

OCEANOGRAPHICAL STATION LIST

Volume 44

Oceanic Observations in Antarctic Waters,
M.V. Magga Dan, 1959

Compiled by A. D. Crooks



Division of Fisheries and Oceanography
Commonwealth Scientific and Industrial
Research Organization, Australia
Melbourne 1960

OCEANOGRAPHICAL STATION LIST

OCEANIC OBSERVATIONS IN ANTARCTIC WATERS, M.V. MAGGA DAN, 1959

Compiled by A. D. CROOKS.

I. INTRODUCTION

At the invitation of the Antarctic Division of the Department of External Affairs, an officer of this Division travelled on M.V. *Magga Dan* on the relief trip to the Antarctic in January-March 1959. The Division is grateful to the Department for allowing an officer to make this trip and to the officers and crew for assistance in sampling during the trip.

II. METHODS AND UNITS

The station positions given in this station list are from the ship's log. Table 1 gives the track chart positions which have been corrected from astrofixes from the shore.

Methods and units used for hydrology, phytoplankton, pigments, and CO₂ uptake are those described in C.S.I.R.O. Aust. (1960).

For zooplankton each sample was taken with a Clarke-Bumpus sampler in an oblique haul from 100 m to the surface in which from 5 to 10 m³ of sea-water was filtered. The size of the catch was determined by weighing. Unfortunately many of the samples were so heavily contaminated with phytoplankton aggregations that the series has very little quantitative significance.

III. PERSONNEL

Mr. N. Dyson was responsible for the collection of samples taken on the cruise. Hydrological analyses were carried out by Messrs J. Dal Pont, F. Davies, and C. Walker. Messrs H. R. Jitts and N. Dyson were responsible for the ¹⁴C counting, Mr. Wootton did the biochemical analyses, Mr. E. J. F. Wood counted the phytoplankton, and Messrs P. Hammick and D. Tranter carried out the zooplankton studies. Under the direction of Mr. A. D. Crooks, processing of the data was done by Misses F. Luce and R. Weidenhofer, and Mrs. E. Wood. The typed sheets were prepared by Mrs. D. Schmitzer.

IV. REFERENCES

C.S.I.R.O. AUST. (1960).—Oceanic investigations in Eastern Australia. H.M.A. Ships *Queenborough*, *Quickmatch*, and *Warrego*, 1958. *C.S.I.R.O. Aust. Oceanogr. Sta. List* 43: 1-57.

TABLE I.

M. V. MAGGA DAN—SHIP'S POSITIONS, 1959

Date	Time (hr)	Latitude South	Longitude East	Date	Time (hr)	Latitude South	Longitude East	
13. i.59	0400	63° 02'	134° 54'	11.ii.59	0400	64° 38'	143° 12'	
	0800	63° 49'	134° 40'		0900	64° 38'	146° 16'	
	0900	63° 59'	134° 35'		1530	64° 38'	148° 50'	
	1200	64° 30'	134° 35'		2000	65° 10'	149° 34'	
	1600	65° 09'	134° 05'		2300	65° 41'	149° 38'	
21. i.59	1200	65° 22'	133° 52'	16.ii.59	0800	65° 34'	147° 18'	
	1600	64° 50'	133° 49'		1200	65° 34'	148° 55'	
	2000	64° 22'	132° 23'		1530	65° 28'	150° 21'	
	2400	64° 22'	130° 31'		1600	65° 28'	150° 34'	
22. i.59	0800	64° 22'	126° 50'	17.ii.59	2000	65° 28'	152° 29'	
	0900	64° 21'	126° 20'		2400	65° 28'	154° 00'	
	1200	64° 20'	125° 16'		0800	65° 28'	157° 15'	
	1600	64° 20'	123° 18'			0900	65° 28'	157° 45'
	2000	64° 20'	121° 30'			1200	65° 52'	158° 17'
2400	64° 20'	119° 38'	1530	66° 39'	158° 17'			
23. i.59	0400	64° 20'	117° 47'	23.ii.59	1600	65° 45'	157° 36'	
	0900	64° 20'	115° 34'		2000	64° 59'	157° 34'	
	2000	64° 20'	110° 30'		2400	64° 18'	157° 28'	
	2400	64° 47'	109° 31'	24.ii.59	0840	63° 05'	157° 42'	
10.ii.59	1530	64° 23'	137° 58'		0900	63° 05'	157° 43'	
	2000	64° 38'	139° 42'	25.ii.59	0400	62° 34'	158° 50'	
	2400	64° 38'	141° 27'		0930	62° 05'	158° 50'	
			1530		61° 15'	158° 52'		
			2000		60° 41'	158° 54'		

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 8.1.59

TIME: 2400

STATION NO.: 1

LATITUDE: 41°46' S.

