

New England Mesh Selectivity Studies

Experiment Two

Inshore Groundfish

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Abstract

This is the preliminary report of results of the tests conducted from the fishing vessels LINDA B and METACOMET. The tests were conducted on March 22, 23, 25, and 28, 1978, in inshore waters off Gloucester, Massachusetts.

Personnel

LINDA B

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Thomas Testaverde - Fisherman
Peter Testaverde - Fisherman
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Tim Sullivan - Reporter (Gloucester Times) (3/28)

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Section 1

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Introduction

This experiment was the second in a series of four requested by the New England Regional Fisheries Management Council to provide a basis for evaluating the effect on present catches which could result from an increase in cod-end mesh size. The results of the first experiment, conducted in Scituate, Massachusetts, are contained in Woods Hole Laboratory Reference No. 78-12.

The method chosen was to conduct a conventional selectivity experiment comparing a commonly used commercial cod end with a larger size, both under actual commercial fishing conditions. These trials were performed according to international standards to allow for comparison with past research (Pope et al. 1975). The goal was to determine the effects on catch composition of the two cod ends and obtain further selectivity data.

Selection Factor

When discussing mesh selectivity the key term used is "selection factor." The selection factor is equal to the 50% retention length (the length at which half the fish entering the net are retained) divided by the mesh size.

$$\text{Selection Factor} = \frac{\text{50\% retention length (mm)}}{\text{mesh size (mm)}}$$

This statistic is usually sufficient to represent the overall selection process for most purposes, such as deriving the 50% retention length for other mesh sizes. Selection factors vary with species, catch size, cod-end material, and length of tow.

Average mesh-selection factors for cod and haddock, obtained from previous experiments with double-braided polyamide (nylon) trawl nets, were 3.6 and 3.4, respectively (Holden 1971, p. 40). For yellowtail flounder, the average selection factor for polyamide twine was 2.3--a factor determined from tests conducted by Lux (1968) aboard two New Bedford fishing boats in 1967.

Choosing Cod Ends

The four cod ends used during this experiment were the same ones used during the first experiment. The two small cod ends, which averaged 106 mm (4.2 inches) during the first experiment, averaged 99 mm (3.9 inches) during this experiment for both vessels.

The two large cod ends, which averaged 139 mm (5.5 inches) on both vessels during the first experiment, averaged 128.7 mm (5.1 inches) and 134.0 mm (5.3 inches) on the LINDA B and METACOMET, respectively. The overall average during the second experiment was 131.3 mm (5.2 inches).

The mean selection lengths for the cod ends used in this experiment were predicted to be as follows:

Species	(S.F.)	99 mm (03.9 inches)	129 mm (05.1 inches)	134 mm (05.3 inches)
Cod	(3.6):	35.6 cm (14.0 inches)	46.4 cm (18.3 inches)	48.2 cm (19.0 inches)
Haddock	(3.4):	33.7 cm (13.3 inches)	43.9 cm (17.3 inches)	45.6 cm (17.9 inches)
Yellowtail	(2.3):	22.8 cm (09.0 inches)	29.7 cm (11.7 inches)	30.8 cm (12.1 inches)

Study Areas

The study areas were jointly chosen by the captains of the participating fishing vessels. Areas selected were expected to contain adequate numbers of cod in the desired range, 12-32 inches (30-81 cm, or 1-6 years of age), together with flounder species. The area was also to have good bottom to avoid tear-ups.

Gear

The trawls and associated rigging for the experiment were chosen by the individual captains. Detailed information is presented in Tables 1 and 2 and in Figures 1, 2, and 3.

Two cod ends (99 mm and 131 mm) were provided for each boat as well as a 50-mm (2-inch) cover. The cover was 25% larger in circumference and about 2.5 m (8.2 ft) longer than the cod ends. The covers were attached to the cod ends by rings for quick connecting and disconnecting. Floats were attached to the top of the covers to minimize masking of the cod end (blocking of the cod-end mesh by the cover) (Figure 3).

Procedures

The experiment consisted of four four-tow series by each vessel. The four-tow series was chosen to minimize cod-end changes during the experiment and thus consisted of the following:

Day 1	Day 2	Day 3	Day 4
Sm mesh	Lg mesh w/cover	Sm mesh w/cover	Lg mesh
Sm mesh w/cover	Lg mesh	Sm mesh	Lg mesh w/cover
Lg mesh	Sm mesh w/cover	Lg mesh w/cover	Sm mesh
Lg mesh w/cover	Sm mesh	Lg mesh	Sm mesh w/cover

Both vessels towed in the same order, usually within a kilometer of each other. Vessel speed was maintained at 2.5-3.0 knots. The tows were conducted during daylight hours only.

At the conclusion of each tow, the respective catches (if a cover was used) were kept segregated. The gear was meticulously checked and if there was any major damage in the cod end, the tow was rejected. Notes were taken on anything unusual that may have affected the selectivity such as rocks in the cod end or fouled gear. Cod-end and cover knots were tied tight and a piece of old webbing was placed in the end to prevent leakage of catch.

After each tow, 30 cod-end meshes were measured along the top of the cod end in one row running fore and aft. They were measured using an ICES gauge set at 4-kg pressure.

Catches were segregated (cod end and cover when used) and worked up separately. Any fish found forward of the cod end were excluded because they may not have undergone the cod-end selection process. The catch was sorted by species into 1- and 2-bushel baskets, weighed, and length-frequency data recorded for each species. Subsamples were taken if the catch was large.

Girth data were also recorded at intervals throughout the experiment.

All data were recorded on standardized groundfish survey trawl logs.

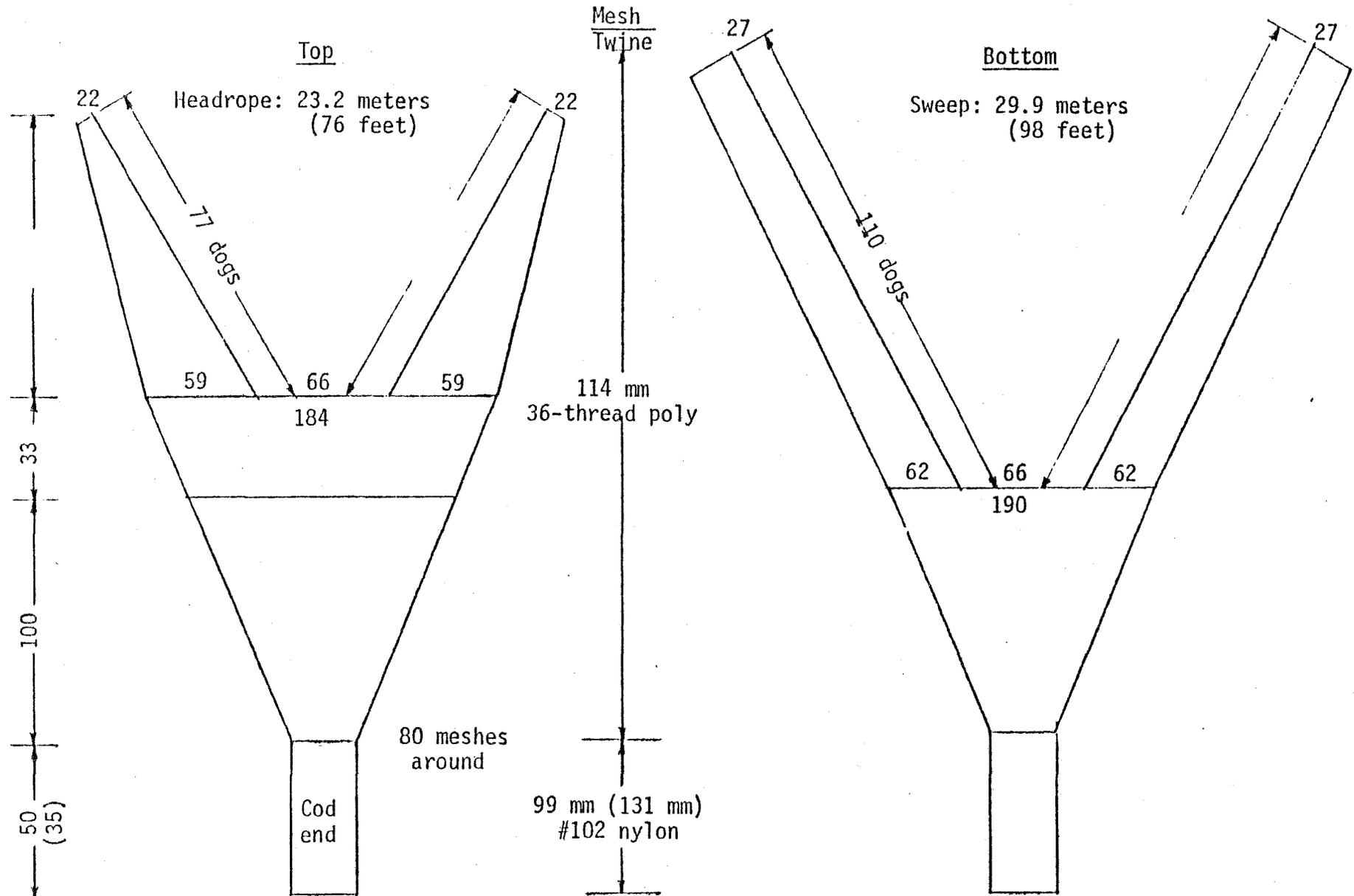
Table 1. Vessel specifications.

Item	LINDA B	METACOMET
Type vessel	Eastern rig side trawler	
Home port	Gloucester, Massachusetts	
Call sign	WC 8799	WF 2782
Length	17.4 m (57 ft)	16.8 m (55 ft)
Gross tons	32 tons	33 tons
Draft	2.3 m (7.5 ft)	1.9 m (6.2 ft)
Speed	10 knots	9 knots
Engine and Drive	Detroit Diesel 8V71N 3:1 reduction	Detroit Diesel 8V71N 4.5:1 reduction
Horsepower	240 SHP @ 1800 RPM	240 SHP @ 1800 RPM

Table 2. Gear Specifications.

