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Canadian observations on the shrimp fishery  
at West Greenland in 1980

by

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Introduction

Observers from the Newfoundland Region of the Department of Fisheries and Oceans spent a total of 260 sea days on board shrimp vessels fishing in Subareas 0 and 1. Information obtained from observers' written reports and data summaries include fishing patterns, shrimp discards and by-catch. All reports from Canadian observers are not currently available, therefore the following presentation can be considered preliminary.

The Canadian quota in 0+1 for 1980 was 2500 MT (500 MT in Subarea 0 and 2000 MT in Subarea 1). This amount was accounted for relatively early in the year and the area was closed on July 16.

Results

Fishing Pattern

During April 1980 most observed fishing occurred in Div 1B, 1C and 1D with some effort in western 1B when ice conditions were favourable. Heavy ice was reported in 1B for both April and May and vessels were often forced to move out of the western portions. By late June most fishing was reported from Div 1B.

Reports for the July period are lacking but boardings made during August and September indicate heavy fishing in the 0A-1B area. Two reports stated that vessels fishing in the area were constantly moving back and forth over the boundary between the two divisions and another reported considerable effort just east of the line.

Shrimp Discards

The practice of discarding small, soft-shelled and/or broken shrimp occurs quite frequently in the West Greenland fishery and the pattern

appears to be variable. Vessels with peelers on board have little or no discards and, presumably, vessels which land their product for peeling ashore would have little discarding as well. The market for the frozen, cooked product appears to dictate a preference for large animals and often results in discards in excess of 30%. (One report had discards as high as 36% for a two week period in June.)

Often the discarded animals consist of sizes which would otherwise be acceptable or, at least, one would interpret this from length frequencies obtained in 1980 (Fig. 1, 2 and 3) especially from sets made in deep water. It has been reported at times that when catch rates are considerably high (and where there is a preference for large animals) all medium and small shrimp are discarded due to processing limitations. This alternative is preferred rather than a reduction in fishing effort and, apparently, no records of these discarded shrimp are kept.

#### By-catch

Most vessels fishing shrimp on the 0+1 grounds are not equipped to handle by-catches of groundfish and in many instances all by-catch is discarded. It has been reported that some cod and halibut are, at times, kept in relatively small amounts. Major by-catch species include redfish, turbot, cod, halibut, American plaice, thorny skate and wolffish. All sizes of these species are susceptible because of the small mesh used (40-45 mm stretched observed in 1980). Small redfish (< 20 cm) are especially vulnerable and often occur in large quantities.

Tables 1 and 2 present a species breakdown of catches by month for each NAFO division. It is obvious that for most months in all Divisions redfish comprises the greatest amount of by-catch, the proportions in these examples varying from 2 to 33% of the total catch. Data are insufficient to detect any seasonal trend in redfish abundance but it appears that their occurrence is considerably less in Div 1C. No length distributions are available to supplement these figures but it is assumed that quite often the redfish are small.

By-catches of other species do not appear to be disproportionate. These, however, should be judged more objectively in relation to existing knowledge on stock sizes. The high proportion of halibut for Div 1D in April may be anomalous.

Discussion

The observer programme conducted in the shrimp grounds in Subareas 0+1 reveals a number of problem areas relating to catch and effort, by-catch and the general state of the shrimp resource.

- 1) In many instances processed weight is recorded rather than actual catch weight. This not only involves the discard problem but weight loss in processing as well (e.g. peeling).
- 2) Discards (in relation to 1 above) are seldom, if ever, reported and often consist of marketable-sized shrimp.
- 3) By-catches are not reported. This may be especially significant in the case of redfish.
- 4) When fishing is possible in Div 0A and 1B later in the season, vessels often fish extremely close to the boundary and frequently cross back and forth in response to fishing success. Accurate catch and effort may be difficult to obtain for either area.