LONGITUDE: 142°13' E.

0 13.00 34.92

0.52

DATE: 8.1.59

TIME: 0400

STATION NO.: 2

LATITUDE: 42°15' S.

LONGITUDE: 141°47' E.

0 13.60 35.07

0.45

DATE: 8.1.59

TIME: 0800

STATION NO.: 3

LATITUDE: 42°46' S.

LONGITUDE: 141°25' E.

0 13.35 34.99

0.47

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	----------	--------	---------	---------

DATE: 8.1.59
LATITUDE: 43°14' S.

TIME: 1200

STATION NO.: 4
LONGITUDE: 141°00' E.

0 12.80 34.88

0.46

DATE: 8.1.59
LATITUDE: 43°48' S.

TIME: 1600

STATION NO.: 5
LONGITUDE: 140°40' E.

0 12.80 34.87

0.60

DATE: 8.1.59
LATITUDE: 44°27' S.

TIME: 2000

STATION NO.: 6
LONGITUDE: 140°30' E.

0 11.90

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 8.1.59
LATITUDE: 43°48' S.

TIME: 1530

STATION NO.: 5
LONGITUDE: 140°40' E.

Bath 4 hrs 0 247 4 243 0.38

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 8.1.59
LATITUDE: 43°48' S.

TIME: 1530

STATION NO.: 5
LONGITUDE: 140°40' E.

0 0.22 0.13 0.87 0.11 0.05

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P.
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	----------

DATE: 8.1.59

TIME: 2400

STATION NO.: 7

LATITUDE: 45°00' S.

LONGITUDE: 140°10' E.

0 11.40 34.69

0.75

DATE: 9.1.59

TIME: 0400

STATION NO.: 8

LATITUDE: 45°42' S.

LONGITUDE: 140°02' E.

0 11.30 34.78

0.77

DATE: 9.1.59

TIME: 0900

STATION NO.: 9

LATITUDE: 46°37' S.

LONGITUDE: 139°40' E.

0 9.70 34.51

0.74

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 9.1.59
LATITUDE: 46°37' S.

TIME: 0900

STATION NO.: 9
LONGITUDE: 139°40' E.

Bath	4 hrs	0	234	8	226	0.36
		25	261	6	255	0.41

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 9.1.59
 LATITUDE: 46°37' S.

TIME: 0900

STATION NO.: 9
 LONGITUDE: 139°40' E.

0	0.14	0.07	0.49	0.08	0.01	ZOOPLANKTON:	8 mg
25	0.12	0.10	0.65	0.08	0.02		

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 9.1.59
 LATITUDE: 47°18' S.

TIME: 1200

STATION NO.: 10
 LONGITUDE: 139°28' E.

0 10.00 34.49

0.32

DATE: 9.1.59
 LATITUDE: 47°58' S.

TIME: 1600

STATION NO.: 11
 LONGITUDE: 139°24' E.

0 9.70 34.47

0.85

DATE: 9.1.59
 LATITUDE: 48°45'

TIME: 2000

STATION NO.: 12
 LONGITUDE: 139°42' E.

0 8.60 34.23

0.94

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 9.1.59
LATITUDE: 47°58' S.

TIME: 1600

STATION NO.: 11
LONGITUDE: 139°24' E.

Bath 4 hrs 0 97 7 90 0.14

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 9.1.59
 LATITUDE: 47°58' S.

TIME: 1600

STATION NO.: 11
 LONGITUDE: 139°24' E.

0 0.13 0.14 0.36 0.10 0 ZOOPLANKTON: 6 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	----------	--------	---------	---------

DATE: 9.1.59

TIME: 2400

STATION NO.: 13

LATITUDE: 49°27' S.

LONGITUDE: 139°42' E.

0 8.80 34.16

0.95

DATE: 10.1.59

TIME: 0400

STATION NO.: 14

LATITUDE: 50°08' S.

LONGITUDE: 140°19' E.

0 9.50 34.43

0.94

DATE: 10.1.59

TIME: 0900

STATION NO.: 15

LATITUDE: 50°53' S.

