoctopus violaceus</i>	1	1.3
70	<i>Stenella coeruleoalba</i>	2	166
71	<i>Stenella attenuata</i>	1	54
72	<i>Lagenodelphis hosei</i>	1	180
73	<i>Eretmochelys imbricata</i>	2	2.4
	Total:	1093	3212.1

App. Table 28. Total number and weight of each species caught in Sept. - Oct., 1996 - (1).

	species	No.	Wt.(kg)
1	<i>Pseudocarcharias kamoharai</i>	4	13.9
2	<i>Carcharhinus sorrah</i>	1	4.8
3	<i>Carcharhinus brevipinna</i>	1	32
4	<i>Carcharhinus falciformis</i>	7	21.9
5	<i>Isistius brasiliensis</i>	2	0.5
6	<i>Manta birostris</i>	1	450
7	<i>Mobula japonica</i>	5	371
8	<i>Chirocentrus dorab</i>	4	3.4
9	<i>Saurida sp.</i>	2	0.8
10	<i>Diaphus gigas</i>	1	0.02
11	<i>Diaphus watasel</i>	1	0.01
12	<i>Cypselurus sp.</i>	1	0.05
13	<i>Cypselurus atrisignis</i>	3	0.45
14	<i>Cypselurus poecilopterus</i>	2	0.2
15	<i>Cypselurus cyanopterus</i>	1	0.15
16	<i>Cypselurus spilonotopterus</i>	6	1.4
17	<i>Ablennes hians</i>	6	3.6
18	<i>Priacanthus macracanthus</i>	5	0.42
19	<i>Elagatis bipinnulata</i>	2	0.55
20	<i>Naucrates ductor</i>	5	1.7
21	<i>Seriolina nigrofasciata</i>	9	6
22	<i>Seriola rivoliana</i>	4	2.5
23	<i>Decapterus macrosoma</i>	7	0.7
24	<i>Decapterus akaadsi</i>	1	0.04
25	<i>Selar crumenophthalmus</i>	11	1.13
26	<i>Atule mate</i>	7	0.14
27	<i>Uraspis helvola</i>	2	0.85
28	<i>Carangoides orthogrammus</i>	13	2.29
29	<i>Coryphaena hippurus</i>	235	294.87
30	<i>Coryphaena equiselis</i>	33	18.15
31	<i>Mene maculata</i>	9	0.9
32	<i>Brama orcini</i>	397	128.68
33	<i>Lobotes surinamensis</i>	56	67.6

App. Table 29. Total number and weight of each species caught in Sept. - Oct., 1996.-(2)

34	<i>Kyphosus vaigiensis</i>	3	0.6
35	<i>Ruvettus pretiosus</i>	6	0.98
36	<i>Gemphius serpens</i>	9	5.8
37	<i>Rastrelliger kanagurta</i>	8	0.65
38	<i>Auxis thazard</i>	242	240.4
39	<i>Auxis rochel</i>	58	14.28
40	<i>Euthynnus affinis</i>	30	31
41	<i>Katsuwonus pelamis</i>	197	537.25
42	<i>Thunnus tonggol</i>	40	36.4
43	<i>Thunnus albacares</i>	11	67.45
44	<i>Thunnus obesus</i>	4	9
45	<i>Acanthocybium solandri</i>	1	9
46	<i>Scomberomorus commerson</i>	1	1.1
47	<i>Istiophorus platypterus</i>	26	130.1
48	<i>Makaira indica</i>	8	266
49	<i>Makaira mazara</i>	10	177.8
50	<i>Psenes cyanophrys</i>	4	0.43
51	<i>Cubiceps squamiceps</i>	34	1.46
52	<i>Remorina albescens</i>	1	0.05
53	<i>Echeneis naucrates</i>	3	2.2
54	<i>Remora remora</i>	1	0.3
55	<i>Melichthys vidua</i>	1	0.05
56	<i>Canthidermis maculata</i>	10	2.3
57	<i>Aluterus monoceros</i>	131	29.04
58	<i>Aluterus scriptus</i>	1	0.2
59	<i>Lagocephalus sp.</i>	1	0.3
60	<i>Lagocephalus lagocephalus oceanicus</i>	1	0.3
61	<i>Diodon eydouxii</i>	7	2.7
62	<i>Sthenoteuthis ovalaniensis</i>	144	56
63	<i>Globicephala macrorhynchus</i>	1	60
64	<i>Stenella attenuata</i>	7	291
65	<i>Lepidochelys olivacea</i>	1	30
	Total:	1846	3434.8

