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A Descriptive Report on the Discarding of Fish  
by the Canadian Offshore Fishery in ICNAF Subareas 2 and 3

by

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Introduction

Great concern has been expressed recently by STACRES (Redbook, 1977, p. 41 and 66) about the continued inadequacy of information on fish discarding in the Northwest Atlantic. With this concern in mind and realizing the importance of such discard data in assessment work, this report has been prepared. The report will attempt to summarize the more recent information available on the discarding of fish by the Canadian offshore fishery in Subareas 2 and 3. Thus, while bringing forth the available information on discarding by the Canadian fishery, this report will also point out areas where this information is scarce or completely lacking and hopefully will direct further studies in these areas.

Because of the minimal Canadian offshore fishery for pelagic and other species (excluding groundfish) in these Subareas, the Canadian groundfish fishery will be the major concern of this report. The report will summarize not only the information available on the discarding of undersized commercial species but also the information on the discarding of non-commercial species in Subareas 2 and 3.

"Discarding" in this report will refer to fish being thrown overboard at sea and not reported in nominal catches. It is surmised that all of the fish being discarded from commercial trawlers, as indicated in this report, are either dead or will die after being discarded. Reasons for this are: (a) generally these trawlers make tows of from 2-3 hours in duration; (b) it usually takes between 1 and 2 hours for the net to be taken back and the discards sorted; (c) the discarded fish are usually proned when being sorted and thrown overboard. Also, some trawlers are equipped with "screw-holes" which badly damage the discards while disposing of them.

Sources of Information

The information on discarding summarized in this report comes from two sources: (a) observer reports from discard surveys onboard Canadian (Nfld) trawlers, and (b) fishing logbook reports.

Observer Reports from Discard Surveys

This information was derived from seven discard survey trips onboard Canada (Nfld) commercial otter trawlers between October 1976 and February 1978 (Nfld. Biological Station unpublished data). These trips involved sending observers out on Canada (Nfld) based trawlers

during regular 10-12 day commercial groundfish fishing trips to determine the number and weights of fish discarded at sea and to obtain length and age data on these fish. All seven trips involved stern otter trawlers between 624 and 661 gross tons and covered five ICNAF Divisions. The type of gear used by these vessels was almost all Granton type otter trawls (130 mm codend) although one vessel used a Portuguese type otter trawl (130 mm codend). Table 1 gives a summary of the results of these discard surveys.

#### Logbook Reports

This information consists of reports made from 1973 to 1976 by captains of Canada (Nfld) commercial trawlers on fishing logbooks and reported for those years to ICNAF. These data include returns from Canada (Nfld) otter trawlers of three classes: (1) OT (Stern) 151-500 gross tons; (2) OT (Side) 151-500 gross tons; and (3) OT (Stern) 501-900 gross tons. One serious weakness in the data derived from fishing logbooks is the inconsistency of discard reports. Because of this inconsistency between vessel captains in the reporting of discard information, the data reported to ICNAF from this source and used in this report are derived from only those trips in which discards were reported consistently. This information was used to adjust to the amount of discards corresponding to the nominal catch of a particular species, area and vessel type. Another problem with logbook reports is that only discard information on commercial species is recorded, thus no estimates on the discarding of non-commercial species could be derived. Table 2 summarizes all the discard information derived from logbooks for the 1973-76 period.

#### Subarea 2

Divisions 2G and 2H - No information is available on the discarding of fish by the Canadian fishery in Divisions 2G and 2H. However, because of the relatively small offshore fishery in these Divisions by Canadian trawlers (only 697 metric tons of groundfish in 1976, up from almost none in years previous to this) discarding in these areas is probably insignificant in terms of total quantities discarded. Also, should the trend of increased fishing in Divisions 2G and 2H continue in future years and should discard data obtained in Division 2J be indicative of the 2G and 2H fisheries, discarding should not be a significant problem in these Divisions.

Division 2J - Information on the discarding of fish in Division 2J by the Canadian offshore fishery is available from two sources. One is the 1976 fishing logbook reports by Canada (Nfld) stern otter trawlers, 501-900 gross tons (see Table 2) and the other is a discard survey trip to the area in February of 1978 (see Table 1).

Cod, plaice, witch, Greenland halibut, redfish - The 1976 fishing logbook reports indicate catches for, but no discarding of, cod, American plaice, and witch in Division 2J and a minimal discarding of redfish and Greenland halibut (1.0% and 1.4% by weight respectively). Results from the 1978 discard survey to the area substantiate these logbook reports with catches but no discarding of cod, witch, Greenland halibut and redfish in this Division.