LONGITUDE: 140°06' E.

0 7.70 34.23

1.04

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 10.1.59
LATITUDE: 50°53' S.

TIME: 0900

STATION NO.: 15
LONGITUDE: 140°06' E.

Bath	4 hrs	0	204	10	194	0.31
		25	243	6	237	0.38

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 10.1.59
 LATITUDE: 50°53' S.

TIME: 0900

STATION NO.: 15
 LONGITUDE: 140°06' E.

0	0.08	0.06	0.12	0.02	0.03	ZOOPLANKTON:	6 mg
25	0.09	0.07	0.21	0.06	0.02		

4
T

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 10.1.59
LATITUDE: 51°22' S.

TIME: 1200

STATION NO.: 16
LONGITUDE: 139°53' E.

0 6.20 30.50

1.06

DATE: 10.1.59
LATITUDE: 51°57' S.

TIME: 1600

STATION NO.: 17
LONGITUDE: 139°44' E.

0 7.70 34.14

1.20

DATE: 10.1.59
LATITUDE: 52°42' S.

TIME: 2000

STATION NO.: 18
LONGITUDE: 139°30' E.

0 5.00 33.87

1.41

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 10.1.59
LATITUDE: 51°57' S.

TIME: 1530

STATION NO.: 17
LONGITUDE: 139°44' E.

Bath 4 hrs 0 164 13 151 0.24

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 10.1.59

TIME: 1530

STATION NO.: 17

LATITUDE: 51°57' S.

LONGITUDE: 139°44' E.

0 0.13 0.05 0.59 0.21

ZOOPLANKTON: 21 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 10.1.59
LATITUDE: 53°25' S.

TIME: 2400

STATION NO.: 19
LONGITUDE: 139°14' E.

0 5.00 33.89

1.28

DATE: 11.1.59
LATITUDE: 54°09' S.

TIME: 0400

STATION NO.: 20
LONGITUDE: 139°00' E.

0 4.70

DATE: 11.1.59
LATITUDE: 55°02' S.

TIME: 0830

STATION NO.: 21
LONGITUDE: 138°42' E.

0 4.20 33.91

1.39

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 11.1.59
LATITUDE: 55°02' S.

TIME: 0900

STATION NO.: 21
LONGITUDE: 138°42' E.

Bath	4 hrs	0	159	6	153	0.24
		25	164	8	156	0.25

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 11.1.59
LATITUDE: 55°02' S.

TIME: 0900

STATION NO.: 21
LONGITUDE: 138°42' E.

0	0.15	0.04	0.57	0.14	0.05	ZOOPLANKTON:	490 mg
25	0.12	0.04	0.29	0.45	0.21		

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 11.1.59

TIME: 1200

STATION NO.: 22

LATITUDE: 55°33' S.

LONGITUDE: 138°30' E.

0 3.95 33.89

1.57

DATE: 11.1.59

TIME: 1600

STATION NO.: 23

LATITUDE: 56°13' S.

LONGITUDE: 138°14' E.

0 3.85 33.89

1.44

DATE: 11.1.59

TIME: 2000

STATION NO.: 24

LATITUDE: 57°00' S.

LONGITUDE: 137°56' E.

0 3.80 33.87

1.44

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 11.1.59
LATITUDE: 56°13' S.

TIME: 1530

STATION NO.: 23
LONGITUDE: 138°14' E.

Bath 4 hrs 0 171 10 161 0.26

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 11.1.59
 LATITUDE: 56°13' S.

TIME: 1530

STATION NO.: 23
 LONGITUDE: 138°14' E.

0 0.12 0.05 0.15 0.07 0.02 ZOOPLANKTON: 1160 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	----------	--------	---------	---------

DATE: 11.1.59

TIME: 2400

STATION NO.: 25

LATITUDE: 57°24' S.

LONGITUDE: 137°38' E

0 3.00 33.98 1.62

DATE: 12.1.59

TIME: 0400

STATION NO.: 26

LATITUDE: 58°34' S.

LONGITUDE: 137°20' E.

0 2.40 33.95 1.32

DATE: 12.1.59

TIME: 0900

STATION NO.: 27

LATITUDE: 59°25' S.

LONGITUDE: 136°24' E.

0 1.90 33.98 1.63

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 12.1.59
LATITUDE: 59°25' S.