App. Table 30. Total number and weight of each species caught in May - June, 1997 - (1).

	species	No.	Wt.(kg)
1	<i>Stegostoma fasciatum</i>	1	3.4
2	<i>Carcharhinus falciformis</i>	4	14.85
3	<i>Sphyrna lewini</i>	1	45
4	<i>Isistius brasiliensis</i>	2	0.77
5	<i>Mobula japonica</i>	2	225
6	<i>Cypselurus sp.</i>	6	0.85
7	<i>Cypselurus atrisignis</i>	2	0.5
8	<i>Cypselurus poecilopterus</i>	2	0.35
9	<i>Cypselurus cyanopterus</i>	2	0.4
10	<i>Cypselurus sphilopterus</i>	3	0.7
11	<i>Cypselurus unicolor</i>	1	0.25
12	<i>Cypselurus naresii</i>	2	0.24
13	<i>Ablennes hlans</i>	5	3.45
14	<i>Paraexocoetus sp.</i>	1	0.06
15	<i>Terapon jarbua</i>	1	0.5
16	<i>Priacanthus macracanthus</i>	29	2.93
17	<i>Rachycentron canadum</i>	3	9
18	<i>Parastromateus niger</i>	2	1.4
19	<i>Naucrates ductor</i>	6	1.3
20	<i>Seriolina nigrofasciata</i>	6	5.55
21	<i>Scomberoides commersonianus</i>	13	3.15
22	<i>Seriola rivoliana</i>	6	3
23	<i>Scomberoides lysan</i>	2	3.05
24	<i>Scomberoides tol</i>	3	0.9
25	<i>Trachinotus bailloni</i>	2	0.85
26	<i>Megalaspis cordyla</i>	1	0.6
27	<i>Decapterus russelli</i>	4	0.23
28	<i>Decapterus macrosoma</i>	3	0.28
29	<i>Decapterus maruadsi</i>	4	0.7
30	<i>Decapterus akaadsi</i>	7	1.05
31	<i>Selar crumenophthalmus</i>	10	2.15
32	<i>Uraspis helvola</i>	1	0.05
33	<i>Carangoides orthogrammus</i>	24	4.75
34	<i>Coryphaena hippurus</i>	218	207.47

App. Table 31. Total number and weight of each species caught in May -June, 1997.- (2)

35	<i>Coryphaena equiselis</i>	63	23.65
36	<i>Brama orcinl</i>	157	38.18
37	<i>Lobotes surinamensis</i>	28	214.75
38	<i>Pseudocallurichthys sp.</i>	1	0.1
39	<i>Lepidocyblum flavobrunneum</i>	2	8.9
40	<i>Gempylus serpens</i>	6	3.75
41	<i>Rastrelliger kanagurta</i>	3	0.75
42	<i>Scomber australasicus</i>	23	4.28
43	<i>Auxis thazard</i>	289	227.45
44	<i>Auxis rochei</i>	591	166.89
45	<i>Euthynnus affinis</i>	26	17.42
46	<i>Katsuwonus pelamis</i>	301	709.3
47	<i>Thunnus tonggol</i>	71	30.15
48	<i>Thunnus albacares</i>	7	5.3
49	<i>Thunnus obesus</i>	59	25.75
50	<i>Istiophorus platypterus</i>	8	126.75
51	<i>Tetrapterus audax</i>	3	171
52	<i>Xiphias gladius</i>	1	24
53	<i>Psenes cyanophrys</i>	8	1.64
54	<i>Cubiceps pauciradiatus</i>	22	1.64
55	<i>Nomeus gronovii</i>	1	0.45
56	<i>Ariomma indica</i>	5	0.8
57	<i>Echeneis naucrates</i>	8	7.9
58	<i>Canthidermis maculata</i>	5	2.12
59	<i>Aluterus monoceros</i>	2	0.23
60	<i>Aluterus scriptus</i>	1	0.4
61	<i>Diodon eydouxii</i>	7	4.5
62	<i>Diodon hystrix</i>	18	9.3
63	<i>Thysanoteuthis rhombus</i>	1	0.75
64	<i>Sthenoteuthis oualantensis</i>	163	70.53
65	<i>Stenella longirostris</i>	6	372
66	<i>Chelonia mydas</i>	1	1.5
67	<i>Eretmochelys imbricata</i>	1	3.5
68	<i>Sula leucogaster</i>	1	1.4
	Total:	2268	2821.8

App. Table 32. Number of stations where *Coryphaena hippurus* was caught in 2nd ~ 4th cruise.