Other - The 1978 discard survey trip to the area reports catches of spotted wolffish with none being discarded. It also reports fair amounts of thorny skate being discarded (31.7 kg/hr fishing). For this trip all thorny skate caught were discarded which amounted to about 2% of the total amount of fish caught for the sets observed. The discarding of other non-commercial species for this Division 2J discard trip was minimal.

### Subarea 3

Division 3K - Discard information from 1973-76 fishing logbook reports by Canada (Nfld) otter trawlers, 501-900 gross tons (see Table 2) and from three discard survey trips to the area between March 1977 and February 1978 (see Table 1) is available for Division 3K.

Cod - Logbook reports from Canada (Nfld) stern otter trawlers (501-900 g.t.) indicate a minimal amount of cod discarding in Division 3K for the 1973-76 period (<1% by weight). Data from the three discard trips to the area further substantiate this figure with negligible amounts of cod being discarded (between 0% and <1% by weight), with cod being the major species caught for two of these trips.

American plaice - Discarding of American plaice in Division 3K as reported in 1973-76 Logbooks for Canada (Nfld) stern otter trawlers (501-900 g.t.) was 1.2% by weight. One discard survey trip in March 1977 to Division 3K recorded a figure similar to this of <1% by weight (or 1.6% by numbers). However, the two February 1978 discard trips to the area indicate a discard rate of 100% and 27.3% by weight. These American plaice were not undersized but were discards of commercial size fish. In total, an estimated 1600 kg of plaice were discarded from one of these trips and 900 kg from the other.

Greenland halibut - Logbook reports for 1973-76 for Canada (Nfld) stern otter trawlers (501-900 g.t.) indicate the discarding of Greenland halibut at a rate of 3.3% by weight in Division 3K. The three discard trips to the area report a discard rate of between 0% and <1% by weight even though substantial quantities of Greenland halibut were caught during these trips.

Witch - Logbook data for Canada (Nfld) stern otter trawlers (501-900 g.t.) for the 1973-76 period indicate the discarding of witch in Division 3K at a rate of 1.4% by weight. Results of three discard survey trips to the area give similar figures. They report the discarding of undersized witch from 0% to <1% by weight, with substantial quantities of witch being caught during these trips.

Redfish - The discarding of redfish in Division 3K as indicated in the fishing logbooks of Canada (Nfld) stern otter trawlers (501-900 g.t.) for the 1973-76 period amounts to 12.5% by weight of the redfish caught in this area by this class fishing vessel. This figure is somewhat higher than those obtained on the three discard trips to the area. The two trips in February 1978 indicate no discarding of redfish. The March 1977 trip reports a discard rate of 6.3% by weight of the redfish caught, which is closer to the logbook estimate. The redfish discarded during this trip were all undersized fish ( $\bar{w} = .27$  kg) and in terms of numbers of redfish discarded the figure was 14.8%.

Other - The three discard trips to Division 3K indicate fair catches of spotted wolffish with no discarding. However, 100% discarding of substantial catches of broadheaded wolffish, thorny skate, spiny skate, roundnose and roughhead grenadier are reported for these trips. During the March 1977 discard trip discarding of these five non-commercial species amounted to 14% by weight of the total fish caught during the trip.

Division 3L - Logbook reports of discarding in Division 3L by Canada (Nfld) otter trawlers are available for three vessel classes for the 1973-76 period: Stern 151-500 g.t., Side 151-500 g.t. and Stern 501-900 g.t. (See Table 2). Also, two discard survey trips were completed in May and June of 1977 in this Division (See Table 1).

Cod - Reports of discarding in Division 3L from the fishing logbooks of three classes of Canada (Nfld) trawlers for the 1973-76 period indicate that cod discarding is minimal in this area (figures ranging from 0% discarding for the two 151-500 g.t. class vessels to only <1% by weight for the 501-900 g.t. class vessels). The two 1977 discard survey trips to the area give similar results with 0% and <1% by weight cod discarding reported for these trips. The small number of cod which were discarded were undersized fish ( $\bar{w} = .40$  kg).