APRIL (1B)

SPECIES NAME	WEIGHT (MT)	% CATCH
SHRIMP (PANDALUS)	169.893	78.20
SHRIMP (P. MONTAGUI)	0.360	0.05
AMERICAN PLAICE	5.219	2.40
COD	0.779	0.36
ARCTIC COD	0.045	0.02
HALIBUT	0.035	0.02
REDFISH (UNSPECIFIED)	22.047	10.15
TURBOT	2.181	1.00
CAPELIN	0.223	0.10
SKATE (THORNY)	6.000	2.76
WOLFFISH (BROADHEAD)	0.502	0.23
WOLFFISH (STRIPED)	5.531	2.55
WOLFFISH (SPOTTED)	1.532	0.71
GREENLAND SHARK	0.400	0.18
OTHER	2.538	1.17
TOTALS	217.260	100.00

MAY (1B)

SPECIES NAME	WEIGHT (MT)	% CATCH
SHRIMP (PANDALUS)	151.392	82.88
SHRIMP (P. MONTAGUI)	0.000	0.00
AMERICAN PLAICE	2.735	1.50
COD	0.074	0.04
HALIBUT	0.015	0.01
REDFISH (UNSPECIFIED)	18.450	10.10
TURBOT	1.599	0.88
WITCH	0.162	0.09
LONGHORN SCULPIN	0.153	0.08
SKATE (THORNY)	3.847	2.11
WOLFFISH (BROADHEAD)	0.010	0.01
WOLFFISH (STRIPED)	1.258	0.69
WOLFFISH (SPOTTED)	0.481	0.26
WOLFFISH (UNSPECIFIED)	0.145	0.08
GREENLAND SHARK	2.050	1.12
OTHER	0.401	0.22
TOTALS	182.665	100.00

JUNE (1B)

SPECIES NAME	WEIGHT (MT)	% CATCH
SHRIMP (PANDALUS)	36.755	92.56
SHRIMP (P. MONTAGUI)	0.055	0.09
AMERICAN PLAICE	0.089	0.22
COD	0.073	0.18
HADDUCK	0.002	0.01
REDFISH (UNSPECIFIED)	2.475	6.23
TURBOT	0.135	0.34
SKATE (THORNY)	0.156	0.39
WOLFFISH (BROADHEAD)	0.008	0.02
OTHER	0.003	0.01
TOTALS	39.709	100.00

AUGUST (OA and IB)

SPECIES NAME	WEIGHT (MT)	% CATCH
SHRIMP (PANDALUS)	188.402	88.72
SHRIMP (P. MONTAGUI)	0.000	0.00
AMERICAN PLAICE	1.411	0.66
COD	0.122	0.06
HALIBUT	0.050	0.02
REDFISH (UNSPECIFIED)	21.278	10.02
TURBOT	0.790	0.37
WITCH	0.010	0.00
CAPELIN	0.006	0.00
SKATE (THORNY)	0.032	0.02
WOLFFISH (BROADHEAD)	0.005	0.00
WOLFFISH (UNSPECIFIED)	0.434	0.20
TOTALS	212.361	100.00

SEPTEMBER (OA)

SPECIES NAME	WEIGHT (MT)	% CATCH
SHRIMP (PANDALUS)	53.534	77.00
SHRIMP (P. MONTAGUI)	0.000	0.00
AMERICAN PLAICE	0.005	0.01
ARCTIC COD	0.005	0.01
HALIBUT	0.328	0.47
REDFISH (UNSPECIFIED)	14.816	21.31
TURBOT	0.596	0.86
SKATE (UNSPECIFIED)	0.093	0.13
WOLFFISH (STRIPED)	0.054	0.08
WOLFFISH (SPOTTED)	0.146	0.21
WOLFFISH (UNSPECIFIED)	0.013	0.02
OTHER	0.001	0.00