Gear	LINDA B	METACOMET
Trawl (forward parts)	114-mm average mesh size with 108-mm mesh extension. 30-thread polypropylene.	108-mm average mesh size. 36-thread polypropylene.
Cod ends	Type 1: 99-mm average mesh size; 80 meshes around by 50 deep; #102 braided nylon twine, machine-made. Type 2: 131-mm average mesh size; 80 meshes around by 35 deep; #102 braided nylon twine, handmade.	
Cover (when used)	50-mm average mesh size; 225 meshes around by 133 deep; #72 twisted nylon twine, machine-made.	
Headrope	23.2 m (76 ft) of 1-inch polypropylene.	21.0 m (69 ft) of 7/8-inch nylon.
Footrope (sweeps)	5/16-inch chain hung in small bights.	3/8-inch chain hung in small bights.
Floats	8 plastic floats (8-inch).	9 plastic floats (8-inch).
Chafing gear	Mat of polyethylene strands covering aft half (and underside only) of cod end and cover.	
Doors	Rectangular-shaped of wood and steel construction, 2 m (6.5 ft) long by 1.1 m (3.6 ft) wide, weighing 270 kg (600 lb). Bracket triangular-shaped of steel bar.	Rectangular shaped of wood and steel construction, 2 m (6.5 ft) long by 1.1 m (3.6 ft) wide, weighing 337 kg (750 lb). Bracket triangular-shaped of steel bar, located 0.48 m (1.6 ft) from forward end.
Backstraps	Two 2-m (6.5-ft) lengths of 9.5-mm (3/8-inch) chain.	
Bridle wires (legs)	18.3 m (60 ft) of 12.7-mm (1/2-inch) 6 X 19 wire.	
Trawl wire	14.3-mm (9/16-inch) 6 X 19 wire.	12.7-mm (1/2-inch) 6 X 19 wire.
Ground cables	27.4 m (90 ft) of 14.3-mm (9/16-inch) 6 X 19 wire.	36.6 m (120 ft) of 12.7-mm (1/2-inch) 6 X 19 wire.
Misc.	No quarter ropes, bull rope, or tickler chains used during test (bull rope normally used). Lazy-line 36.6-m (120-ft) loop and 18.3-m (60-ft) lead. 36.6-m (120-ft) loop and 18.3-m (60-ft) lead.	

Figure 1. Trawl Diagram, F/V LINDA B.



Trawl dimensions in meshes.

Figure 2. Trawl Diagram, F/V METACOMET

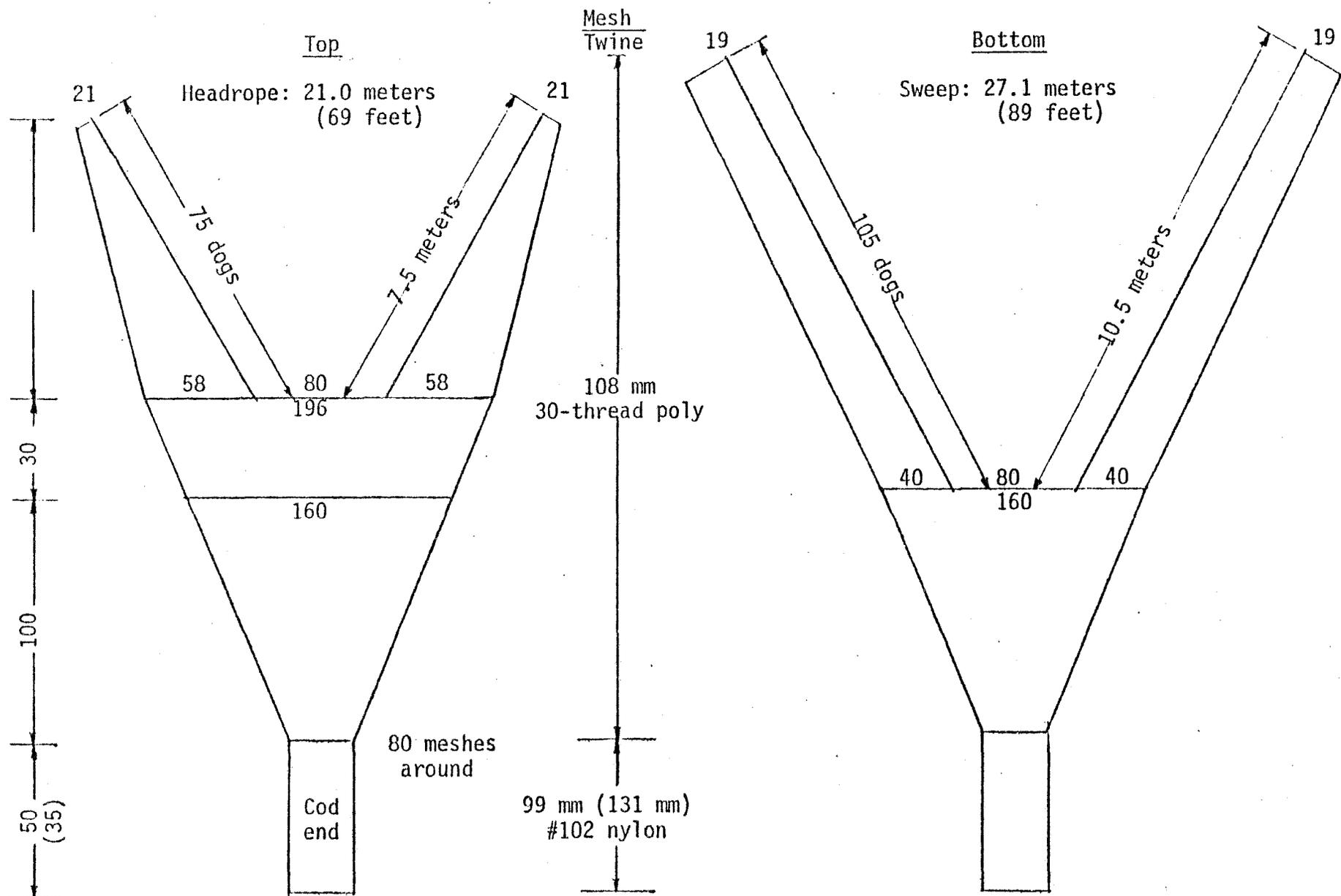
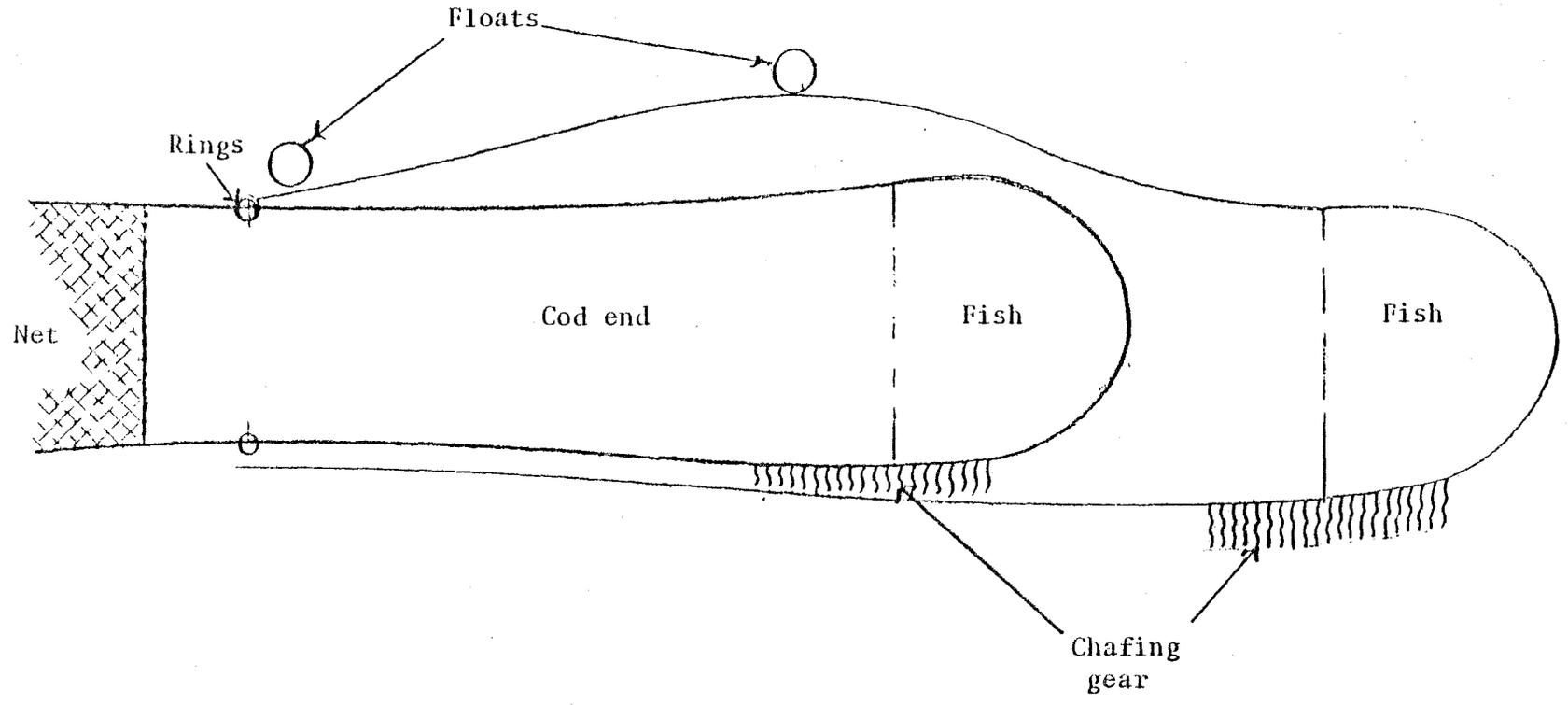


Figure 3

COVER RIGGING



Section 2

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Mesh Measurements

Thirty meshes were measured after each tow; and means, standard deviations, and standard errors calculated (Table 3). The mean mesh size for the small cod ends on both vessels was practically the same, equalling 99 mm (3.9 inches) when rounded off to the nearest millimeter. These same cod ends were used in the previous Scituate experiment and had averaged 106 mm (4.2 inches).

The large cod ends, which had averaged 139 mm (5.5 inches) during the Scituate experiment, had a mean mesh size during this experiment of 131 mm (5.2 inches). However, the difference between the average mesh size of the two large cod ends, which was 3.5 mm during the Scituate experiment, had grown to 5.3 mm (0.2 inches).

We found that the difference between the average mesh sizes of the large cod ends may have caused a measurable difference in the selection between the two vessels. This is shown further on in the Results section under yellowtail flounders. However, for the other species covered, we could not positively discern this due to an insufficient amount of data, so the large cod-end catch from both vessels was grouped using the 131-mm overall average as the mesh size.

Both mesh gauges were tested against each other by measuring 10 of the same meshes and found to be reading the same. In addition, each gauge was tested by pulling against a calibrated spring scale and found to be calibrated correctly at 4-kg pressure.