American plaice - The logbook reports for 1973-76 from Canada (Nfld) trawlers fishing in Division 3L indicate American plaice being discarded at rates of 1.9% by weight for stern otter trawlers (501-900 g.t.), 3.6% by weight for stern otter trawlers (151-500 g.t.) and a slightly lower rate of <1% by weight for side otter trawlers (151-500 g.t.). Results of the two discard trips to the area in 1977 indicate a much higher discard rate for American plaice in Division 3L. American plaice are reported as being discarded at a rate of 13.4% by weight for the May trip and 5.9% by weight for the June trip. Plaice discarded during both trips were all undersized fish ( $\overline{wt} = .20$  kg). Thus, in terms of numbers, 32.0% were discarded during the May trip and 17.6% during the June trip. Further studies should be initiated in this area so that a conclusive American plaice discard rate for Division 3L can be arrived at.

Yellowtail flounder - Division 3L yellowtail discarding for the 1973-76 period is reported at rates of 2.2% by weight for Canada (Nfld) stern otter trawlers (151-500 g.t.) and <1% by stern otter trawlers (501-900 g.t.). Results of a June 1977 discard trip to the area indicate substantial catches of yellowtail with no discarding whatsoever. This is in agreement with the stern otter trawl (501-900 g.t.) logbook reports.

Greenland halibut - The 1973-76 logbook data for all three vessel classes show low to moderate catches of Greenland halibut in Division 3L with no discarding of that species for that period. One discard survey trip to the area shows 100% discarding of Greenland halibut. However, this amounted to only a few undersized fish which had been caught during the trip (American plaice being the main species caught).

Witch - Logbook reports for the period 1973-76 from Canada (Nfld) stern otter trawlers (501-900 g.t.) indicate moderate catches and no discarding of witch in Division 3L. No witch were caught during the two discard trips to the area.

Redfish - According to logbook reports from Canada (Nfld) otter trawlers for all three vessel classes for the 1973-76 period, no redfish were being discarded in Division 3L. Because the two discard trips to 3L in 1977 were primarily American plaice trips, no redfish catches were reported.

Other - Small quantities of Atlantic halibut, spotted wolffish and striped wolffish are reported being caught during the May 1977 discard survey trip to Division 3L, with no discarding of these species taking place. Substantial quantities of thorny skate (129 kg/hours fishing) and Arctic eelpouts (26 kg/hours fishing) are reported as being 100% discarded during both discard trips to the area. Also, small quantities of broadheaded wolffish and common lumpfish are reported as 100% discarded during these trips.

Division 3M - The only information available on the discarding of fish by the Canadian fishery in Division 3M is fishing logbook reports from Canada (Nfld) stern otter trawlers (501-900 g.t.) for the 1973-76 period (See Table 2).

Cod, plaice, redfish, witch - The above-mentioned logbook reports show that the discarding of cod, American plaice and redfish were negligible in 3M (<1% by weight for each species) and that the discarding of witch was 0% for the 1973-76 period (only very small catches of witch were involved).

Yellowtail flounder - The 1973-76 logbook reports for Canada (Nfld) stern otter trawlers (501-900 g.t.) indicate that yellowtail were being discarded at a rate of 8.1% by weight for this period. However, with the small catches of 3M yellowtail involved (average of 8 m.t./year by Can (N) stern otter trawlers, 501-900 g.t. for 1973-76 period), this is not a significant problem.

Division 3N - Logbook reports of discarding in Division 3N by Canada (Nfld) otter trawlers are available for three vessel classes for the 1973-76 period: Stern 151-500 g.t., Side 151-500 g.t., and Stern 501-900 g.t. (See Table 2). Information is also available from an October 1976 discard survey trip to the area (See Table 1).

Cod - Logbook reports for the 1973-76 period from all three classes of Canada (Nfld) otter trawlers indicate no discarding of cod in Division 3N. Results of the October 1976 discard trip to the area also show no discarding of cod in Division 3N (however, cod catches were minimal during this trip).

American plaice - Logbook reports for the 1973-76 period show that American plaice were being discarded at a rate of 1.6% by weight for stern otter trawlers (501-900 g.t.), <1% by weight for side otter trawlers (151-500 g.t.) and 2.3% by weight for stern otter trawlers (151-500 g.t.). The October 1976 discard survey trip to Division 3N, during which American plaice was the major species caught, indicates the discarding of plaice at a much higher rate. Results of this trip show the discarding of plaice (all undersized fish,  $\bar{w} = .21$  kg) at a rate of 6.5% by weight and 16.3% by numbers. Further studies should be initiated in this area in order to arrive at conclusive results regarding the discarding of American plaice in Division 3N.