Table 2. Catch composition by species by month observed in Div IC and 1D, 1980

April		IC		May	
SPECIES NAME	WEIGHT (MT) % CATCH	SPECIES NAME	WEIGHT (MT) % CATCH	SPECIES NAME	WEIGHT (MT) % CATCH
SHRIMP (PANDALUS)	56.780	SHRIMP (PANDALUS)	86.56	SHRIMP (PANDALUS)	88.078
SHRIMP (P. MONTAGUI)	0.000	SHRIMP (P. MONTAGUI)	0.000	SHRIMP (P. MONTAGUI)	0.000
AMERICAN PLAICE	0.905	AMERICAN PLAICE	1.38	AMERICAN PLAICE	0.808
COD	0.111	COD	0.17	COD	0.156
HADDOCK (UNSPECIFIED)	0.002	REDFISH (UNSPECIFIED)	0.000	REDFISH (UNSPECIFIED)	4.132
REDFISH (UNSPECIFIED)	5.120	TURBOT	7.81	TURBOT	0.326
TURBOT	0.231	CAPELIN	0.35	CAPELIN	0.001
GRENNADIERS (ROUGHHEAD)	0.001	LONG-HORN SCULPIN	0.000	LONG-HORN SCULPIN	0.251
LONG-HORN SCULPIN	0.071	SKATE (THORNY)	0.11	SKATE (THORNY)	0.992
SKATE (THORNY)	0.755	WOLFFISH (STRIPED)	1.15	WOLFFISH (STRIPED)	1.117
WOLFFISH (STRIPED)	1.055	WOLFFISH (SPOTTED)	1.61	WOLFFISH (SPOTTED)	0.172
WOLFFISH (SPOTTED)	0.305	WOLFFISH (UNSPECIFIED)	0.46	WOLFFISH (UNSPECIFIED)	0.330
WOLFFISH (UNSPECIFIED)	0.130	OTHER	0.20	OTHER	0.040
OTHER	0.151	TOTALS	100.00	TOTALS	96.337
TOTALS	65.599	TOTALS	100.00	TOTALS	100.00

June		IC		May	
SPECIES NAME	WEIGHT (MT) % CATCH	SPECIES NAME	WEIGHT (MT) % CATCH	SPECIES NAME	WEIGHT (MT) % CATCH
SHRIMP (PANDALUS)	93.578	SHRIMP (PANDALUS)	89.82	SHRIMP (PANDALUS)	0.020
SHRIMP (P. MONTAGUI)	0.000	SHRIMP (P. MONTAGUI)	0.000	SHRIMP (P. MONTAGUI)	0.000
AMERICAN PLAICE	0.475	AMERICAN PLAICE	0.46	SHRIMP (P. MONTAGUI)	0.001
COD	3.067	COD	2.94	HALIBUT	0.010
HALIBUT	0.246	COD	0.24	REDFISH (UNSPECIFIED)	0.010
REDFISH (UNSPECIFIED)	2.415	REDFISH (UNSPECIFIED)	2.32	TOTALS	0.030
TURBOT	3.360	TURBOT	3.22	TOTALS	100.00
GRENNADIERS (ROUGHHEAD)	0.160	GRENNADIERS (ROUGHHEAD)	0.15		
SKATE (THORNY)	0.217	SKATE (THORNY)	0.21		
SKATE (BROADHEAD)	0.241	SKATE (BROADHEAD)	0.23		
WOLFFISH (SPOTTED)	0.013	WOLFFISH (SPOTTED)	0.01		
OTHER	0.449	OTHER	0.43		
TOTALS	104.187	TOTALS	100.00		

April		1D		May	
SPECIES NAME	WEIGHT (MT) % CATCH	SPECIES NAME	WEIGHT (MT) % CATCH	SPECIES NAME	WEIGHT (MT) % CATCH
SHRIMP (PANDALUS)	1.420	SHRIMP (PANDALUS)	56.91	SHRIMP (PANDALUS)	66.67
SHRIMP (P. MONTAGUI)	0.000	SHRIMP (P. MONTAGUI)	0.000	SHRIMP (P. MONTAGUI)	0.000
COD	0.050	AMERICAN PLAICE	2.00	SHRIMP (P. MONTAGUI)	3.33
HALIBUT (UNSPECIFIED)	0.510	COD	20.44	REDFISH (UNSPECIFIED)	33.33
REDFISH (UNSPECIFIED)	0.320	REDFISH (UNSPECIFIED)	12.83	TOTALS	100.00
WITCH (THORNY)	0.075	WITCH (THORNY)	3.01		
WOLFFISH (UNSPECIFIED)	0.025	SKATE (THORNY)	2.00		
OTHER	0.049	WOLFFISH (UNSPECIFIED)	1.00		
TOTALS	2.495	TOTALS	100.00		