Tow Summary

The tows were conducted as described in the Methods section, the basic tow data being presented in Table 4. The Captains followed normal commercial practice of changing course to follow contours, go around hard bottom (rock piles), and pursue fish traces on the echo sounder.

There were large variations in catch size and composition between tows, even on a daily basis, making an actual catch comparison between cod-end sizes difficult.

Many tows came up with lost lobster traps and big pieces of waterlogged wood that were in the area due to the large February storm. The LINDA B snagged 14 lobster traps in 6 tows, the largest catch being 4 traps. The METACOMET snagged 6 traps in 2 tows, one tow accounting for 5 traps. The traps' condition varied from good to broken up. There were no lobsters in any of the traps nor any good buoys or lines attached. The traps were all found on sand or mud bottom. Most of the traps were caught on the twine forward of the trawl extension. No obvious effect on mesh selectivity was apparent.

The basic catch data is presented in Table 5, blackback being winter flounder and dabs indicating American plaice. The "other" category consisted mainly of windowpane flounder, sculpin, skates, crabs, and sea ravens. The METACOMET grouped the ocean pout with the "other" category.

There was a small incidental catch of goosefish, lumpfish, wolffish, grey sole, and 12 lobsters. One small halibut, a 15-lb sturgeon, and a 74-cm haddock were caught. Only a few small pollock were caught throughout the study except for METACOMET Tow 11 where 140 pollock (13 kg) were found in the cover, measuring 18-30 cm, the majority being 19-22 cm.

Table 3. Mesh measurement statistics.

A. Small cod end.

Trawl stations									Overall
1	2	7	8	9	10	15	16		
<u>LINDA B</u>									
N = 30	N = 240								
\bar{X} = 98.23	\bar{X} = 98.67	\bar{X} = 100.13	\bar{X} = 99.73	\bar{X} = 98.87	\bar{X} = 98.87	\bar{X} = 100.10	\bar{X} = 99.50	\bar{X} = 99.26 mm (3.9 inches)	
Sx = 4.10	Sx = 2.38	Sx = 2.61	Sx = 2.59	Sx = 2.24	Sx = 2.70	Sx = 2.37	Sx = 2.93	Sx = 2.74	
S \bar{X} = 0.75	S \bar{X} = 0.44	S \bar{X} = 0.48	S \bar{X} = 0.47	S \bar{X} = 0.41	S \bar{X} = 0.49	S \bar{X} = 0.43	S \bar{X} = 0.54	S \bar{X} = 0.177	95% limits = 98.9-99.6 mm
<u>METACOMET</u>									
N = 30	N = 240								
\bar{X} = 101.60	\bar{X} = 96.60	\bar{X} = 98.40	\bar{X} = 97.90	\bar{X} = 97.70	\bar{X} = 98.70	\bar{X} = 98.80	\bar{X} = 98.50	\bar{X} = 98.53 mm (3.9 inches)	
Sx = 4.00	Sx = 3.50	Sx = 4.10	Sx = 3.10	Sx = 2.90	Sx = 3.60	Sx = 3.60	Sx = 3.40	Sx = 3.53	
S \bar{X} = 0.70	S \bar{X} = 0.60	S \bar{X} = 0.80	S \bar{X} = 0.60	S \bar{X} = 0.50	S \bar{X} = 0.70	S \bar{X} = 0.70	S \bar{X} = 0.60	S \bar{X} = 0.228	95% limits = 98.07-98.99

B. Large cod end.

Trawl stations								Overall	
3	4	5	6	11	12	13	14		
<u>LINDA B</u>									
N = 30	N = 240								
\bar{X} = 127.60	\bar{X} = 127.27	\bar{X} = 128.57	\bar{X} = 129.23	\bar{X} = 130.43	\bar{X} = 128.83	\bar{X} = 128.53	\bar{X} = 129.17	\bar{X} = 128.70 mm (5.1 inches)	
Sx = 3.87	Sx = 3.37	Sx = 3.45	Sx = 3.26	Sx = 3.92	Sx = 3.02	Sx = 3.5164	Sx = 2.48	Sx = 3.36	
S \bar{X} = 0.71	S \bar{X} = 0.62	S \bar{X} = 0.63	S \bar{X} = 0.59	S \bar{X} = 0.72	S \bar{X} = 0.55	S \bar{X} = 0.64	S \bar{X} = 0.45	S \bar{X} = 0.217	95% limits = 128.3-129.1 mm
<u>METACOMET</u>									
N = 30	N = 240								
\bar{X} = 133.30	\bar{X} = 135.30	\bar{X} = 134.80	\bar{X} = 134.30	\bar{X} = 133.90	\bar{X} = 132.90	\bar{X} = 132.90	\bar{X} = 134.40	\bar{X} = 133.98 mm (5.27 inches)	
Sx = 3.20	Sx = 5.60	Sx = 3.70	Sx = 4.10	Sx = 3.50	Sx = 4.90	Sx = 3.30	Sx = 5.10	Sx = 4.18	
S \bar{X} = 0.60	S \bar{X} = 1.00	S \bar{X} = 0.70	S \bar{X} = 0.08	S \bar{X} = 0.60	S \bar{X} = 0.90	S \bar{X} = 0.60	S \bar{X} = 0.90	S \bar{X} = 0.270	95% limits 133.44-134.52 mm

N = number of meshes measured. \bar{X} = average (mean) size of meshes (mm).

Sx = standard deviation indicating variation in mesh sizes.
Two times Sx, added to and subtracted from \bar{X} , gives the size limits between which 95% of the meshes fall.

S \bar{X} = standard error which is a measure of the preciseness of the mean.
Two times S \bar{X} , added to and subtracted from \bar{X} , gives the 95% confidence limits of \bar{X} shown in this table.

Average mesh sizes, both vessels combined:
Small cod end = 98.89 mm (3.9 inches).
Large cod end = 131.34 mm (5.17 inches).

Table 4. Tow data (all tows 1 hr from set to haul-back).

A. 22 March 1978. Between Long Beach and Eastern Point, Gloucester, Massachusetts. Bottom type: sand and mud.

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 1</u>		
Cod end:	Small mesh uncovered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	East	East
Start time:	0640	0640
Avg. depth:	24 fms (43.9 m)	24 fms (43.9 m)
Weather:	Wind WSW at 20 knots; seas 4 ft; overcast.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 2</u>		
Cod end:	Small mesh covered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	East	East
Start time:	0830	0826
Avg. depth:	25 fms (45.7 m)	25 fms (45.7 m)
Weather:	Wind West at 25 knots; seas 4 ft; partly cloudy.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 3</u>		
Cod end:	Large mesh uncovered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	West	West
Start time:	1015	1015
Avg. depth:	27 fms (49.3 m)	27 fms (49.3 m)
Weather:	Wind West at 30 knots; seas 4 ft; cloudy.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 4</u>		
Cod end:	Large mesh covered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	West	West
Start time:	1150	1200
Avg. depth:	25 fms (45.7 m)	25 fms (45.7 m)
Weather:	Wind WNW at 30 knots; seas 5 ft; partly cloudy.	

B. 23 March 1978. East of Thatcher's Island, Gloucester, Massachusetts. Bottom type: sand and mud.

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 5</u>		
Cod end:	Large mesh covered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	East	East
Start time:	0600	0615
Avg. depth:	28 fms (51.2 m)	28 fms (51.2 m)
Weather:	Wind SSE at 15 knots; seas 3 ft; overcast.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 6</u>		
Cod end:	Large mesh uncovered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	North	North
Start time:	0730	0755
Avg. depth:	30 fms (54.8 m)	30 fms (54.8 m)
Weather:	Wind SSE at 15 knots; seas 3 ft; partly cloudy.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 7</u>		
Cod end:	Small mesh covered	
Wire out:	100 fms (182.9 m)	125 fms (228.5 m)
Course:	North	North
Start time:	0915	0945
Avg. depth:	40 fms (73.1 m)	35 fms (64.0 m)
Weather:	Wind SSE at 10 knots; seas 2 ft; partly cloudy.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 8</u>		
Cod end:	Small mesh uncovered	
Wire out:	100 fms (182.9 m)	125 fms (228.5 m)
Course:	SW	SW
Start time:	1050	1050
Avg. depth:	40 fms (73.1 m)	40 fms (73.1 m)
Weather:	Wind South at 5 knots; seas 1 ft; partly cloudy.	

Table 4. Tow data (cont.)

C. 25 March 1978. Off Long Beach, Gloucester, Massachusetts. Bottom type: sand and mud.

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 9</u>		
Cod end:	Small mesh covered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	NE	NE
Start time:	0630	0630
Avg. depth:	22 fms (40.2 m)	22 fms (40.2 m)
Weather:	Wind NE at 10 knots; seas 1 ft; clear.	

<u>Tow 10</u>		
Cod end:	Small mesh uncovered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	SE	SE
Start time:	0755	0810
Avg. depth:	21 fms (38.4 m)	21 fms (38.4 m)
Weather:	Wind NE at 10 knots; seas 1 ft; clear.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 11</u>		
Cod end:	Large mesh covered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	SW	SW
Start time:	0945	0950
Avg. depth:	24 fms (43.9 m)	24 fms (43.9 m)
Weather:	Wind North at 10 knots; seas 1 ft; clear.	

<u>Tow 12</u>		
Cod end:	Large mesh uncovered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	NE	NE
Start time:	1115	1130
Avg. depth:	21 fms (38.4 m)	21 fms (38.4 m)
Weather:	Wind North at 5 knots; seas calm; clear.	

D. 28 March 1978. Vicinity of Thatchers Island, Gloucester, Massachusetts. Bottom type: sand and mud.

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 13</u>		
Cod end:	Large mesh uncovered	
Wire out:	100 fms (182.9 m)	125 fms (228.5 m)
Course:	North	North
Start time:	0600	0610
Avg. depth:	32 fms (58.5 m)	38 fms (69.5 m)
Weather:	Wind WSW at 15 knots; seas 3 ft; partly cloudy.	

<u>Tow 14</u>		
Cod end:	Large mesh covered	
Wire out:	100 fms (182.9 m)	125 fms (228.5 m)
Course:	SW	SW
Start time:	0730	0730
Avg. depth:	37 fms (67.6 m)	44 fms (80.4 m)
Weather:	Wind WSW at 15 knots; seas 3 ft; partly cloudy.	