Yellowtail flounder - Canada (Nfld) logbook reports for the 1973-76 period indicate the discarding of yellowtail in Division 3N as <1% by weight for stern otter trawlers (501-900 g.t.), 2.1% by side otter trawlers (151-500 g.t.) and 2.9% by stern otter trawlers (151-500 g.t.). However, as in the case of American plaice discarding, the October 1976 discard survey to 3N shows a much higher rate of yellowtail discarding. Results of this trip show the yellowtail discard rate at 13.8% by weight. These were all undersized fish ( $\bar{w} = .18$  kg) and in terms of numbers the discard rate was 29.4%. Again, further studies should be carried out in Division 3N.

Witch - Significant catches of witch with a discard rate of 1.5% by weight are indicated on the 1973-76 logbook reports for Canada (Nfld) stern otter trawlers (501-900 g.t.) fishing in Division 3N. Substantial catches of witch, with no discarding, are also reported during the October 1976 discard trip to the area.

Redfish - Only minimal catches of redfish, with no discarding, are reported in 1973-76 logbook reports for the three classes of Canada (Nfld) otter trawlers fishing in Division 3N. No redfish were caught during the October 1976 discard trip to this area.

Other - Small catches of Greenland halibut, haddock, and Atlantic halibut are reported both in the 1973-76 logbook reports and during the October 1976 discard trip to 3N, with no discarding being reported for these species. The discard trip to the area shows substantial catches of thorny skate and common hake being totally discarded. For this trip thorny skate were discarded at a rate of 57.03 kg/hour fishing and common hake at a rate of 6.55 kg/hour fishing.

Division 30 - The only data available on the discarding of fish in Division 30 are those derived from 1973-76 logbook reports of three classes of Canada (Nfld) otter trawlers (See Table 2).

Cod, haddock, witch, redfish, common hake, pollock - According to the logbook reports from Canada (Nfld) otter trawlers, the discarding of cod, haddock, witch, redfish, common hake and pollock was between 0% and <1% by weight in Division 30 for the 1973-76 period.

American plaice - Logbook reports indicate that American plaice were being discarded at a rate of around 1% by weight by Canada (Nfld) stern otter trawlers (501-900 g.t.) and side otter trawlers (151-500 g.t.)

and at a slightly higher rate of 4.2% by weight by Canada (Nfld) stern trawlers (151-500 g.t.) during the 1973-76 period. However, bearing in mind the results of the 3N discard survey trip, it is suspected that discard rates at certain times in the year may be higher. Thus, studies into the discarding of American plaice in 3Ø should be initiated in order to arrive at a conclusive answer to this question.

Yellowtail flounder - Logbook reports for the 1973-76 period indicate that yellowtail were being discarded at a rate of 1% by weight by Canada (Nfld) stern otter trawlers (501-900 g.t.), 7.1% by stern otter trawlers (151-500 g.t.) and 6.2% by side otter trawlers (151-500 g.t.). Thus, especially in terms of the smaller class trawlers, the discarding of yellowtail in Division 3Ø seems to be significant. When one considers that the fish being discarded are probably all undersized fish, the discard rates in terms of numbers discarded will be even higher than those indicated by weight discarded.

Subdivision 3Ps - Discard information from 1973-76 logbook reports for Canada (Nfld) otter trawlers of three classes is available for Subdivision 3Ps (Table 2). Also, results of a December 1976 discard survey onboard a Canada (Nfld) commercial trawler to this area is available (Table 1).

Cod - The discarding of cod in Subdivision 3Ps is negligible according to logbook reports of three classes of Canada (Nfld) otter trawlers for the 1973-76 period. This is in agreement with a December 1976 discard survey to the area onboard a Canada (Nfld) commercial trawler during which no discarding, but substantial catches, of cod were recorded.

American plaice - American plaice discarding in 3Ps is reported at a rate of <1% by weight in the logbook reports of all three classes of Canada (Nfld) otter trawlers for the 1973-76 period. The December 1976 discard trip to 3Ps indicated a discard rate for American plaice of 1% by weight. Because all of these discarded fish were undersized ( $\bar{w} = .17$  kg) the discard rate for this trip in terms of numbers is somewhat higher at 7.6%.

Yellowtail flounder - Canada (Nfld) fishing logbook reports for 1973-76 show the discarding of yellowtail in Subdivision 3Ps at a rate of 1.2% by weight for stern otter trawlers (501-900 g.t.), 3.4% by weight for side otter trawlers (151-500 g.t.) and 3.0% by weight for stern otter trawlers (151-500 g.t.). Results of the discard trip to the area indicate no discarding of yellowtail (however, only minimal catches of yellowtail were reported for this trip).