TIME: 0900

STATION NO.: 27
LONGITUDE: 136°24' E.

Bath	3 hrs	0	109	27	82	0.20
		25	105	3	102	0.25

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 12.1.59
LATITUDE: 59°25' S.

TIME: 0900

STATION NO.: 27
LONGITUDE: 136°24' E.

0 0.12 0.06 0.41 0.11 0.08 ZOOPLANKTON: 523 mg
 0.21 0.14 0.69 0.15 0

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	-------

DATE: 12.1.59

TIME: 1200

STATION NO.: 28

LATITUDE: 59°56' S.

LONGITUDE: 136°13' E

0 2.10 33.98

1.31

DATE: 12.1.59

TIME: 1600

STATION NO.: 29

LATITUDE: 60°35' S.

LONGITUDE: 136°00' E

0 1.90 33.96

1.41

DATE: 12.1.59

TIME: 2000

STATION NO.: 30

LATITUDE: 61°25' S.

LONGITUDE: 135°44' E

0 1.50

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 12.1.59
LATITUDE: 60°35' S.

TIME: 1530

STATION NO.: 29
LONGITUDE: 136°00' E.

Bath 4 hrs 0 150 12 138 0.22

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 12.i.59

TIME: 1530

STATION NO.: 29

LATITUDE: 60°35' S.

LONGITUDE: 136°00' E.

0 0.12 0.05 0.37 0.06

0 ZOOPLANKTON: 954 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	----------	--------	---------	---------

DATE: 12.1.59

TIME: 2400

STATION NO.: 31

LATITUDE: 62°13' S.

LONGITUDE: 135°28' E.

0 1.20 33.87

1.62

DATE: 13.1.59

TIME: 0400

STATION NO.: 32

LATITUDE: 62°58' S.

LONGITUDE: 135°13' E.

0 1.20 33.96

1.57

DATE: 13.1.59

TIME: 0800

STATION NO.: 33

LATITUDE: 64°00' S.

LONGITUDE: 134°51' E.

0 1.10 33.91

1.62

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 13.1.59
LATITUDE: 64°00' S.

TIME: 0900

STATION NO.: 33
LONGITUDE: 134°51' E.

Bath	4 hrs	0	417	18	399	0.53
		25	552	14	538	0.71

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 13.1.59
LATITUDE: 64°00' S.

TIME: 0900

STATION NO.: 33
LONGITUDE: 134°51' E.

0	0.35	0.05	0.55	0.23				
25	0.43	0.07	0.70	0.22	0.01	ZOOPLANKTON:	310 mg	

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S ^o / _{oo}	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	--------------------------------	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 21.1.59
LATITUDE: 64°59' S.

TIME: 1600

STATION NO.: 38
LONGITUDE: 133°45' E.

0 -0.10 34.05

1.70

DATE: 21.1.59
LATITUDE: 64°30' S.

TIME: 2000

STATION NO.: 39
LONGITUDE: 132°18' E.

0 -0.40

DATE: 21.1.59
LATITUDE: 64°28' S.

TIME: 2400

STATION NO.: 40
LONGITUDE: 130°38' E.

0 -0.50 34.09

1.61

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P.
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	----------

DATE: 22.1.59

TIME: 0800

STATION NO.: 41

LATITUDE: 64°27' S.

LONGITUDE: 126°40' E.

0 0.50 34.07

1.54

DATE: 22.1.59

TIME: 0900

STATION NO.: 42

LATITUDE: 64°27' S.

LONGITUDE: 126°12' E.

DATE: 22.1.59

TIME: 1200

STATION NO.: 43

LATITUDE: 64°27' S.

LONGITUDE: 125°02' E.

0 -0.45

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 22.1.59
LATITUDE: 64°27' S.

TIME: 0900

STATION NO.: 42
LONGITUDE: 126°12' E.

Bath	3 hrs	0	275	23	252	0.54
		25	255	26	229	0.49

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 22.1.59
LATITUDE: 64°20' S.

TIME: 1600

STATION NO.: 44
LONGITUDE: 123°18' E.

0 0.40 34.14

1.49

DATE: 22.1.59
LATITUDE: 64°20' S.

TIME: 2000

STATION NO.: 45
LONGITUDE: 121°30' E.

0 0.50 34.07

1.69

DATE: 22.1.59
LATITUDE: 64°20' S.