	1996.5-6	1996.9-10	1997.5-6	total
No. station	32	29	31	32
<i>Coryphaena hippurus</i>	27	29	28	32

App. Table 33. Composition of stomach contents of *Coryphaena hippurus* sampled in Sept.- Oct., 1996.

species	fish	squid	fish & squid	smashed	empty
<i>Coryphaena hippurus</i>		2			3

App. Table 34. Egg size composition of a ovary of *Coryphaena hippurus* sampled in May - June, 1996.

Station	Fork length	Egg size (Diameter:mm)	Weight of gonad(g)	G.S.I
B27	430	D<0.1 0.1-0.2 18.7	0.2-0.3 0.4-0.5 11.3	16.2 9.2 1.6

App. Table 35. Egg size composition of a ovary of *Coryphaena hippurus* sampled in Sept. - Oct., 1996.

Station	Fork length	Egg size (Diameter:mm)	Weight of gonad(g)	G.S.I
B13	625	D<0.1 0.1-0.2 53.6	0.2-0.3 0.4-0.5 16.6	7.9 206.5 10
B33	491	82.3	2.2 7.1	8.4 42.5

App. Table 36. Number of stations where *Brama orcini* was caught in 2nd ~ 4th cruise.

period/area	North Region			Central Region			South Region		
	inshore	continental slope	inshore	continental slope	offshore	inshore	continental slope	offshore	
1996.5-6	0/4	1/2	0/1	2/2	5/9	0/5	0/1	6/8	
1996.9-10	0/3	*	*	2/2	10/10	0/5	3/3	6/6	
1997.5-6	0/5	1/2	*	2/4	5/7	0/5	1/1	4/8	

No. occurrence station/No. station

*: No survey

App. Table 37. Composition of stomach contents of *Brama orcini* sampled in Sept. - Oct., 1996.

species	fish	squid	fish & squid	smashed	empty	note:
<i>Brama orcini</i>	1 ~		2 1*			*1: Sardinella sp.-3, ~1: unidentified species

App. Table 38. Egg size composition of a ovary of *Brama orcini* sampled in Sept. to Oct., 1996.

Station	FL(mm)	Egg size (Diameter:mm)		Wt. of
B23	237	D<0.1	0.1-0.2	gonad
			0.3-0.4	
			8	31.5
			3.5	31.7

App. Table 39. Egg size composition of a ovary of *Brama orcini* sampled in May - June, 1997.

Station	FL(mm)	Egg size (Diameter:mm)		Weight of
B17	349	D<0.2	0.2-0.3	gonad(g)
			0.4-0.7	
			15.1	70.4
B25	339	48.5	34.5	105.6
			2.5	34.8

App. Table 40. Number of stations where *Lobotes surinamensis* was caught in 2nd ~ 4th cruise.

period/area	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1996.5-6	1/4	1/2		1/1	2/2	4/9	2/5	1/1	6/8
1996.9-10	3/3	*		*	1/2	7/10	4/5	3/3	4/6
1997.5-6	0/5	1/2		*	2/4	3/7	2/5	0/1	4/8

No.occurrence station/No.station

*: No survey

App. Table 41. Composition of stomach contents of *Lobotes surinamensis* sampled in May - June, 1997.

<i>Lobotes surinamensis</i>	Fish	Shrimp	acetes sp.	squid	smashed	empty
<i>Lobotes surinamensis</i>	4					

App. Table 42. Egg size composition of a ovary of *Lobotes surinamensis* sampled in May - June, 1997.

Station	FL(mm)	Egg size (Diameter:mm)		Weight of			
		D<0.1	0.1-0.2	D>0.5	gonad(g)	G.S.I.	
B10	448	0	68	8.4	23.6	88	9.8
B12	358	62	7.3	30.7	0	252.4	55

App. Table 43. Number of stations where *Auxis thazard* was caught in 2nd ~ 4th cruise.

period /area	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1996.5-6	3/4	0/2		1/1	1/2	0/9	3/5	1/1	1/8
1996.9-10	3/3	*		*	0/2	1/10	3/5	1/3	1/8
1997.5-6	2/5	0/2		*	1/4	0/7	4/5	1/1	2/8

No.occurrence station/No.station

*: No survey

App. Table 44. Composition of stomach contents of *Auxis thazard* sampled in May - June, 1997.