Witch - The discarding of witch in Subdivision 3Ps is reported at a rate of <1% by weight by Canada (Nfld) fishing logbook reports for all three vessel classes during the 1973-76 period. The December 1976 discard trip to the area reported fair catches of witch with a discard rate of 0%.

Redfish - Discarding of redfish in 3Ps is reported at a rate of <1% by weight in logbook reports for all three classes of Canada (Nfld) otter trawlers for the 1973-76 period. This figure is substantiated by results of the 1976 discard trip to 3Ps in which fair catches of redfish were reported.

Other - Both 3Ps Canada (Nfld) logbook reports (1973-76 period) and the 3Ps discard survey trip indicate small catches but no discarding of haddock, common hake and pollock. The 1976 discard survey also indicated substantial catches of thorny skate, monkfish and common lumpfish and smaller catches of smooth skate being 100% discarded. Thorny skate was the predominant discarded species for this trip (67.8 kg discarded / hour fishing).

Subdivision 3Pn - Information on discarding in Subdivision 3Pn is available only from 1976 logbook reports for Canada (Nfld) stern otter trawlers (501-900 g.t.) and side otter trawlers (151-500 g.t.) (See Table 2).

Cod - The 1976 logbook reports for Canada (Nfld) otter trawlers of both classes indicate negligible discarding of cod in Subdivision 3Pn.

American plaice - Catches of American plaice in 3Pn are reported only on the logbooks of Canada (Nfld) stern otter trawlers (501-900 g.t.) for 1976, with no discarding occurring.

Witch - Logbook reports for 1976 for Canada (Nfld) otter trawlers indicate witch discarding in 3Pn at a rate of 2.0% by weight for stern otter trawlers (501-900 g.t.) and 0% for side otter trawlers (151-500 g.t.). These are the only data available on witch discarding in Subdivision 3Pn.

Greenland halibut - Small catches of Greenland halibut with no discarding are reported on Canada (Nfld) logbook reports for stern otter trawlers (501-900 g.t.) and side otter trawlers (151-500 g.t.) in 1976.

Redfish - The discarding of redfish in Subdivision 3Pn is reported on 1976 logbook reports as 1.2% by weight for Canada (Nfld) stern otter trawlers (501-900 g.t.) and <1% by weight for side otter trawlers (151-500 g.t.). No other information is available on the discarding of redfish in Subdivision 3Pn.

#### References

- ICNAF. 1975. Statistics on Discards, 1973. Intern. Comm. Northw. Atlant. Fish. Summ. Doc. 75/45, p. 2-3.
- ICNAF. 1976. Statistics on Discards, 1974. Intern. Comm. Northw. Atlant. Fish. Summ. Doc. 76/VI/29, p. 2-3.
- ICNAF. 1977. Statistics on Discards, 1975. Intern. Comm. Northw. Atlant. Fish. Summ. Doc. 77/VI/18, p. 3-5.

Table 1. Summary of discard data obtained from 7 discard trips in 5 ICNAF Divisions onboard Canada (Nfld) commercial otter trawlers (624-661 gross tons) during Oct. 1976-Feb. 1978 period.

Division(UNIT)	2J (204)				3K (344, 346)				3K (344)			
	February/1978				March/1977				February/1978			
# hrs. fished/ # sets	33.3 hrs/21 sets				127.5 hrs/47 sets				45.6 hrs/20 sets			
Depth range(m)	293-476				329-673				329-485			
Gear/codend mesh size	Granton/130 mm				Granton/130 mm				Portuguese/130 mm			
SPECIES	KG Kept (av. wt.)	Discarded (wt.)	% Disc. (#'s)	% Disc. (#'s)	KG Kept (av. wt.)	Discarded (wt.)	% Disc. (#'s)	% Disc. (#'s)	KG Kept (av. wt.)	Discarded (av. wt.)	% Disc. (#'s)	% Disc. (#'s)
Cod	54,174				10,658 (1.45)	9.1 (0.41)	<1.0	<1.0	10,454			
Plaice					9,702 (0.80)	43.1 (0.22)	<1.0	1.6	4,242 (0.57)	1,590.3 <sup>1</sup> (0.57)	27.3	27.3
Turbot	1,134				17,765 (1.77)	5.0 (0.25)	<1.0	<1.0	7,532	4.5 (1.13)	<1.0	<1.0
Witch	1,134				19,079 (0.74)	40.8 (0.21)	<1.0	<1.0	2,949	2.7 (0.54)	<1.0	<1.0
Yellowtail												
Redfish(Ment.)	2,995				5,104 (0.70)	341.7 (0.27)	6.3	14.8	4,946			
Spotted Wolfish	542				2,009							
Broadheaded Wolfish												
Thorny Skate					1057 (2.81)		100.0	100.0				
Spiny Skate												
Roundnose Grenadier												
Roughhead Grenadier												
Common Lumpfish												
Arctic Eelpout												
Other Fish												
Invertebrates												
Total Weight(Kg) (excluding in- vertebrates)	59,979	1058.1			124,320	19,835.0			30,123	2797.2		