TIME: 2400

STATION NO.: 46
LONGITUDE: 119°34' E.

0 0.40 34.05

1.84

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 22.i.59
 LATITUDE: 64°27' S.

TIME: 0900

STATION NO.: 42
 LONGITUDE: 126°12' E.

0	0.44	0.12	1.01	0.26
25	0.39	0.10	0.83	1.15

ZOOPLANKTON: 484 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 23.1.59
LATITUDE: 64°20' S.

TIME: 0400

STATION NO.: 47
LONGITUDE: 117°37' E.

0 0.50 34.07

1.80

DATE: 23.1.59
LATITUDE: 64°20' S.

TIME: 0900

STATION NO.: 48
LONGITUDE: 115°13' E.

0 0.40 34.04

1.72

DATE: 23.1.59
LATITUDE: 64°23' S.

TIME: 2000

STATION NO.: 49
LONGITUDE: 110°21' E.

0 0.40 34.04

1.49

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 23.1.59
LATITUDE: 64°20' S.

TIME: 0900

STATION NO.: 48
LONGITUDE: 115°13' E.

Bath	3 hrs	0	267	13	254	0.54
		25	232	13	219	0.47

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 23.1.59
LATITUDE: 64°55' S.

TIME: 2400

STATION NO.: 50
LONGITUDE: 109°27' E.

0 0.30 33.89

1.61

DATE: 10.11.59
LATITUDE: 64°27' S.

TIME: 1530

STATION NO.: 51
LONGITUDE: 138°15' E.

DATE: 10.11.59
LATITUDE: 64°42' S.

TIME: 2000

STATION NO.: 52
LONGITUDE: 139°42' E.

0 -0.50 34.07

1.49

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 23.1.59
 LATITUDE: 64°20' S.

TIME: 0900

STATION NO.: 48
 LONGITUDE: 115°13' E.

0	0.19	0.05	0.42	0.10	0.01	ZOOPLANKTON:	82 mg
25	0.22	0.11	0.59	0.68			

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 10.11.59
 LATITUDE: 64°27' S.

TIME: 1530

STATION NO.: 51
 LONGITUDE: 138°15' E.

0	0.12	0.09	0.83	0.39	
25	0.27	0.10	1.07	0.33	0.11

ZOOPLANKTON: 632 mg

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 10.11.59
LATITUDE: 64°27' S.

TIME: 1530

STATION NO.: 51
LONGITUDE: 138°15' E.

Bath	4 hrs	0	155	44	111	0.18
		25	221	15	206	0.33

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 10.11.59
LATITUDE: 64°42' S.

TIME: 2400

STATION NO.: 53
LONGITUDE: 141°38' E.

0 1.10 33.96

1.49

DATE: 11.11.59
LATITUDE: 64°42' S.

TIME: 0400

STATION NO.: 54
LONGITUDE: 143°32' E.

0 1.40

DATE: 11.11.59
LATITUDE: 64°42' S.

TIME: 0900

STATION NO.: 55
LONGITUDE: 145°54' E.

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 11.11.59 . TIME: 0900 STATION NO.: 55
LATITUDE: 64°42' S. LONGITUDE: 145°54' E.

Bath	4 hrs	0	262	31	231	0.37
		25	274	15	259	0.41

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 11.11.59
 LATITUDE: 64°42' S.

TIME: 0400

STATION NO.: 54
 LONGITUDE: 143°32' E.

ZOOPLANKTON: 224 mg

DATE: 11.11.59
 LATITUDE: 64°42' S.

TIME: 0900

STATION NO.: 55
 LONGITUDE: 145°54' E.

0	0.22	0.10	0.70	0.40
25	0.27	0.13	1.23	1.26

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 11.11.59

TIME: 1200

STATION NO.: 56

LATITUDE: 64°42' S.

LONGITUDE: 147°02' E.

0 1.20

DATE: 11.11.59

TIME: 1530

STATION NO.: 57

LATITUDE: 64°43' S.

LONGITUDE: 148°54' E.

0 1.35 33.82

1.39

DATE: 11.11.59

TIME: 2000

STATION NO.: 58

LATITUDE: 65°10' S.

LONGITUDE: 149°49' E.

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 11.11.59
 LATITUDE: 64°43' S.

TIME: 1530

STATION NO.: 57
 LONGITUDE: 148°54' E.