	<u>LINDA B</u>	<u>METACOMET</u>
<u>Tow 15</u>		
Cod end:	Small mesh uncovered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	SW	SW
Start time:	1100	1030
Avg. depth:	24 fms (43.9 m)	24 fms (43.9 m)
Weather:	Wind WSW at 20 knots; seas 4 ft; partly cloudy.	

<u>Tow 16</u>		
Cod end:	Small mesh covered	
Wire out:	100 fms (182.9 m)	100 fms (182.9 m)
Course:	West	West
Start time:	1100	1030
Avg. depth:	24 fms (43.9 m)	24 fms (43.9 m)
Weather:	Wind WSW at 20 knots; seas 4 ft; partly cloudy.	

Table 5. Catch weight data.

			LINDA B		METACOMET	
			kg	lb	kg	lb
TOW 1						
Small cod end	Cod	-	6.1	13.4	18.2	40.0
	Yellowtail	-	138.9	305.6	127.1	279.6
	Blackback	-	37.4	82.3	24.6	56.3
	Dabs	-	12.4	27.3	10.6	23.3
	Ocean pout	-	40.0	88.0	117.4	258.3
	Other	-	55.0	121.0		
	Total		289.8	637.6	297.9	655.4
TOW 2						
Small cod end	Cod	-	16.1	35.4	1.3	2.9
	Yellowtail	-	92.4	203.3	80.4	176.9
	Blackback	-	31.5	69.3	25.5	56.1
	Dabs	-	8.8	19.4	9.3	20.5
	Ocean pout	-	80.0	176.0	59.1	130.0
	Other	-	48.0	105.6		
	Total		276.8	609.0	175.6	386.5
TOW 2						
Cover	Cod	-	0.6	1.3	0.7	1.5
	Yellowtail	-	0.6	1.3	0.8	1.8
	Blackback	-	0.3	0.7	0.4	0.9
	Dabs	-	0.2	0.4	1.6	3.5
	Ocean pout	-	8.0	17.6	4.0	8.8
	Other	-	0.6	1.3		
	Total		10.3	22.7	7.5	16.5
TOW 3						
Large cod end	Cod	-	14.0	30.8	1.6	3.5
	Yellowtail	-	101.5	223.3	68.1	149.8
	Blackback	-	18.0	39.6	14.3	31.5
	Dabs	-	7.6	16.7	2.5	5.5
	Ocean pout	-	80.0	176.0	38.9	85.6
	Other	-	23.0	50.6		
	Total		244.1	537.0	125.4	275.9
TOW 4						
Large cod end	Cod	-	20.8	45.8	2.0	4.4
	Yellowtail	-	94.3	207.5	85.1	187.2
	Blackback	-	25.2	55.4	35.5	77.7
	Dabs	-	8.8	19.4	18.7	41.1
	Ocean pout	-	44.0	96.8	34.3	75.5
	Other	-	20.0	44.0		
	Total	-	213.1	468.8	175.4	385.9

Table 5. Catch weight data (continued).

		LINDA B		METACOMET	
		kg	lb	kg	lb
TOW 4	Cod	- 0.9	2.0	4.8	10.6
Cover	Yellowtail	- 4.0	8.8	10.6	23.3
	Blackback	- 3.9	8.6	20.9	46.0
	Dabs	- 3.5	7.7	13.1	28.8
	Ocean pout	- 30.0	66.0	100.0	220.0
	Other	- 5.0	11.0		
	Total	47.3	104.1	149.4	328.7
TOW 5	Cod	- 3.0	6.6	3.4	7.5
Large cod end	Yellowtail	- 53.0	116.6	38.5	84.7
	Blackback	- 11.5	25.3	5.2	11.4
	Dabs	- 13.4	29.5	4.7	10.3
	Ocean pout	- 55.0	121.0		
	Other	- 45.0	99.0	16.0	35.2
	Total	180.9	398.0	67.8	149.2
TOW 5	Cod	- 1.2	2.6	1.5	3.3
Cover	Yellowtail	- 9.3	20.5	15.3	33.7
	Blackback	- 4.2	9.2	10.1	22.2
	Dabs	- 24.0	52.8	14.7	32.3
	Ocean pout	- 10.0	22.0		
	Other	- 2.5	5.5	30.0	66.0
	Total	51.2	112.6	71.6	157.5
TOW 6	Cod	- 76.6	168.5	38.5	84.7
Large cod end	Yellowtail	- 60.1	132.2	41.2	90.6
	Blackback	- 21.7	47.7	17.5	38.5
	Dabs	- 18.5	40.7	13.8	30.4
	Ocean pout	- 67.5	148.5		
	Other	- 35.0	77.0	53.4	117.5
	Total	279.4	614.7	164.4	361.7
TOW 7	Cod	- 711.3	1564.9	221.1	486.4
Small cod end	Yellowtail	- 238.2	524.0	153.4	337.5
	Blackback	- 40.1	88.2	26.4	58.1
	Dabs	- 58.6	128.9	37.4	82.3
	Ocean pout	- 50.0	110.0		
	Other	- 100.0	220.0	55.5	122.1
	Total	1198.2	2636.0	493.8	1086.4
TOW 7	Cod	- 55.5	122.1	37.2	81.8
Cover	Yellowtail	- 1.5	3.3	3.3	7.3
	Blackback	- 0.8	1.8	0.5	1.1
	Dabs	- 12.6	27.7	10.9	24.0
	Ocean pout	- 7.0	15.4		
	Other	- 5.0	11.0	13.5	29.7
	Total	82.4	181.5	65.4	143.9

Table 5. Catch weight data (continued).

		LINDA B		METACOMET	
		kg	lb	kg	lb
TOW 8	Cod	- 195.1	429.2	157.9	303.4
Small cod end	Yellowtail	- 117.6	258.7	89.2	196.2
	Blackback	- 36.7	80.7	23.4	51.5
	Dabs	- 59.5	130.9	42.5	93.5
	Ocean pout	- 18.0	39.6	50.0	110.0
	Other	- 54.0	118.8		
	Total	480.9	1058.0	343.0	754.6
TOW 9	Cod	- 9.1	20.0	5.3	11.7
Small cod end	Yellowtail	- 164.5	361.9	133.5	293.7
	Blackback	- 39.3	86.5	44.5	97.9
	Dabs	- 1.0	2.2	6.1	13.4
	Ocean pout	- 12.5	27.5	56.0	123.2
	Other	- 43.0	94.6		
	Total	269.4	592.7	245.4	539.9
TOW 9	Cod	- 0	0	2.0	4.4
Cover	Yellowtail	- 0	0	1.5	3.3
	Blackback	- 0	0	3.4	7.5
	Dabs	- 0	0	3.0	6.6
	Ocean pout	- 0	0	3.0	6.6
	Other	-			
	Total	0	0	12.9	28.4
TOW 10	Cod	- 6.3	13.9	20.6	45.3
Small cod end	Yellowtail	- 176.3	387.9	155.9	343.0
	Blackback	- 53.7	118.1	34.8	76.6
	Dabs	- 9.3	20.5	1.6	3.5
	Ocean pout	- 88.5	194.7	45.0	99.0
	Other	- 40.0	88.0		
	Total	374.1	823.0	257.9	567.4
TOW 11	Cod	- 13.3	29.3	13.5	29.7
Large cod end	Yellowtail	- 192.3	423.1	81.2	178.6
	Blackback	- 38.2	84.0	24.7	54.3
	Dabs	- 4.0	8.8	4.0	8.8
	Ocean pout	- 26.5	58.3	37.0	81.4
	Other	- 16.5	36.3		
	Total	290.8	639.8	160.4	352.9
TOW 11	Cod	- 9.1	20.0	31.4	69.1
Cover	Yellowtail	- 11.0	24.2	10.4	22.9
	Blackback	- 15.1	33.2	9.9	21.8
	Dabs	- 9.7	21.3	10.1	22.2
	Ocean pout	- 20.5	45.1	42.0	92.4
	Other	- 13.5	29.7		
	Total	78.9	175.6	103.8	228.4

Table 5. Catch weight data (continued).

		LINDA B		METACOMET	
		kg	lb	kg	lb
TOW 12	Cod	- 2.6	5.7	4.7	10.3
Large cod end	Yellowtail	- 110.9	244.0	227.7	500.9
	Blackback	- 17.8	39.2	24.2	53.2
	Dabs	- 1.9	4.2	0.3	0.7
	Ocean pout	- 7.5	16.5	25.5	56.1
	Other	- 21.0	46.2		
	Total	161.7	355.7	282.4	621.5
TOW 13	Cod	- 48.0	105.6	38.9	85.6
Large cod end	Yellowtail	- 103.6	227.9	52.7	115.9
	Blackback	- 14.5	31.9	12.0	26.4
	Dabs	- 50.7	111.5	26.0	57.2
	Ocean pout	- 35.0	77.0	48.0	105.6
	Other	- 65.5	144.1		
	Total	317.3	698.1	177.6	390.7
TOW 14	Cod	- 24.7	54.3	17.0	37.4
Large cod end	Yellowtail	- 75.7	166.5	59.0	129.8
	Blackback	- 12.1	26.6	6.5	14.3
	Dabs	- 54.0	118.8	18.6	40.9
	Ocean pout	- 8.5	18.7	72.5	159.5
	Other	- 63.0	138.6		
	Total	238.0	523.6	173.6	381.9
TOW 14	Cod	- 21.3	46.9	30.6	67.3
Cover	Yellowtail	- 6.4	14.1	14.7	32.3
	Blackback	- 3.4	7.5	2.6	5.7
	Dabs	- 26.0	57.2	16.1	35.4
	Ocean pout	- 24.5	53.9	31.0	68.2
	Other	- 20.5	45.1		
	Total	102.1	224.6	95.0	209.0
TOW 15	Cod	21.6	47.5	14.6	32.1
Small cod end	Yellowtail	- 111.4	245.1	70.1	154.2
	Blackback	- 26.1	57.4	31.4	69.1
	Dabs	- 8.9	19.6	20.8	45.8
	Ocean pout	- 31.5	69.3	74.0	162.8
	Other	- 49.5	108.9		
	Total	249.0	547.8	210.9	464.0

Table 5. Catch weight data (continued).