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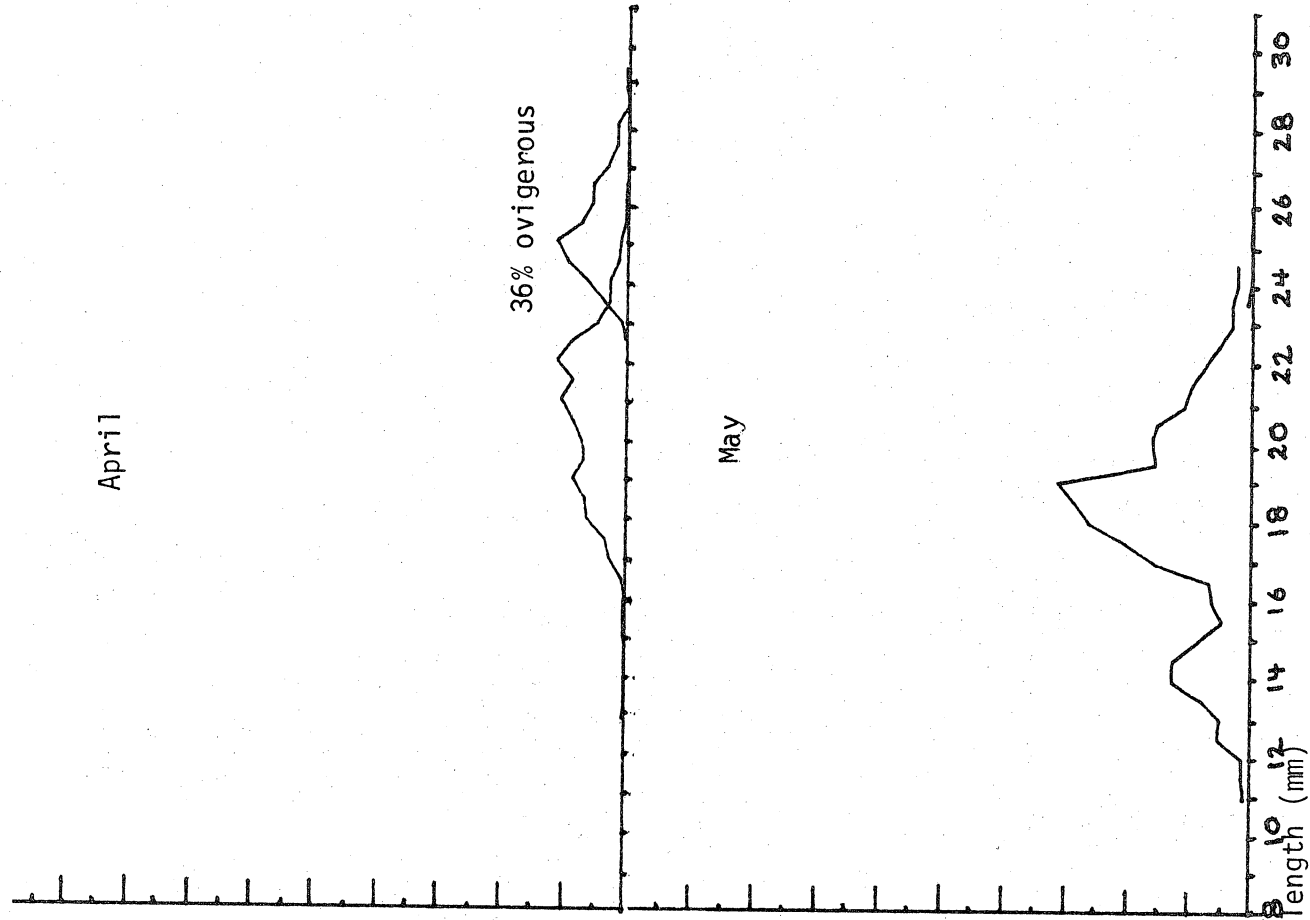
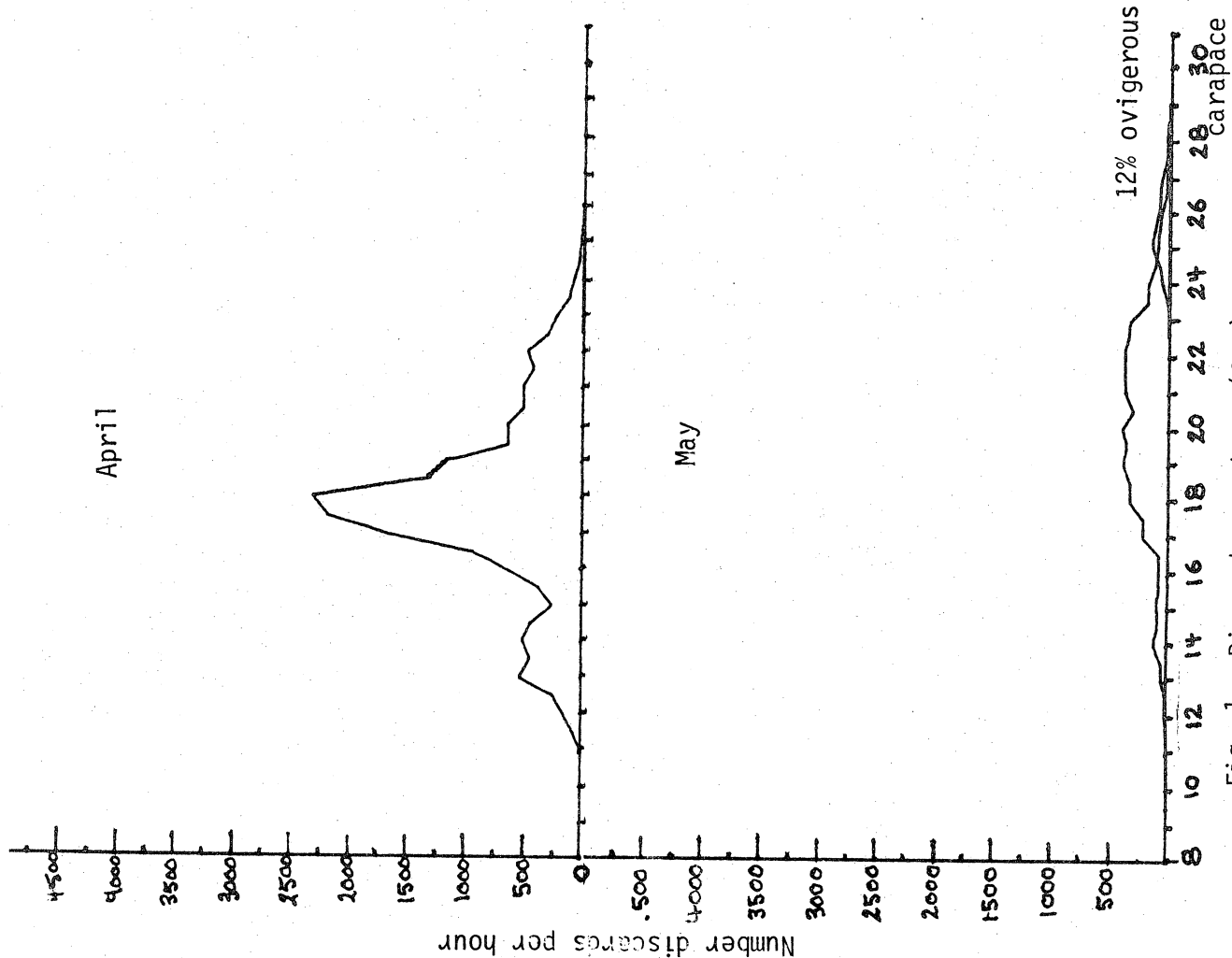