(All weights in kilograms - round fish)

<sup>1</sup> estimated

<sup>2</sup> includes 1 greenland shark (est. 680 kg)



Table 1. (cont'd)

Division(UNIT)	3K (343,344, 347)				3L (329)				3L (328, 329)			
	February/1978				May/1977				June/1977			
Month/Year												
# Hrs. Fished/ # Sets	21.8 hrs/10 sets				86.3 hrs/27 sets				80.2 hrs/30 sets			
Depth range(m)	293-476				73-165				73-256			
Gear/mesh size	Granton/130 mm				Granton/130 mm				Granton/130 mm			
SPECIES	KG Kept (av. wt.)	KG Discarded (av. wt.)	% Disc. (# 's)	% Disc. (# 's)	KG Kept (av. wt.)	KG Discarded (av. wt.)	% Disc. (# 's)	% Disc. (# 's)	KG Kept (av. wt.)	KG Discarded (av. wt.)	% Disc. (# 's)	% Disc. (# 's)
Cod	12,523				1,108				5,336 (1.72)	13.6 (0.40)	<1.0	<1.0
Plaice		907 <sup>1</sup>	100.0	100.0	55,150 (0.59)	8531.8 (0.19)	13.4	32.0	31,443 (0.66)	1972.8 (0.20)	5.9	17.6
Turbot	1,588									6.8 (0.26)	100.0	100.0
Witch	1,361											
Yellowtail									7,586			
Redfish(Ment.)	1,134											
Atlantic halibut												
Spotted Wolffish	125				12							
Striped Wolffish					324							
Broadheaded Wolffish					11							
Thorny Skate						119.8 (5.99)	100.0	100.0		48.6 (5.4)	100.0	100.0
Arctic Eelpout		577.1 (3.05)	100.0	100.0		16283.1 (3.16)	100.0	100.0		5165.6 (2.86)	100.0	100.0
Common Lumpfish						1661.1 (1.30)	100.0	100.0		2638.4 (1.05)	100.0	100.0
Other Fish						49.9 (2.50)	100.0	100.0		2.3 (2.30)	100.0	100.0
Invertebrates						5.9	100.0	100.0				
Total Weight (kg) (excluding invertebrates)	16,731	1484.1			56,605	26652.0			44,365	9848.1		

(All Weights in Kilograms - Round fresh)

<sup>1</sup> estimated

Table 1. (cont'd)

Division(UNIT)	3N (317, 318)				3Ps (307, 308)			
	October/1976				December/1976			
Month/Year # hrs fished/ # sets	108.5 hrs/38 sets				35.0 hrs/12 sets			
Depth range(m)	64-91				73-174			
Gear/mesh size	Granton/130 mm				Granton/130 mm			
SPECIES	KG Kept (av.wt.)	KG Discarded (av.wt.)	% Disc. (wt.)	% Disc. (#'s)	KG Kept (av.wt.)	KG Discarded (av.wt.)	% Disc. (wt.)	% Disc. (#'s)
Cod	221				811			
Plaice	21,426 (0.59)	1491.4 (0.21)	6.5	16.3	3661 (0.99)	107.1 (0.17)	1.0	7.6
Witch	7,105				681			
Yellowtail	6,311 (0.46)	1008.6 (0.18)	13.8	29.4	200			
Redfish(Ment.)					529	5.9 (0.31)	1.0	
Haddock	18				136			
Pollock					163			
Hake (NK)		707.8	100.0	100.0	204			
Halibut	38							
Thorny Skate		6159.7	100.0	100.0		2374.8 (3.69)	100.0	100.0
Smooth Skate						* 25.0 (0.51)	100.0	100.0
Monkfish Common						904.3 (4.59)	100.0	100.0
Lumpfish						268.1 (3.58)	100.0	100.0
Other Fish						245.5	100.0	100.0
Invertebrates		4.5	100.0	100.0		125.7	100.0	100.0
Total weights (excluding in- vertebrates)	35,119	9367.5			10,385	3930.7		

(All Weights in Kilograms - Round fresh)

Table 2(a). Average nominal catches and discards for 1973-76 period for Canada (N) OT (Stern) 151-500 Tonnage Class as reported on fishing logbooks and as reported to ICNAF for those years.