<i>Auxis thazard</i>	Fish	Shrimp	acetes sp.	squid	smashed	empty
					2	2

App. Table 45. Egg size composition of a ovary of *Auxis thazard* sampled in May - June, 1997.

Station	Fork length	Egg size (Diameter:mm)		Weight of		
		D<0.2	0.2-0.5	D>0.5	gonad(g)	G.S.I
B10	441	56.6	27.5	15.9	164.4	21.9
B10	385	50.6	18.6	30.8	44.4	8.9

App. Table 46. Number of stations where *Auxis rochei* was caught in 2nd ~ 4th cruise.

period/area	North Region			Central Region			South Region		
	inshore	continental slope	inshore	continental slope	inshore	continental slope	inshore	continental slope	offshore
1996.5-6	1/4	2/2	1/1	1/2	1/9	3/5	1/1	3/8	
1996.9-10	1/3	*	*	0/2	2/10	3/5	3/3	3/6	
1997.5-6	4/5	1/2	*	4/4	3/7	5/5	1/1	0/8	

No. of occurrence station/No. station

*: No survey

App. Table 47. Composition of stomach contents of *Auxis rochei* sampled in May - June, 1997.

<i>Auxis rochei</i>	fish	shrimp	acetes sp.	squid	smashed	empty
		5	2	2		

App. Table 48. Egg size composition of a ovary of *Auxis rochei* sampled in May - June, 1997.

Station	Fork length (mm)	Egg size (Diameter:mm)	Weight of gonad(g)	G.S.I
B17	250	D<0.2	17.6	11.8
B17	262	0.2-0.5	9	29.2
B17	265	76	8.8	15.2
B17	266	60.4	30.3	9.3
B17	266	70.4	19.3	10.3
B17	267	74.2	16.9	8.9
B14	267	59.6	28.1	12.3
B14	269	58.6	30.8	10.6

App. Table 49. Number of stations where *Euthynnus affinis* was caught in 2nd ~ 4th cruise.

period/area	North Region			Central Region			South Region		
	inshore	continental slope	inshore	continental slope	inshore	continental slope	inshore	continental slope	offshore
1996.5-6	1/4	0/2	0/1	0/2	0/9	1/5	0/1	0/8	
1996.9-10	1/3	*	*	1/2	2/10	2/5	1/3	1/6	
1997.5-6	1/5	1/2	*	0/4	0/7	5/5	1/1	0/8	

No. of occurrence station/No. station

*: No survey

App. Table 50. Number of stations where *Katsuwonus pelamis* was sampled in 2nd ~ 4th cruise.

period/area	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1996.5-6	1/4	1/2	0/1	2/2	7/9	1/5	1/1	8/8	
1996.9-10	2/3	*		1/2	10/10	2/5	3/3	4/6	
1997.5-6	2/5	1/2	*	4/4	6/7	1/5	1/1	6/8	

No. of occurrence station/No. station

*: No survey

App. Table 51. Egg size composition of an ovary of *Katsuwonus pelamis* sampled in May - June, 1996.

Station	Fork length	Egg size (Diameter:mm)	Wt. of gonad	G.S.I
B15	515	0.1-0.2	17.6	38.8
		0.2-0.3	19.7	
		0.4-0.5	46.5	

App. Table 52. Composition of stomach contents of *Katsuwonus pelamis* sampled in Sept. - Oct., 1996.

Station	Fork length(mm)	squid		fish		Achiave	<i>Rastrelliger kanagurta</i>	<i>Caranx</i> spp.	<i>Pseudopsis anomala</i>	fish (unidentified)	shrimp	empty	note
		shrimp	fish	<i>Deceptrus</i> spp.	<i>Rastrelliger kanagurta</i>								
B11	489		6		1								full stomach
B11	489						2						full stomach
B11	473						1						full stomach
B11	546		5		1								
B11	592												
B11	842												
B11	498		6										
B11	478		1			5							
B11	534						2						
B11	502		7				1						
B11	486		10										
B11	389												
B23	555				4								full stomach
B23	428		10			4							
B23	413		6			5							
B33	576				2				3				full stomach
B33	564								4				full stomach
B33	553		1							4			
B33	554		1								1		
B33	528				1								1:skeltons
Total:			53		9	14	6	7	3	5	1		98

App. Table 53. Composition of stomach contents in *Katsuwonus pelamis* sampled in May - June, 1997.