		LINDA B		METACOMET	
		kg	lb	kg	lb
TOW 16	Cod	- 19.9	43.8	18.0	39.6
Small cod end	Yellowtail	- 134.9	296.8	85.7	188.5
	Blackback	- 27.3	60.1	13.3	29.3
	Dabs	- 11.0	24.2	5.9	13.0
	Ocean pout	- 16.5	36.3	35.0	77.0
	Other	- 36.0	79.2		
	Total	245.6	540.3	157.9	347.4
TOW 16	Cod	- 3.6	7.9	0.7	1.5
Cover	Yellowtail	- 1.1	2.4	1.4	3.1
	Blackback	- 0.9	2.0	1.1	2.4
	Dabs	- 7.5	16.5	4.8	10.6
	Ocean pout	- 8.5	18.7	4.5	9.9
	Other	- 5.5	12.1		
	Total	27.1	59.6	12.5	27.5

Section 3

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Cod Selectivity

The tables and graphs in this section represent the data from 32 tows made by both vessels over the 4-day experimental period. The total catch consisted of 2,510 cod.

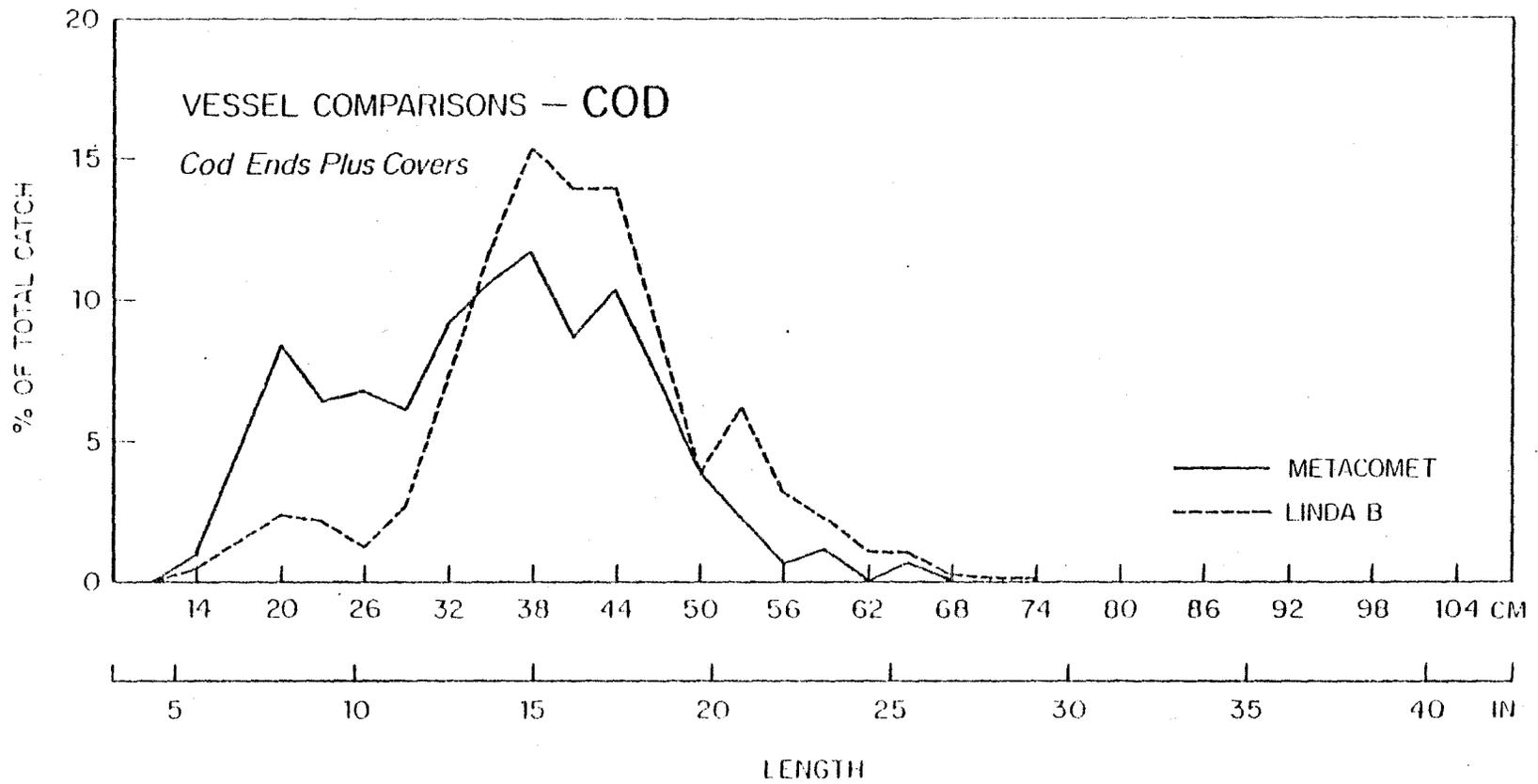
To determine if we could compare one size mesh with the other or if we could combine the data from both vessels, we needed to know if both size nets and both vessels sampled the same basic size distribution of fish. To do this we calculated the length-frequency distributions of the covered tows (cod ends and covers combined).

A visual inspection of Table 6 and Figure 4 indicates a different length-frequency distribution between the two vessels. We believe this was caused by the relatively large amount of cod (903 fish) caught by the LINDA B in tow 7, the majority of these fish being 30-60 cm in length.

Table 6. Length frequency distributions (%)--cod.

Length interval (cm)	Cod ends and covers					Cod ends only			
	Overall average	99 mm	131 mm	LINDA B	METACOMET	99 mm covered	99 mm uncovered	131 mm covered	131 mm uncovered
10-12	0.2	0.0	0.7	0.2	0.1	0.0	0.0	0.0	0.0
13-15	0.6	0.4	1.4	0.4	1.1	0.1	0.0	0.0	0.0
16-18	2.7	1.8	5.8	1.5	4.7	0.2	0.0	1.2	0.0
19-21	4.7	3.2	9.6	2.4	8.4	0.4	0.2	0.0	0.0
22-24	3.8	2.0	9.8	2.2	6.4	0.3	0.2	1.2	0.0
25-27	3.4	1.5	9.8	1.3	6.7	0.6	1.0	0.0	0.0
28-30	4.0	2.5	9.1	2.7	6.0	1.4	3.3	1.2	0.6
31-33	7.9	6.6	12.1	7.0	9.2	3.7	6.1	2.5	1.2
34-36	11.4	11.4	11.4	11.8	10.7	8.7	12.0	7.5	2.5
37-39	14.0	16.1	7.0	15.4	11.7	16.9	14.2	8.8	6.2
40-42	11.8	13.8	5.1	13.9	8.5	16.4	19.5	8.8	8.7
43-45	12.5	14.1	7.5	13.9	10.3	17.5	14.4	17.5	10.6
46-48	8.2	9.7	3.5	8.9	7.3	12.1	8.3	13.8	16.1
49-51	3.7	4.1	2.6	3.7	3.8	5.2	6.9	12.5	11.8
52-54	4.7	6.0	0.5	6.3	2.2	7.7	4.7	2.5	15.5
55-57	2.2	2.6	0.9	3.2	0.6	3.3	3.7	5.0	6.8
58-60	1.8	2.0	1.2	2.3	1.1	2.6	2.4	6.3	9.9
61-63	0.8	0.8	0.5	1.2	0.0	1.1	1.6	2.5	4.3
64-66	1.0	1.1	0.5	1.1	0.7	1.4	0.4	2.5	2.5
67-69	0.2	0.1	0.2	0.2	0.1	0.2	0.4	1.2	0.6
70-72	0.1	0.0	0.5	0.1	0.1	0.0	0.4	2.5	1.2
73-75	0.1	0.0	0.2	0.1	0.0	0.0	0.0	1.2	0.0
76-78	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.0	0.0
79-81	0.0		0.0	0.0				0.0	0.0
82-84	0.1		0.2	0.1				1.2	0.6
85-87									0.0
105									0.6
TOTALS	1,857	1,428	429	1,140	717	1,116	492	80	161

Figure 4



Selection data for the 99-mm covered cod-end tows are given in Table 7 and the corresponding selection curve, drawn by eye, is shown in Figure 5. The 50% retention length of approximately 31.6 cm (12.4 inches) gives a selection factor of 3.19. The 25-75% selection range is approximately 11.5 cm (4.5 inches).

Selection data for the 131-mm (overall large cod-end average) covered cod-end tows are given in Table 8, and the corresponding selection curve is shown in Figure 5. The 50% retention length of approximately 44.2 cm (17.4 inches) gives a selection factor of 3.37. The 25-75% selection range is approximately 9 cm (3.5 inches).

Selection data for the 99-mm and 131-mm uncovered tows are given in Table 9. We normalized the distributions by assuming equal retention by both size cod ends above the 100% retention point. From this method, a 50% retention length of 47.0 cm (18.5 inches) is obtained for the 131-mm cod end which gives a selection factor of 3.59. The 25-75% selection range is approximately 9 cm (3.5 inches).

For a detailed explanation of our methodology refer to Pope et al. 1975.

Table 7. Cod length frequency distributions and percent retained for 99-mm cod end covered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	99 mm	99 mm plus covers	
10-12	0	0	0.0
13-15	1	6	16.6
16-18	2	26	7.7
19-21	5	46	10.9
22-24	3	29	10.3
25-27	7	21	33.3
28-30	16	35	45.7
31-33	41	94	43.6
34-36	97	163	59.5
37-39	189	230	82.2
40-42	183	197	92.9
43-45	195	201	97.0
46-48	135	138	97.8
49-51	58	58	100.0
52-54	86	86	100.0
55-57	37	37	100.0
58-60	29	29	100.0
61-63	12	12	100.0
64-66	16	16	100.0
67-69	2	2	100.0
70-72	0	0	100.0
73-75	0	0	100.0
76-78	2	2	100.0
TOTALS	1,116	1,428	