0	0.21	0.14	1.16	0.36	
25	0.16	0.07	0.49	0.14	0

ZOOPLANKTON: 65 mg

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 11.11.59
LATITUDE: 64°43' S.

TIME: 1530

STATION NO.: 57
LONGITUDE: 148°54' E.

Bath	4 hrs	0	127	11	116	0.17
		25	127	24	103	0.15

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 11.11.59
LATITUDE: 64°45' S.

TIME: 2300

STATION NO.: 59
LONGITUDE: 149°52' E.

DATE: 16.11.59
LATITUDE: 65°34' S.

TIME: 0800

STATION NO.: 60
LONGITUDE: 147°15' E.

0 0.40 33.75

1.56

DATE: 16.11.59
LATITUDE: 65°28' S.

TIME: 1200

STATION NO.: 61
LONGITUDE: 148°55' E.

0 -0.75 33.46

1.76

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 11.11.59
LATITUDE: 64°45' S.

TIME: 2300

STATION NO.: 59
LONGITUDE: 149°52' E.

ZOOPLANKTON: 40 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 16.11.59
LATITUDE: 65°28' S.

TIME: 1600

STATION NO.: 62
LONGITUDE: 151°32' E.

0 -0.60

DATE: 16.11.59
LATITUDE: 65°28' S.

TIME: 2000

STATION NO.: 63
LONGITUDE: 152°28' E.

0 0.90 33.78

1.68

DATE: 16.11.59
LATITUDE: 65°28' S.

TIME: 2400

STATION NO.: 64
LONGITUDE: 154°00' E.

0 0.10 33.78

1.69

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 16.11.59

TIME: 1530

STATION NO.: 62

LATITUDE: 65°28' S.

LONGITUDE: 151°32' E.

Bath	4 hrs	0	226	18	208	0.33
		25	285	16	269	0.43

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 16.11.59

TIME: 1530

STATION NO.: 62

LATITUDE: 65°28' S.

LONGITUDE: 151°32' E.

0 0.18 0.09 0.62 0.14

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 17.11.59

TIME: 0800

STATION NO.: 65

LATITUDE: 65°28' S.

LONGITUDE: 157°15' E.

0 0.90 33.60

1.62

DATE: 17.11.59

TIME: 0900

STATION NO.: 66

LATITUDE: 65°28' S.

LONGITUDE: 157°47' E.

DATE: 17.11.59
LATITUDE: 65°51' S.

TIME: 1200

STATION NO.: 67

LONGITUDE: 158°17' E.

0 0.40 33.62

1.67

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 17.11.59
LATITUDE: 65°28' S.

TIME: 0900

STATION NO.: 66
LONGITUDE: 157°47' E.

Bath	4 hrs	0	277	18	259	0.54
		25	274	20	254	0.40

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 17.11.59
 LATITUDE: 65°28' S.

TIME: 0900

STATION NO.: 66
 LONGITUDE: 157°47' E.

0	0.12	0.06	0.41	0.09	0.02	ZOOPLANKTON:	62 mg
25	0.09	0.02	0.18	0.14			

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 17.11.59
LATITUDE: 66°39' S.

TIME: 1600

STATION NO.: 68
LONGITUDE: 158°17' E.

0 -1.15 33.37

1.61

DATE: 23.11.59
LATITUDE: 65°45' S.

TIME: 1600

STATION NO.: 69
LONGITUDE: 157°30' E.

0 0.30 33.71

1.75

DATE: 23.11.59
LATITUDE: 64°59' S.

TIME: 2000

STATION NO.: 70
LONGITUDE: 157°33' E.

0 0.70 33.73

1.70

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 17.11.59 TIME: 1530 STATION NO.: 68
LATITUDE: 66°39' S. LONGITUDE: 158°17' E.

Bath	4 hrs	0	322	10	312	0.50
		25	378	14	364	0.58

DATE: 23.11.59 TIME: 1530 STATION NO.: 69
LATITUDE: 65°45' S. LONGITUDE: 157°30' E.

Bath	4 hrs	0	158	18	140	0.24
		25	150	11	139	0.24

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 17.11.59
LATITUDE: 66°39' S.

TIME: 1530

STATION NO.: 68
LONGITUDE: 158°17' E.

0	0.14	0.09	0.96	0.30
25	0.12	0.06	0.58	0.18

ZOOPLANKTON: 19 mg

DATE: 23.11.59
LATITUDE: 65°45' S.