No. indiv.	fish		shrimp		squid		empty	
	fish	shrimp	shrimp	squid	squid	empty	empty	
	0	1	2	3				

App. Table 54. Number of stations where *Thunnus tonggol* was caught in 2nd ~ 4th cruise.

	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1996.5-6	0/4	0/2	0/9	0/1	0/2	0/9	0/5	0/1	0/8
1996.9-10	0/3	*	0/10	*	0/2	0/10	3/5	0/3	0/6
1997.5-6	0/5	0/2	0/7	*	0/4	0/7	3/5	0/1	0/8

No. of occurrence station/No. station

*: No survey

App. Table 55. Number of station where *Thunnus albacares* was caught in 2nd ~ 4th cruise.

	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1996.5-6	1/4	0/2	0/9	0/1	1/2	0/9	1/5	0/1	1/8
1996.9-10	0/3	*	1/10	*	0/2	1/10	0/5	1/3	2/6
1997.5-6	0/5	0/2	0/7	*	1/4	0/7	0/5	0/1	2/8

No. of occurrence station/No. station

*: No survey

App. Table 56. Composition of stomach contents of *Thunnus albacares* sampled in Sept. to Oct., 1996.

species	fish	squid	smashed	empty	note
No. indiv.	1*	0	1	2	*: <i>Aluterus monocerus-8</i>

App. Table 57. Number of stations where *Thunnus obesus* was caught in 2nd ~ 4th cruise.

	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1995.5-6	1/4	0/2	0/9	0/1	0/2	0/9	0/5	0/1	0/8
1996.9-10	0/3	*	3/10	*	1/2	3/10	0/5	0/3	0/6
1997.5-6	0/5	0/2	1/7	*	0/4	1/7	2/5	1/1	1/8

No. of occurrence station/No. station

*: No survey

App. Table 58. Number of stations where *Istiophorus platypterus* was caught in 2nd ~ 4th cruise.

period/area	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1996.5-6	2/4	1/2	1/2	0/1	1/2	1/9	1/5	0/1	0/8
1999.9-10	0/3	*	4/10	*	0/2	4/10	2/5	1/3	2/6
1997.5-6	0/5	0/2	0/7	*	2/4	0/7	1/5	0/1	2/8

No. of occurrence station/No. station

*: No survey

App. Table 59. Composition of stomach contents of *Istiophorus platypterus* sampled in Sept. - Oct., 1996.

No. Individ.	fish	squid	smashed	empty	*fish:unidentified species
1*	0	0	0	2	

App. Table 60. Number of stations where *Sthenoteuthis oualaniensis* was caught in 2nd ~ 4th cruise.

period/area	North Region			Central Region			South Region		
	inshore	continental slope	offshore	inshore	continental slope	offshore	inshore	continental slope	offshore
1996.5-6	0/4	2/2	2/2	0/1	1/2	6/9	0/5	0/1	7/8
1996.9-10	0/3	*	9/10	*	2/2	9/10	0/5	1/3	3/6
1997.5-6	1/5	2/2	7/7	*	3/4	7/7	0/5	0/1	4/8

App. Table 61 CPUE in number of Major species, and surface temperature and salinity by each station in SW monsoon season.