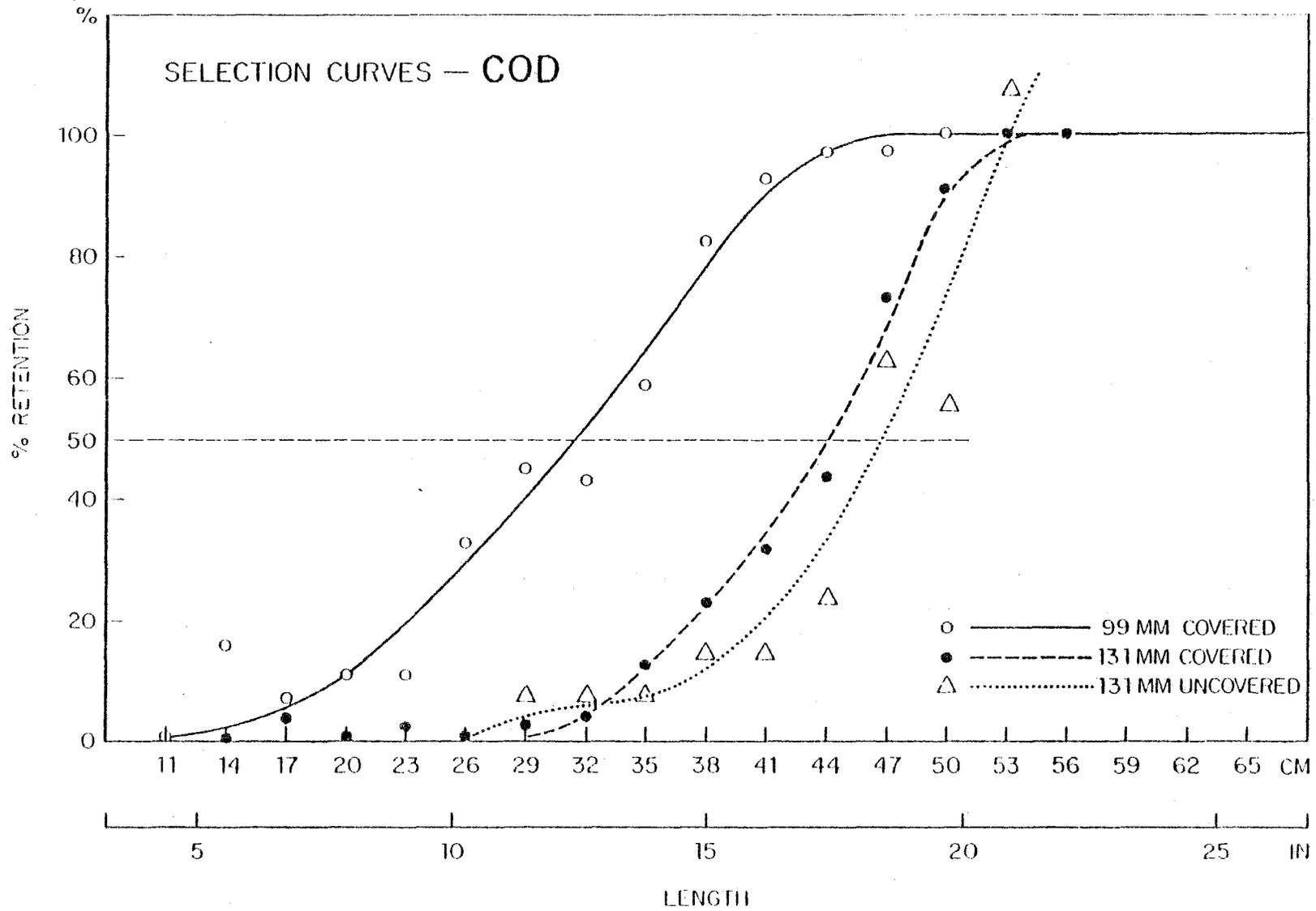
Table 8. Cod length frequency distributions and percent retained for 131-mm cod end covered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	131 mm	131 mm plus covers	
10-12	0	3	0.0
13-15	0	6	0.0
16-18	1	25	4.0
19-21	0	41	0.0
22-24	1	42	2.4
25-27	0	42	0.0
28-30	1	39	2.6
31-33	2	52	3.8
34-36	6	49	12.2
37-39	7	30	23.3
40-42	7	22	31.8
43-45	14	32	43.8
46-48	11	15	73.3
49-51	10	11	90.9
52-54	2	2	100.0
55-57	4	4	100.0
58-60	5	5	100.0
61-63	2	2	100.0
64-66	2	2	100.0
67-69	1	1	100.0
70-72	2	2	100.0
73-75	1	1	100.0
76-78	0	0	100.0
79-81	0	0	100.0
82-84	1	1	100.0
TOTALS	80	429	

Table 9. Cod length frequency distributions and percent retained for the 131-mm uncovered cod end compared with the 99-mm uncovered cod end--both vessels.

Length interval (cm)	Numbers caught		$\frac{B}{A} \times 100 =$ % retained by 131 mm
	(A) 99 mm	(B) 131 mm	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	0	0	0.0
19-21	1	0	0.0
22-24	1	0	0.0
25-27	5	0	0.0
28-30	16	1	6.3
31-33	30	2	6.7
34-36	59	4	6.8
37-39	70	10	14.3
40-42	96	14	14.6
43-45	71	17	23.9
46-48	41	26	63.4
49-51	34	19	55.9
52-54	23	25	108.7
55-57	18	11	61.1
58-60	12	16	133.3
61-63	8	7	87.5
64-66	2	4	200.0
67-69	2	1	50.0
70-72	2	2	100.0
73-75	0	0	-
76-78	1	0	-
79-81	0	0	-
82-84	0	1	-
85-87	0	0	-
105	0	1	-
TOTALS	492	161	
	105 $\Sigma A=45$ 55	105 $\Sigma B=43$ 55	$\frac{43}{45} =$.96 \approx 1

Figure 5



As mentioned previously there was a 5-mm (0.2-inch) difference between the large cod ends used on the two vessels during the experiment. We felt it was necessary to test to see if by using the average of the two vessels, 131-mm, we were getting acceptable selection data. We did this by working up the large cod-end data for each vessel separately. This process decreased the number of data points for each selection calculation thus decreasing precision.

Selection data for the 129-mm (LINDA B) covered tows are given in Table 10. The 50% retention length of 43.1 cm (17.0 inches) gives a selection factor of 3.34. Selection data for the LINDA B uncovered tows, shown in Table 11, give a 50% retention length of 46.4 cm (18.3 inches) and a corresponding selection factor of 3.60 for the 129-mm cod end.

Selection data for the 134-mm (METACOMET) covered tows are given in Table 12. The 50% retention length of 45.8 cm (18.0 inches) gives a selection factor of 3.42. Selection data for the METACOMET uncovered tows, shown in Table 13, give a retention length of 47.3 cm (18.6 inches) and a corresponding selection factor of 3.53 for the 134-mm cod end.

Selection curves for the above data are given in Figure 6.

Table 10. Cod length frequency distributions and percent retained for 129-mm cod end covered tows--LINDA B only.

Length interval (cm)	Numbers caught		% retained
	129 mm	129 mm plus covers	
10-12	0	2	0.0
13-15	0	3	0.0
16-18	1	9	11.1
19-21	0	4	0.0
22-24	1	8	12.5
25-27	0	2	0.0
28-30	1	4	25.0
31-33	1	15	6.7
34-36	4	22	18.2
37-39	5	14	35.7
40-42	5	10	50.0
43-45	8	16	50.0
46-48	5	7	71.4
49-51	6	6	100.0
52-54	2	2	100.0
55-57	2	2	100.0
58-60	2	2	100.0
61-63	2	2	100.0
64-66	2	2	100.0
67-69	0	0	-
70-72	1	1	100.0
73-75	1	1	100.0
76-78	0	0	-
79-81	0	0	-
82-84	1	1	100.0
TOTALS	50	135	

Table 11. Cod length frequency distributions and percent retained for the 129-mm uncovered cod end compared with the 99-mm uncovered cod end--LINDA B only.

Length interval (cm)	Numbers caught		$\frac{B}{A} \times 100 =$ % retained by 129 mm
	(A) 99 mm	(B) 129 mm	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	0	0	0.0
19-21	0	0	0.0
22-24	0	0	0.0
25-27	1	0	0.0
28-30	5	1	20.0
31-33	5	2	40.0
34-36	30	3	10.0
37-39	38	3	7.9
40-42	53	4	7.5
43-45	37	10	27.0
46-48	25	13	52.0
49-51	15	12	80.0
52-54	17	15	88.2
55-57	9	6	66.7
58-60	7	9	128.6
61-63	4	5	125.0
64-66	2	3	150.0
67-69	1	1	100.0
70-72	1	2	200.0
73-75	0	0	
76-78	1	0	
79-81		0	
82-84		1	
85-87		0	
105		1	
TOTALS	251	91	
	105	105	
	$\Sigma A=25$	$\Sigma B=28$	
	55	55	$\frac{25}{28} = .89 \approx 1$

Table 12. Cod length frequency distributions and percent retained for 134-mm cod end covered tows--METACOMET only.

Length interval (cm)	Numbers caught		% retained
	134 mm	134 mm plus covers	
10-12	0	1	0.0
13-15	0	3	0.0
16-18	0	16	0.0
19-21	0	37	0.0
22-24	0	34	0.0
25-27	0	40	0.0
28-30	0	35	0.0
31-33	1	37	2.7
34-36	2	27	7.4
37-39	2	16	12.5
40-42	2	12	16.7
43-45	6	16	37.5
46-48	6	8	75.0
49-51	4	5	80.0
52-54	0	0	-
55-57	2	2	100.0
58-60	3	3	100.0
61-63	0	0	-
64-66	0	0	-
67-69	1	1	100.0
70-72	1	1	100.0
TOTALS	30	294	

Table 13. Cod length frequency distributions and percent retained for the 134-mm uncovered cod end compared with the 99-mm uncovered cod end--METACOMET only.