(Weights in metric tons - round fresh)

SPECIES	3L		3N		3Ø		3Ps			
	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards		
Cod	7		32		31		159			
Haddock					1		9			
Redfish	+		+		1		116			
S. Hake										
R. Hake					5		5			
Pollock										
Am. Plaice	338	(3.6%) 12.5	880	(2.3%) 20.2	393	(4.2%) 17.3	764	(<1%) 4.7		
Witch	1		11		133		110	(1%) 1.3		
Yellowtail	59	(2.2%) 1.3	788	(2.9%) 23.8	79	(7.1%) 6.0	54	(3.0%) 1.7		
Gr. halibut	+						1			
Other Flo.	+				1		3			
RN Grenadier										
Other Gro'fish	21		9		6		8			
Av. Samp. Rate (%) <sup>2</sup>		41.2		38.7		33.9		32.9		
No. Yrs. Reported		4		4		4		3		

<sup>1</sup>Percentages indicate % of gross catch discarded (i.e.  $\frac{\text{Discards}}{\text{Nominal Catch \& Discards}} \times 100$ )

<sup>2</sup>Average sampling rate is a measure of the proportion of nominal catch in which discards were reported and from which discards for total nominal catch were derived for 1973-76 period.

Table 2(b). Average nominal catches and discards for 1973-76 period for Canada (N) OT (Side), 151-500 Tonnage Class as reported on fishing logbooks and as reported to ICNAF for those years.

(Weights in metric tons - round fresh)

SPECIES	3L		3N		3Ø		3Pn		3Ps	
	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards
Cod	60		26		42		654		920	
Haddock									53	
Redfish	81		2				1174	(<1% 4.0)	3462	(<1% 1.0)
S. Hake										
R. Hake									33	
Pollock									7	
Am. Plaice	255	(<1% 2.0)	297	(<1% 0.5)	206	(1% 2.0)			1120	(<1% 2.8)
Witch							26		59	
Yellowtail			350	(2.1% 7.5)	76	(6.2% 5.0)			23	(3.4% 0.8)
Gr. halibut	2						7			
Other Flo.									17	
RN Grenadier										
Other Gro'fish	20		2		7				113	
Av. Samp. Rate (%)		7.2		11.4		13.1		4.0		2.6
No. Yrs. Reported		1		2		1		1		4