05/10 - 06/20/96		The mean value of temperature : 29.07 °C																				The mean value of salinity : 33.46																			
Station		B02	B03	B05	B06	B08	B09	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35								
Surface temperature (-2m)		28.1	27.8	26.8	28.9	27.4	29.8	30.4	28.8	29.7	28.3	29.2	29.4	27.9	27.6	29.6	29.2	30.1	29.4	26.3	28.0	30.1	29.9	29.1	28.8	29.7	29.6	29.9	29.1	30.1	29.6	29.9	30.1								
Surface salinity (-2m)		32.5	32.8	32.5	33.6	32.3	33.4	33.3	33.5	33.3	33.5	33.7	33.9	33.4	33.6	33.4	33.3	33.6	33.4	33.6	33.5	33.3	33.4	33.2	33.3	33.3	33.3	33.3	33.3	33.5	33.2	33.4	33.4								
Scientific name		The mean value of temperature : 29.07 °C																				The mean value of salinity : 33.46																			
English name		The mean value of temperature : 29.07 °C																				The mean value of salinity : 33.46																			
<i>Coryphaena hippurus</i>	Common dolphinfish	47	20	9	25	17	3	0	15	3	7	4	7	0	5	6	3	7	1	1	4	1	1	24	26	9	7	0	32	5	1	0	1								
<i>Coryphaena equulella</i>	Pomacentro dolphinfish	0	4	0	5	3	4	2	3	2	0	0	0	0	4	4	1	3	1	0	4	1	0	0	3	28	2	0	0	0	3	0	0								
<i>Brama ornata</i>	Burtooth pomfret	0	0	0	0	0	1	0	45	0	18	7	3	0	18	8	0	0	0	0	2	1	5	0	0	5	3	0	0	0	0	0									
<i>Lobotes variegatus</i>	Triple tail	0	0	0	0	0	1	1	0	1	0	0	0	0	0	3	5	0	7	0	0	0	0	0	0	0	5	2	0	3	1	0									
<i>Axius thazard</i>	Frigate mackerel	15	1	16	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	32	0	0	11	272	3	0	0	0	81	0	0	1									
<i>Axius rochei</i>	Bullet mackerel	0	17	4	14	231	0	161	1	0	8	15	34	0	113	0	38	0	0	15	15	0	0	36	44	0	0	18	11	0	0	0									
<i>Rulivunus affinis</i>	Eastern little tuna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	20	0	0	0	0									
<i>Katsuwonus pelamis</i>	Skipjack tuna	3	0	0	7	0	15	5	19	0	2	0	6	0	9	30	16	8	16	4	18	18	29	0	0	49	3	44	0	0	8	2	1								
<i>Thunnus tonggol</i>	Long tail tuna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	102	6	0	0	0									
<i>Thunnus albacares</i>	Yellowfin tuna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<i>Thunnus obesus</i>	Pigeon tuna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	0	1	1	0	0	58	0	0	0	0	0	0	0	0									
<i>Isistius paucus</i>	Sail fish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<i>Makaira indica</i>	Black marlin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<i>Makaira mazara</i>	Blue marlin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<i>Tetrapturus audax</i>	Striped marlin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<i>Xiphiar gladius</i>	Broadbill swordfish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<i>Aluterus monoceros</i>	Unicorn leatherjacket	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<i>Spherozetes ovalentis</i>	Flying squid	0	0	0	12	8	14	0	8	17	13	7	1	0	5	15	8	28	7	0	0	8	37	0	0	0	0	16	5	0	0	0									
Total		18	42	29	61	259	39	181	91	27	49	33	51	0	154	95	72	46	34	57	45	29	83	353	77	96	35	55	255	23	18	7	3								
05/12 - 06/24/97		The mean value of temperature : 29.07 °C																				The mean value of salinity : 33.46																			
Station		B02	B03	B05	B06	B08	B09	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35								
Surface temperature (-2m)		28.3	28.7	28.0	29.8	28.9	30.4	28.3	29.4	29.7	29.3	29.4	29.3	28.7	30.6	29.7	27.5	29.0	29.7	29.6	28.6	29.1	29.3	30.0	30.2	29.1	28.6	28.2	29.7	29.3	29.4	28.2									
Surface salinity (-2m)		33.1	33.6	33.2	34	33.9	33.9	33.9	34	33.7	33.9	33.8	33.6	33.8	33.8	33.7	33.6	33.7	33.6	33.7	33.7	33.7	33.5	33.8	33.7	33.4	33.6	33.8	33.8	33.4	33.5	33.9									
Scientific name		The mean value of temperature : 29.07 °C																				The mean value of salinity : 33.46																			
English name		The mean value of temperature : 29.07 °C																				The mean value of salinity : 33.46																			

* : Each figure shows CPUE in number converted into the value per 100 m².