Length interval (cm)	Numbers caught		$\frac{B}{A} \times 100 =$ % retained by 134 mm
	(A) 99 mm	(B) 134 mm	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	0	0	0.0
19-21	1	0	0.0
22-24	1	0	0.0
25-27	4	0	0.0
28-30	11	0	0.0
31-33	25	0	0.0
34-36	29	1	3.4
37-39	32	7	21.9
40-42	43	10	23.3
43-45	34	7	20.6
46-48	16	13	81.3
49-51	19	7	36.8
52-54	6	10	166.7
55-57	9	5	55.6
58-60	5	7	140.0
61-63	4	2	50.0
64-66	0	1	-
67-69	1	0	-
70-72	1	0	-
TOTALS	241	70	
	72	72	
	$\Sigma A=20$	$\Sigma B=15$	
	55	55	

Figure 6

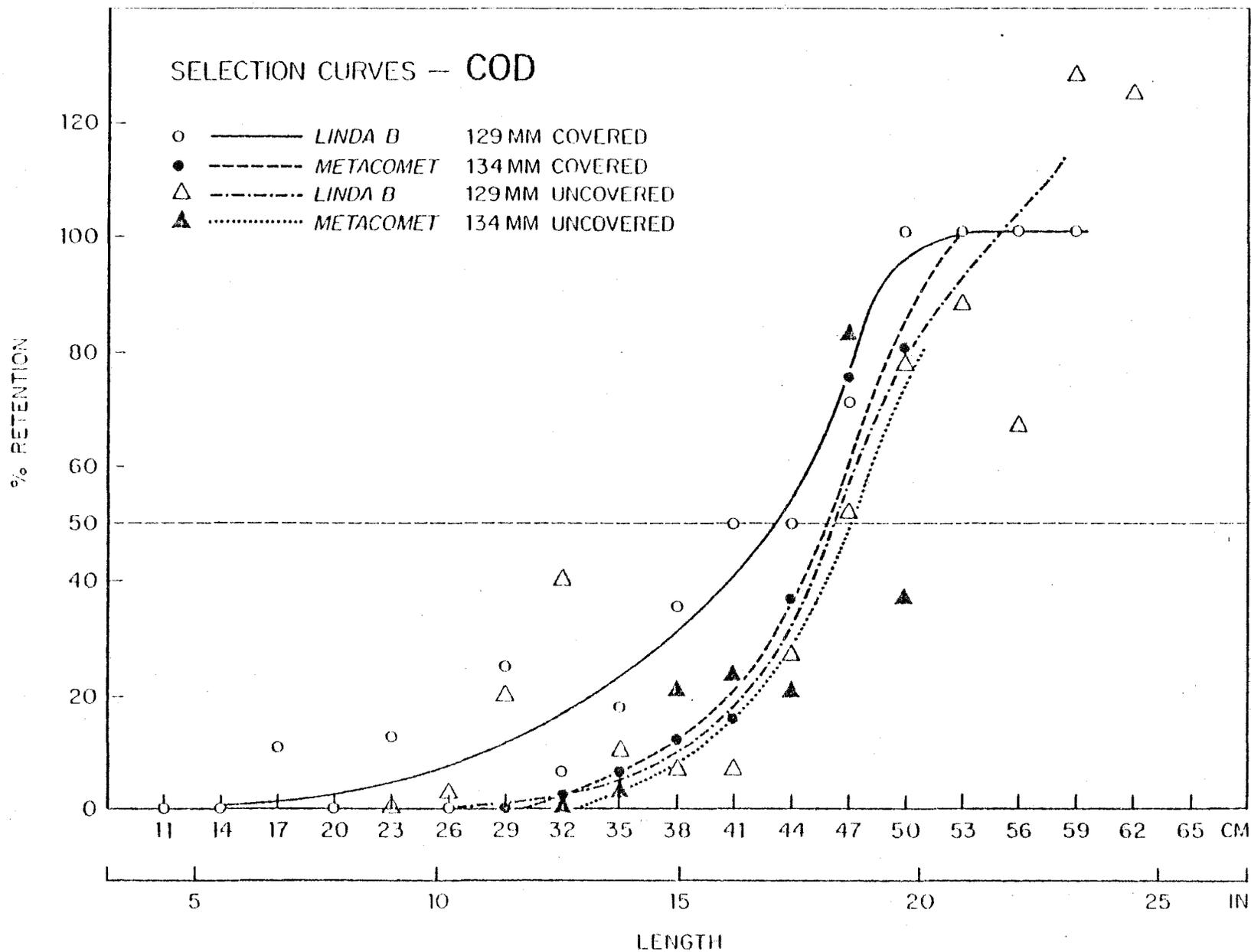


Figure 7 demonstrates the portion of the available population, represented by the cod-ends-plus-covers curve, that each cod end selects. As expected the 99-mm cod ends catch smaller fish than the 131-mm cod ends.

Figure 8 compares the available population of cod to our gear in Scituate (December 1977) to Gloucester (March 1978). The comparison is striking, especially in regard to the main size groups that make up the fishery.

Figure 9 is a plot of cod girths taken in random sampling of the catch from both Scituate and Gloucester compared to the natural and constricted girth relationships calculated by Margetts (1957) and Messtorff (1958).