TIME: 1530

STATION NO.: 69
LONGITUDE: 157°30' E.

0	0.06	0	0.25	0.11	
25	0.05	0.05	0.11	0.07	0.01

ZOOPLANKTON: 110 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 23.11.59
LATITUDE: 64°18' S.

TIME: 2400

STATION NO.: 71
LONGITUDE: 157°32' E.

0 1.00

1.44

DATE: 24.11.59
LATITUDE: 63°03' S.

TIME: 0900

STATION NO.: 72
LONGITUDE: 157°28' E.

0 1.10 33.53

1.58

DATE: 25.11.59
LATITUDE: 62°34' S.

TIME: 0400

STATION NO.: 73
LONGITUDE: 157°48' E.

0 1.80 33.60

1.63

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 24.11.59
LATITUDE: 63°03' S.

TIME: 0840

STATION NO.: 72
LONGITUDE: 157°28' E.

Bath	4 hrs	0	333	23	310	0.49
		25	309	19	290	0.46

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 24.11.59
 LATITUDE: 63°03' S.

TIME: 0840

STATION NO.: 72
 LONGITUDE: 157°28' E.

0	0.24	0.07	0.74	0.21
25	0.20	0.10	0.71	0.18

DATE: 25.11.59
 LATITUDE: 62°34' S.

TIME: 0400

STATION NO.: 73
 LONGITUDE: 157°48' E.

ZOOPLANKTON: 550 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 25.11.59

TIME: 0930

STATION NO.: 74

LATITUDE: 62°05' S.

LONGITUDE: 158°29' E.

0 2.10 33.71

1.49

DATE: 25.11.59

TIME: 1200

STATION NO.: 75

LATITUDE: 61°44' S.

LONGITUDE: 158°23' E.

0 2.30 34.05

2.46

DATE: 25.11.59

TIME: 1600

STATION NO.: 76

LATITUDE: 61°12' S.

LONGITUDE: 158°25' E.

0 2.35 34.05

1.49

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²
DATE: 25.11.59			TIME: 0930		STATION NO.: 74		
LATITUDE: 62°05' S.						LONGITUDE: 158°29' E.	

Bath	4 hrs	0	913	9	904	1.45
		25	773	13	760	1.21

DATE: 25.11.59 TIME: 1530 STATION NO.: 76
LATITUDE: 61°12' S. LONGITUDE: 158°25' E.

Bath	4 hrs	0	155	9	146	0.25
		25	104	20	84	0.13

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 25.11.59

TIME: 0930

STATION NO.: 74

LATITUDE: 62°05' S.

LONGITUDE: 158°29' E.

0	0.76	0.16	1.93	0.46
25	0.76	0.13	1.63	0.47

DATE: 25.11.59

TIME: 1530

STATION NO.: 76

LATITUDE: 61°12' S.

LONGITUDE: 158°25' E.

0	0.12	0.08	0.89	0.35
25	0.18	0.13	1.19	0.28

ZOOPLANKTON: 1900 mg

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 25.11.59

TIME: 2000

STATION NO.: 77

LATITUDE: 60°41' S.

LONGITUDE: 158°55' E.

0 2.85 33.98

1.27

DATE: 25.11.59

TIME: 2400

STATION NO.: 78

LATITUDE: 60°06' S.

LONGITUDE: 158°55' E.

0

1.70

DATE: 26.11.59

TIME: 0800

STATION NO.: 79

LATITUDE: 58°51' S.

LONGITUDE: 158°55' E.

0 4.80 33.82

1.52

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ ‰	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 26.11.59

TIME: 1200

STATION NO.: 80

LATITUDE: 58°15' S.

LONGITUDE: 158°50' E.

0 5.00 33.82

1.52

DATE: 26.11.59

TIME: 1600

STATION NO.: 81

LATITUDE: 57°38' S.

LONGITUDE: 158°54' E.

0 4.80 33.84

1.57

DATE: 26.11.59

TIME: 2000

STATION NO.: 82

LATITUDE: 57°02' S.

LONGITUDE: 158°51' E.

0 5.00 33.80

1.53

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 26.11.59

TIME: 2400

STATION NO.: 83

LATITUDE: 56°24' S.

LONGITUDE: 158°51' E.

0 4.80 33.82

1.42

DATE: 27.11.59

TIME: 0400

STATION NO.: 84

LATITUDE: 55°44' S.