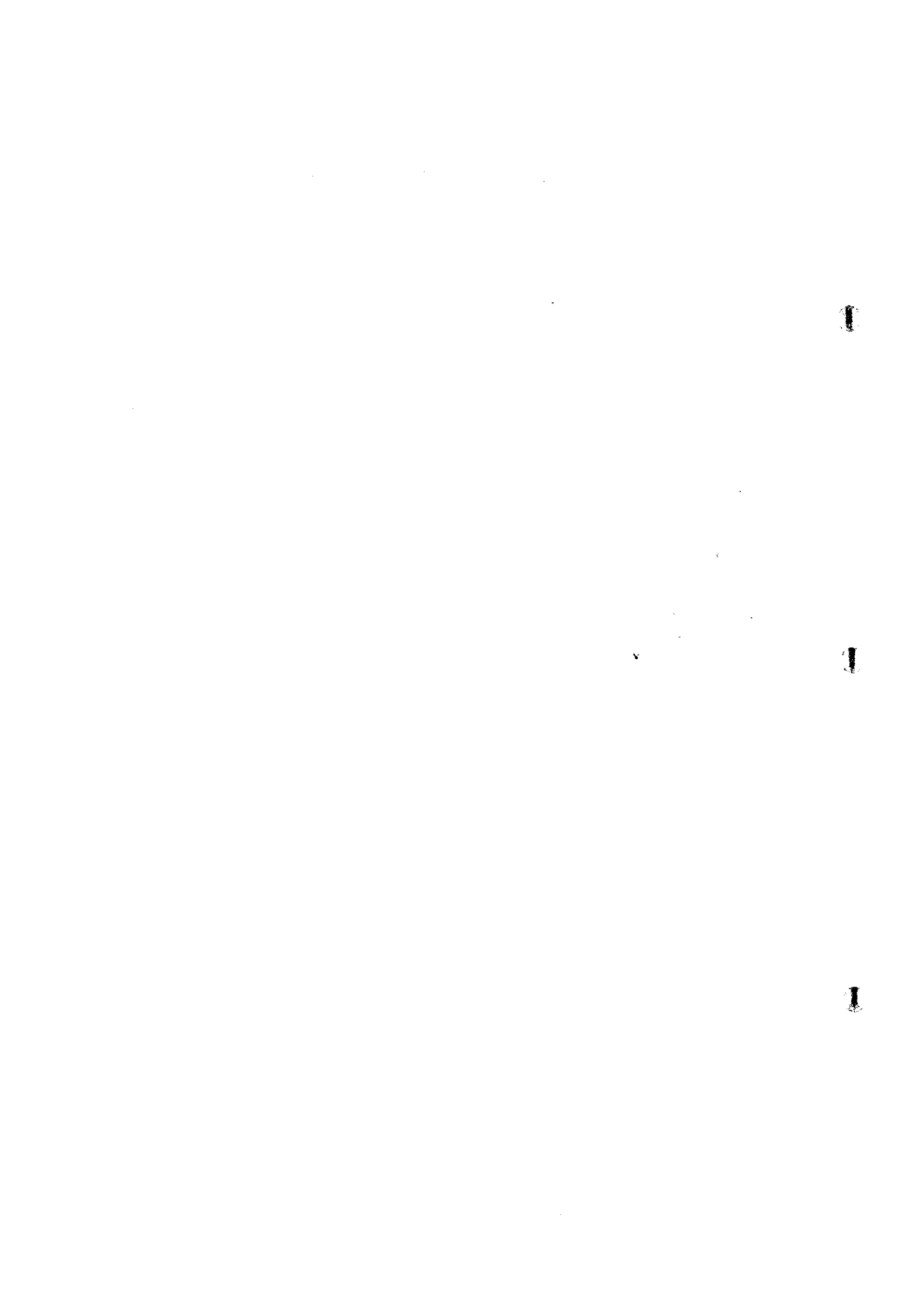
App. Table 62 CPUE in number of Major species, and surface temperature and salinity by each station in NE monsoon season.