Fig. 1. Discards per hour (0+1), April-May 1980

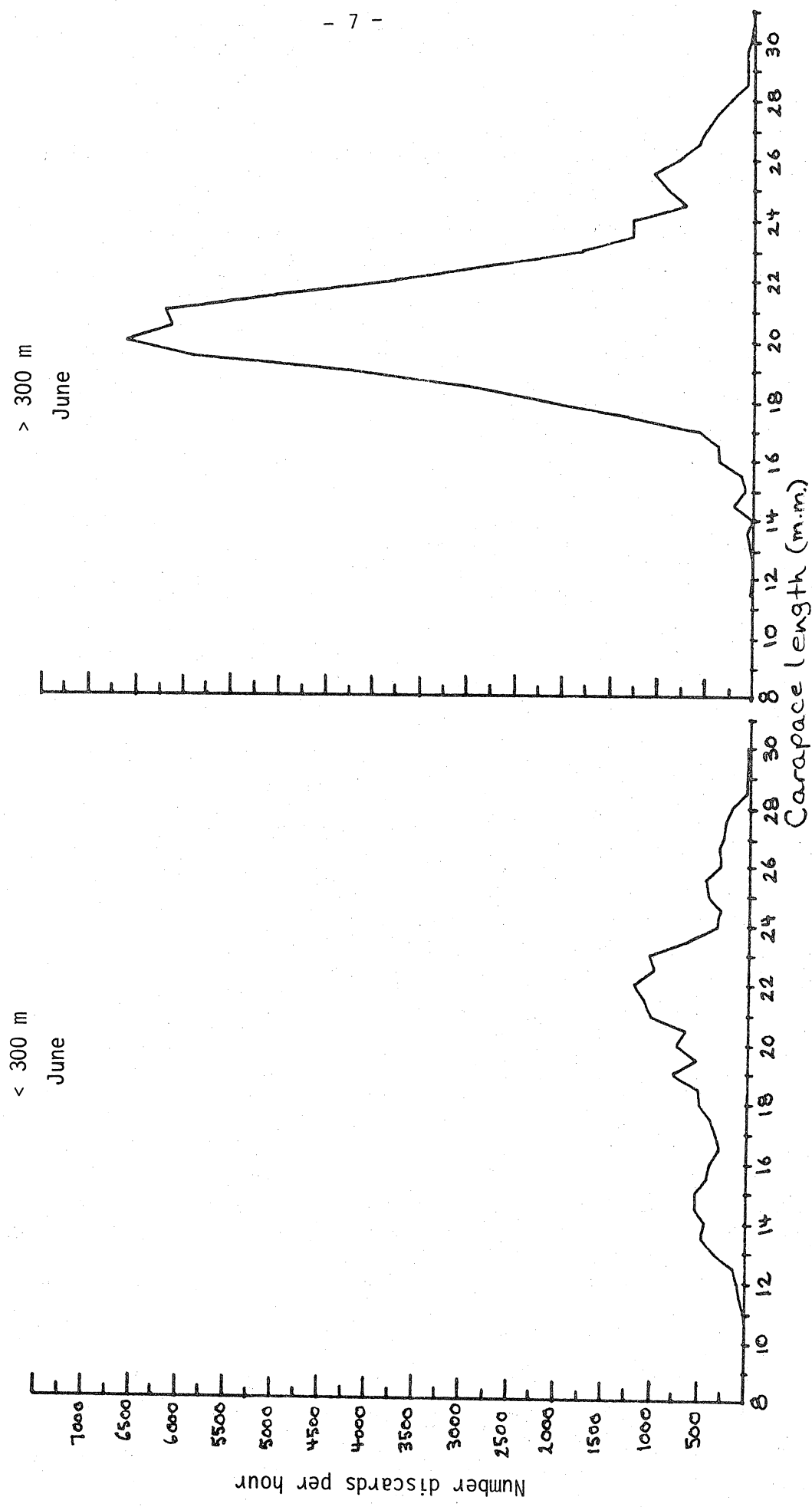


Fig. 2. Discards per hour (0+1), June 1980

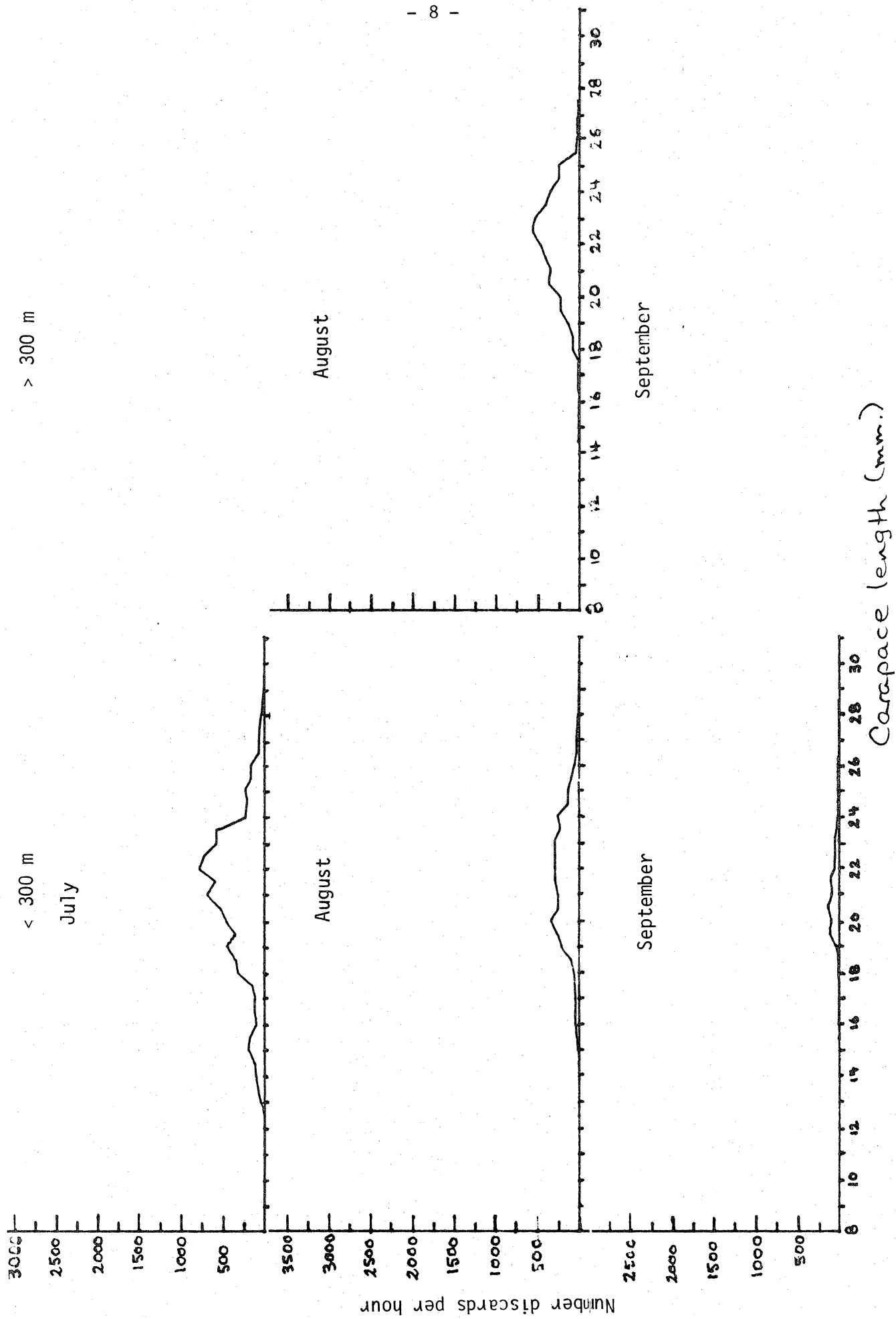


Fig. 3. Discards per hour (0+1) August-September 1980