LONGITUDE: 158°51' E.

0 5.20 33.80

1.52

DATE: 27.11.59

TIME: 0800

STATION NO.: 85

LATITUDE: 54°30' S.

LONGITUDE: 159°00' E.

0 5.95 33.96

1.49

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 28.11.59

TIME: 0800

STATION NO.: 86

LATITUDE: 52°55' S.

LONGITUDE: 157°06' E.

0 7.60 34.02

1.30

DATE: 28.11.59

TIME: 1200

STATION NO.: 87

LATITUDE: 52°20' S.

LONGITUDE: 156°32' E.

0 8.10 34.18

1.10

DATE: 28.11.59

TIME: 1600

STATION NO.: 88

LATITUDE: 51°35' S.

LONGITUDE: 156°00' E.

0 7.80 34.16

1.09

M.V. "Magga Dan"

CO₂ UPTAKE

INCUBATION		Depth	ACTIVITY			PRODUCTION	
Method	Period		Light	Dark	Net	mgC/m ³	gC/day/m ²

DATE: 28.11.59
LATITUDE: 51°35' S.

TIME: 1530

STATION NO.: 88
LONGITUDE: 156°00' E.

Bath	4 hrs	0	401	33	368	0.69
		25	399	13	386	0.72

M.V. "Magga Dan"

PIGMENTS

PHYTOPLANKTON

Depth	Chlorophyll			Astacin	Non Astacin	Depth	<30 μ	>30 μ
	a	b	c					

DATE: 28.11.59
 LATITUDE: 51°35' S.

TIME: 1530

STATION NO.: 88
 LONGITUDE: 156°00' E.

0	0.31	0.15	0.86	0.23
25	0.30	0.15	1.81	1.01

ZOOPLANKTON: 133 mg.

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ %	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	----------	--------	---------	---------

DATE: 28.11.59
LATITUDE: 51°05' S.

TIME: 2000

STATION NO.: 89
LONGITUDE: 155°20' E.

0 7.75 34.09

1.27

DATE: 28.11.59
LATITUDE: 50°32' S.

TIME: 2400

STATION NO.: 90
LONGITUDE: 154°42' E.

0 34.52

0.89

DATE: 1.11.59
LATITUDE: 49°22' S.

TIME: 0800

STATION NO.: 91
LONGITUDE: 153°25' E.

0 9.95 34.52

0.89

M.V. "Magga Dan"

HYDROLOGY

Depth	Temp.	S‰	σ_t	O ₂	O ₂ ‰	pH	Inorg. P	Org. P	Part. P	Total P
-------	-------	----	------------	----------------	------------------	----	-------------	-----------	------------	---------

DATE: 1.111.59

TIME: 1200

STATION NO.: 92

LATITUDE: 48°52' S.

LONGITUDE: 152°43' E.

0 11.80 34.78

0.86

OCEANOGRAPHICAL STATION LISTS

(Continued)

27. Onshore and oceanic hydrological investigations in eastern and south-western Australia, 1955
28. Surface sampling in the Tasman and Coral Seas, 1955
29. Estuarine hydrological investigations in eastern and south-western Australia, 1955
30. Onshore and oceanic hydrological investigations in eastern and south-western Australia, 1956
31. Surface sampling in the Tasman and Coral Seas and the south-eastern Indian Ocean, 1956
32. Estuarine hydrological investigations in eastern and south-western Australia, 1956
33. Coastal hydrological investigations in eastern and south-western Australia, 1957
34. Coastal hydrological investigations at Port Hacking, New South Wales, 1957
35. Coastal hydrological investigations at Edsa, New South Wales, 1957
36. Surface sampling in the Tasman and Coral Seas, 1957
37. Hydrological investigations from F.R.V. *Derwent Hunter*, 1957
38. Coastal hydrological investigations in the New South Wales tuna fishing area, 1958
39. Surface sampling in the Coral and Tasman Seas, 1958
40. Coastal hydrological investigations in south-eastern Australia, 1958
41. Oceanic investigations in eastern Australian waters, F.R.V. *Derwent Hunter*, 1958
42. Coastal investigations at Port Hacking, New South Wales, 1958
43. Oceanic investigations in eastern Australia, H.M.A. Ships *Queensborough*, *Quickmatch*, and *Warrego*, 1958
44. Oceanic observations in Antarctic waters, M.V. *Magga Dan*, 1959