09/07_10/18/96	Station	B02	B03	B05	B11	B12	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	
Surface temperature (-2m)		30.0	30.3	29.5	28.1	29.3	28.4	28.7	28.7	28.8	28.6	28.6	28.0	28.9	28.9	29.0	29.0	28.7	28.9	28.3	28.7	29.5	29.4	28.9	28.6	29.1	29.3		
Surface salinity (-2m)		32.7	33.6	33.5	33.4	33.2	33.9	33.1	32.5	33.3	33.9	31.0	32.0	33.2	32.1	33.5	33.2	33.3	30.9	31.1	32.4	33.2	33.2	31.7	32.4	32.8	33.1	33.3	
Scientific name	English name	The mean value of temperature : 29.08 °C The mean value of salinity : 32.80																											
<i>Brama ornata</i>	Bigtooth pomfret	0	0	0	14	43	7	18	19	11	40	21	3	33	0	41	12	6	0	0	15	5	59	0	0	6	12	24	
<i>Coryphaena hippurus</i>	Common dolphinfish	9*	30	11	12	9	18	15	13	14	13	1	8	11	9	7	10	4	2	1	12	1	1	2	2	6	9	3	
<i>Axius thazard</i>	Frigate mackerel	1	1	8	0	0	0	0	0	0	2	0	0	0	18	0	0	151	43	7	0	0	0	0	0	0	0	0	
<i>Katsuwonus pelamis</i>	Skipjack tuna	1	3	0	19	1	11	18	21	1	31	3	5	9	0	31	0	1	2	4	5	5	0	0	0	26	1	7	
<i>Sphenoteuthis ovalentis</i>	Flying squid	0	0	0	16	15	3	14	10	0	57	1	3	5	0	0	0	5	0	0	0	0	5	0	0	10	5	0	
<i>Aluterus monoceros</i>	Unicorn leatherjacket	39	11	0	1	0	1	0	2	0	0	0	0	0	0	0	0	1	0	0	8	0	0	0	1	0	1	65	
<i>Labotes surinamensis</i>	Triple tail	3	2	1	2	1	3	3	1	0	0	1	3	4	0	4	1	8	3	2	2	1	5	0	1	1	0	6	
<i>Axius rochei</i>	Bullet mackerel	0	1	0	0	0	1	0	0	0	30	0	0	0	1	1	0	0	1	0	2	10	0	0	3	5	1	2	
<i>Thunnus tonggol</i>	Long tail tuna	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	22	11	0	0	0	0	0	0	0	0	
<i>Coryphaena equiselis</i>	Pompano dolphinfish	0	17	0	0	0	0	0	0	0	6	0	1	0	0	2	1	2	0	0	6	1	0	0	1	0	0	0	
<i>Euthynnus affinis</i>	Pastor little tuna	3	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	3	3	2	0	0	0	0	0	0	4	10
<i>Istiophorus platymerus</i>	Sail fish	0	0	0	0	5	0	2	2	0	0	0	1	0	0	0	2	0	0	3	5	1	0	6	0	0	0	0	
<i>Thunnus albacares</i>	Yellowfin tuna	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	
<i>Makaira mazara</i>	Blue marlin	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	6	0	0	0	1	0	0	0	0	
<i>Makaira indica</i>	Black marlin	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	2	0	0	0	0	0	0	0	0	
<i>Thunnus obesus</i>	Bigeye tuna	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Tetrapterus audax</i>	Striped marlin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xiphias gladius</i>	Broadbill swordfish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total		48	35	9	40	23	19	38	38	1	128	5	15	18	30	38	4	17	184	74	37	18	10	7	6	42	19	95	

* : Each figure shows CPUE in number converted into the value per 100 tons.

App.Table63 The square measures and rations of each quadrangle

quadrangle No.	Ratio of water area in chart	Square measure of whole quadrangle (km ²)	Square measure of sea water area in quadrangle (km ²)	Ratio of square measure of water area
B01	0.325	11745.104	3,817	0.314
B02	0.984	11745.104	11,557	0.950
B03	0.500	11745.104	5,873	0.483
B04	0.276	11809.376	3,259	0.268
B05	0.934	11809.376	11,030	0.907
B06	0.500	11809.376	5,905	0.485
B07	0.344	11873.649	4,085	0.336
B08	1.000	11873.649	11,874	0.976
B09	0.500	11873.649	5,937	0.488
B10	0.907	11921.152	10,812	0.889
B11	1.000	11921.152	11,921	0.980
B12	1.000	11921.152	11,921	0.980
B13	0.742	11967.372	8,880	0.730
B14	1.000	11967.372	11,967	0.984
B15	1.000	11967.372	11,967	0.984
B16	0.709	12013.592	8,518	0.700
B17	1.000	12013.592	12,014	0.987
B18	1.000	12013.592	12,014	0.987
B19	0.916	12059.813	11,047	0.908
B20	1.000	12059.813	12,060	0.991
B21	1.000	12059.813	12,060	0.991
B22	0.968	12106.033	11,719	0.963
B23	1.000	12106.033	12,106	0.995
B24	1.000	12106.033	12,106	0.995
B25	1.000	12106.033	12,106	0.995
B26	1.000	12139.131	12,139	0.998
B27	1.000	12139.131	12,139	0.998
B28	1.000	12139.131	12,139	0.998
B29	1.000	12139.131	12,139	0.998
B30	1.000	12139.131	12,139	0.998
B31	1.000	12167.000	12,167	1.000
B32	1.000	12167.000	12,167	1.000
B33	1.000	12167.000	12,167	1.000
B34	1.000	12167.000	12,167	1.000
B35	1.000	12167.000	12,167	1.000
Total	30.605	420124.961	368,083.887	30.253



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