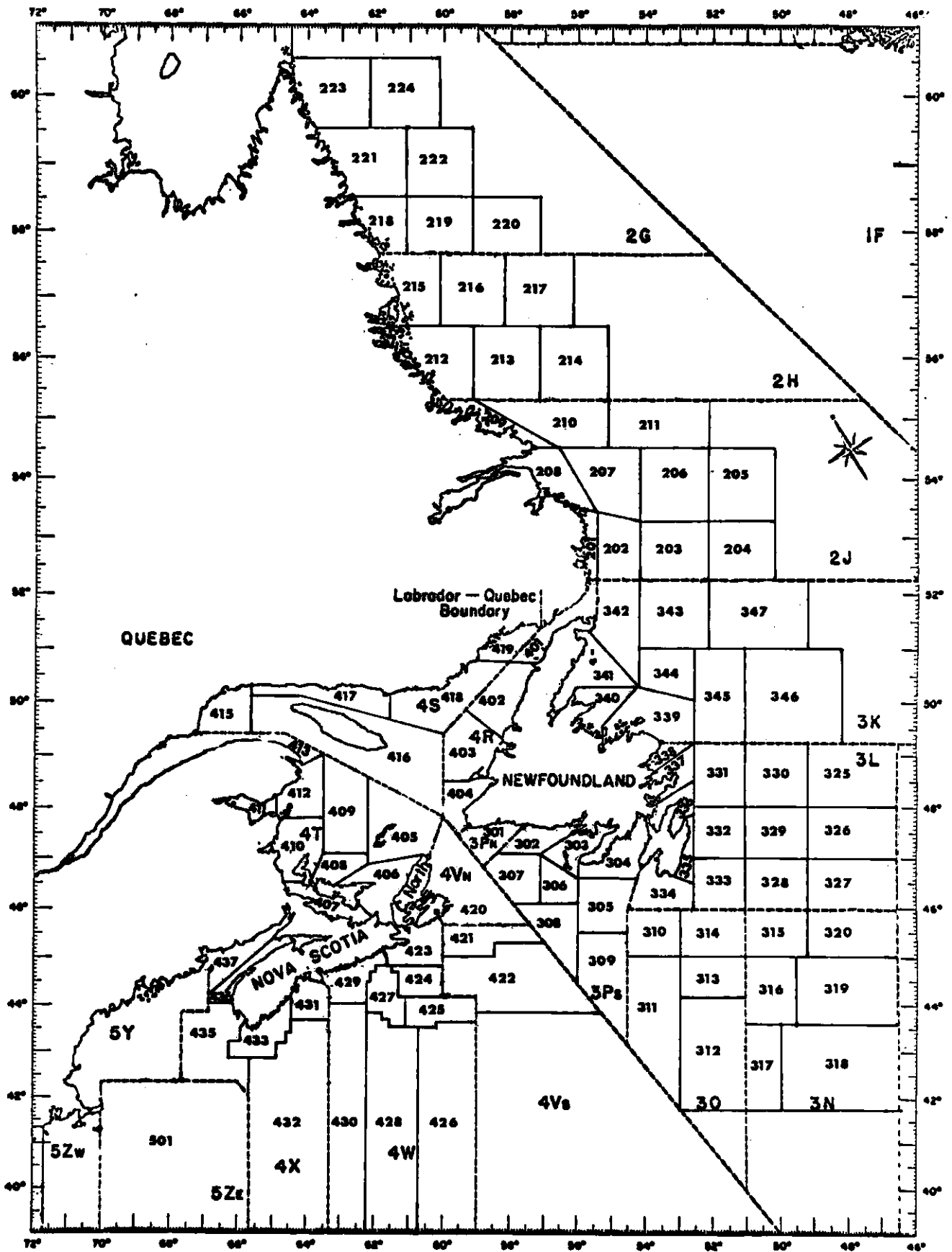
Table 2(c). Average nominal catches and discards for 1973-76 period for Canada (N) OT (Stern), 501-900 Tonnage Class as reported on fishing logbooks and as reported to ICNAF for these years.

(Weights in metric tons - round fresh)

SPECIES	2J		3K		3L		3M		3N	
	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards
Cod	78		313	(<1%) 2.5	1,145	(<1%) 3.2	54	(<1%) 0.3	649	(<1%) 0.5
Haddock									+	
Redfish	113	(1%) 1.0	28	(12.5%) 4.0	220		195	(<1%) 1.0	19	
S. Hake										
R. Hake					4					
Pollock										
Am. Plaice	2		367	(1.2%) 4.5	13,666	(1.9%) 260.2	145	(<1%) 1.3	13,399	(1.6%) 213.0
Witch	10		35	(1.4%) 0.5	392		3		526	(1.5%) 7.8
Yellowtail					1,768	(<1%) 4.0	8	(8.1%) 0.7	11,830	(<1%) 86.8
Gr. halibut	70	(1.4%) 1.0	44	(3.3%) 1.5	99				3	
Other Flo.					50				9	
RN Grenadier										
Other Gro'fish			43		1,035		7		132	(<1%) 0.8
Av.Samp.Rate(%)	14.0		36.4		16.4		44.1		17.8	
No.Yrs.Reported	1		2		4		3		4	

SPECIES	3Ø		3Pn		3Ps					
	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards	Nominal Catch	Dis-cards				
Cod	673	(<1%) 1.0	130	(<1%) 1.0	1,225	(<1%) 1.8				
Haddock	3				47					
Redfish	14		238	(1.2%) 3.0	458	(<1%) 0.5				
S. Hake										
R. Hake	113				39					
Pollock	1				8					
Am. Plaice	5,469	(1.3%) 70.0	41		3,890	(<1%) 25.5				
Witch	2,192	(<1%) 6.5	49	(2%) 1.0	760	(<1%) 2.2				
Yellowtail	1,948	(1%) 20.0			731	(1.2%) 9.2				
Gr. Halibut			7		2					
Other Flo.	39				35					
RN Grenadier										
Other Gro'fish	89				160					
Av.Samp.Rate(%)	12.2		18.9		7.4					
No.Yrs.Reported	4		1		4					



Map of the Northwest Atlantic showing ICNAF Divisions and Canadian Unit Areas