Figure 7

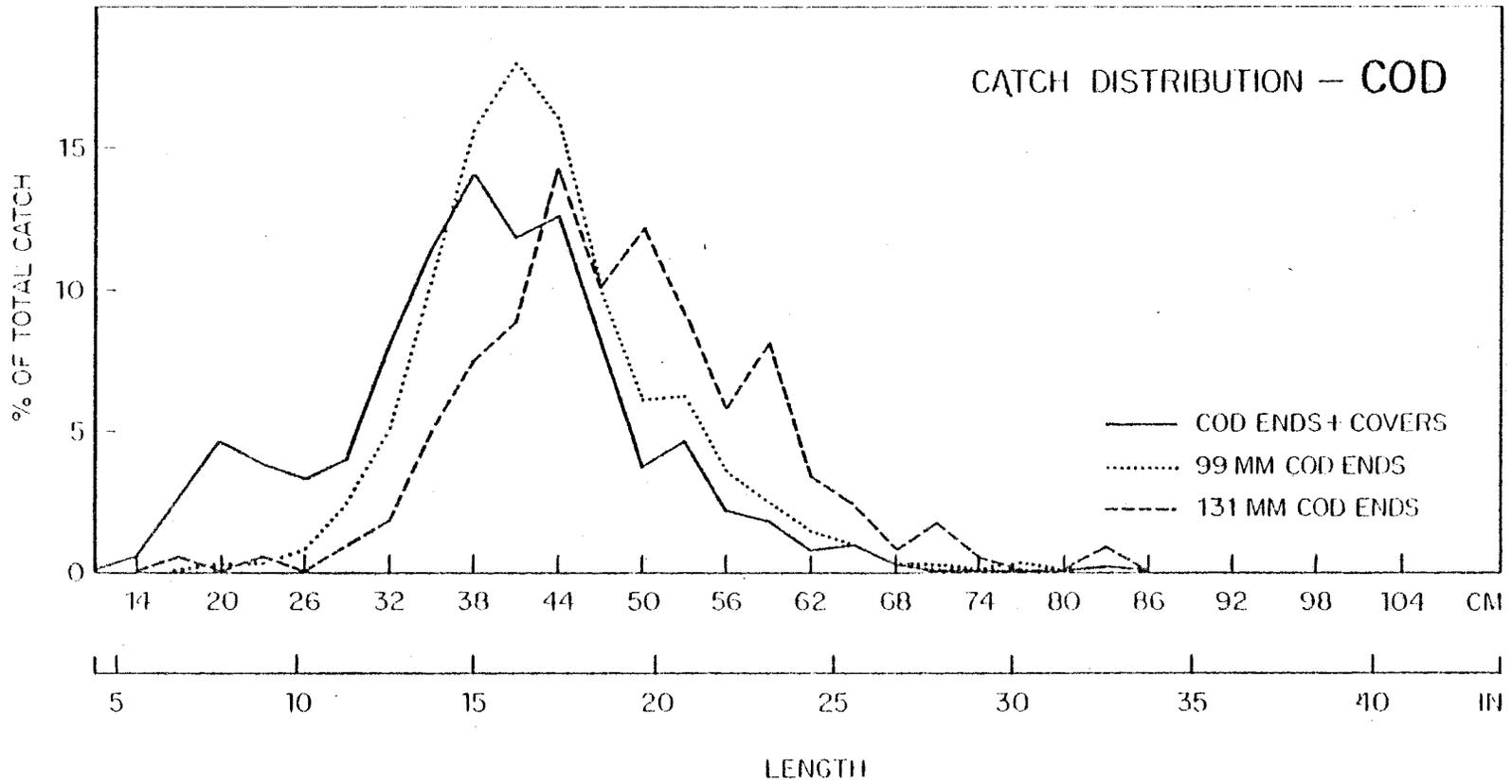


Figure 8

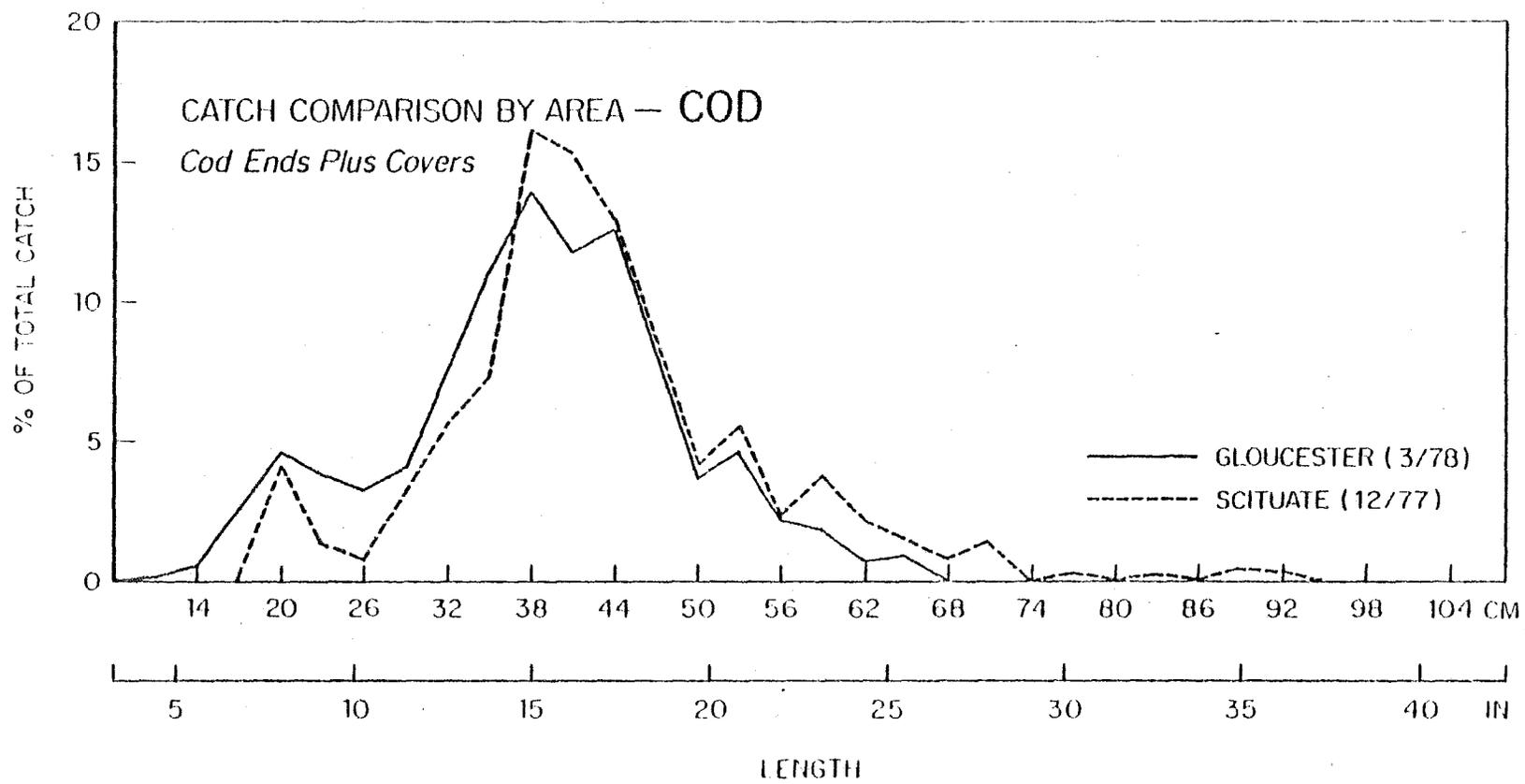
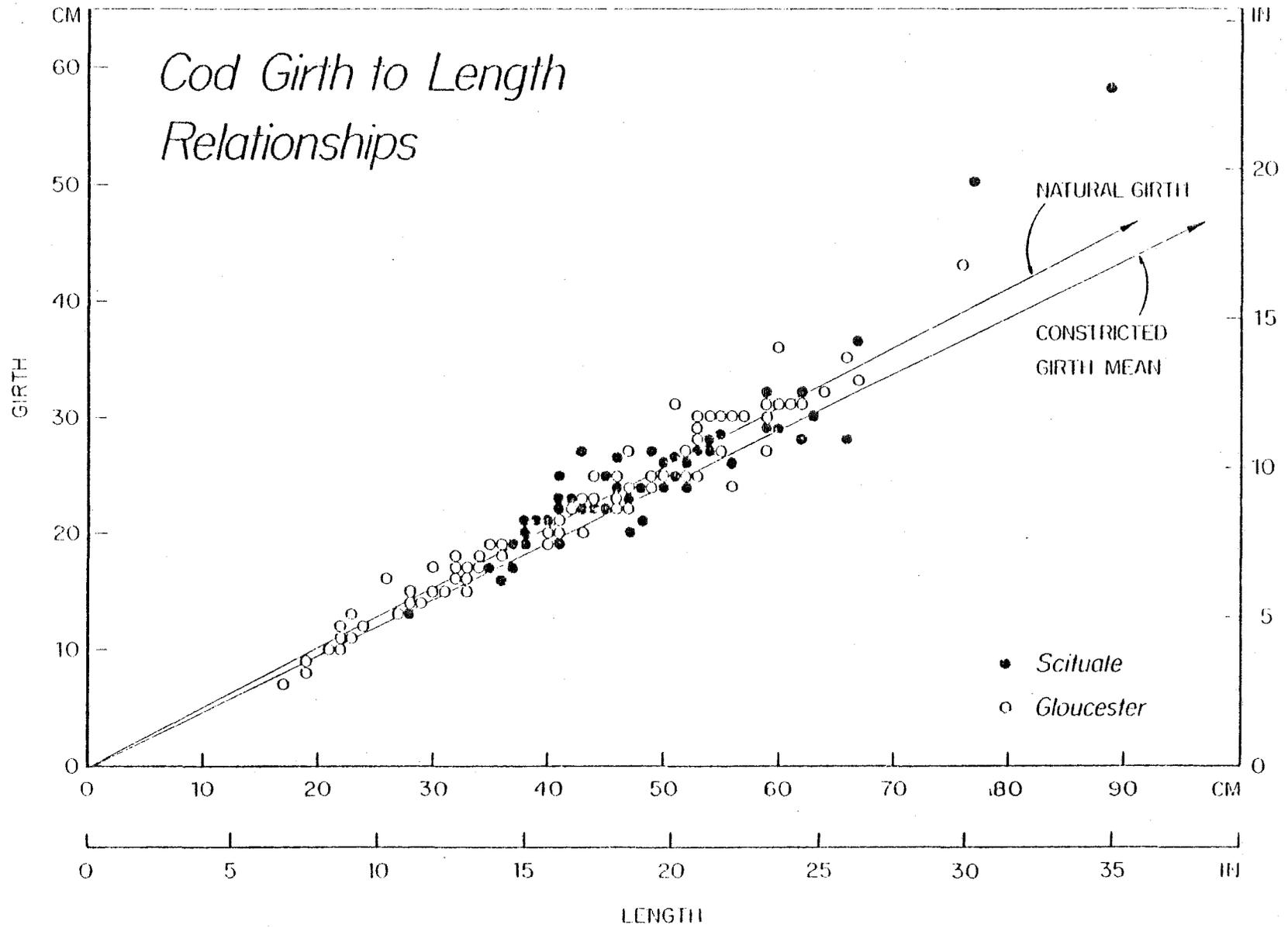


Figure 9



Section 4

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Yellowtail Flounder Selectivity

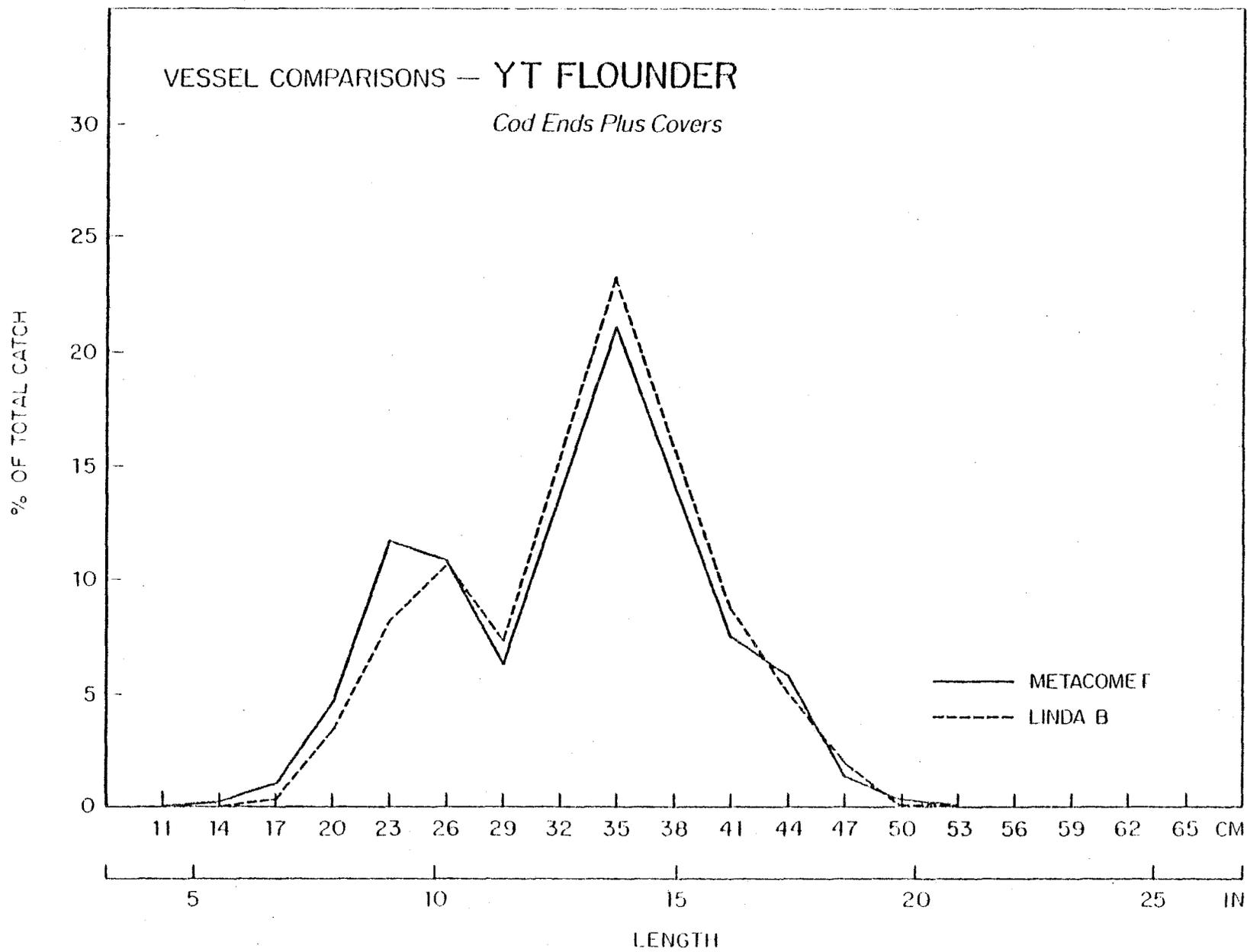
The tables and graphs in this section represent the data from 32 tows made by both vessels over the 4-day experimental period. The total catch consisted of 8,881 yellowtail flounder.

A visual inspection of Table 14 and Figure 10 shows that the length-frequency distributions between the two vessels are basically the same. When comparing the cod-ends-only distributions, no masking of covered cod ends is apparent.

Table 14. Length frequency distributions (%)--yellowtail flounder.

Length interval (cm)	Cod ends and covers					Cod ends only			
	Overall average	99 mm	131 mm	LINDA B	METACOMET	99 mm covered	99 mm uncovered	131 mm covered	131 mm uncovered
10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-15	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0
16-18	0.6	0.4	1.0	0.3	1.1	0.1	0.2	0.1	0.0
19-21	3.8	2.8	5.1	3.2	4.6	1.2	1.7	0.7	0.1
22-24	9.7	7.3	12.7	8.2	11.6	6.1	9.8	3.1	1.5
25-27	10.7	9.2	12.6	10.6	10.8	9.2	12.6	6.6	4.1
28-30	7.0	6.3	7.9	7.4	6.4	6.5	8.5	7.3	4.8
31-33	14.8	16.2	13.1	15.4	14.1	16.7	14.1	16.3	15.9
34-36	22.2	24.0	19.9	23.1	21.0	24.9	24.6	27.4	30.3
37-39	15.4	17.4	12.8	15.7	14.9	18.2	15.4	17.7	23.7
40-42	8.2	8.5	7.7	8.7	7.5	8.8	7.6	10.8	10.7
43-45	5.5	6.0	4.8	5.2	5.8	6.3	3.8	6.8	6.6
46-48	1.7	1.5	2.0	2.0	1.4	1.6	1.2	2.8	2.0
49-51	0.3	0.3	0.2	0.2	0.4	0.3	0.3	0.3	0.3
52-54	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1
TOTALS	4,723	2,631	2,092	2,688	2,035	2,528	2,582	1,494	1,576

Figure 10



Selection data for the 99-mm covered cod-end tows are given in Table 15 and the corresponding selection curve is shown in Figure 11. The 50% retention length of approximately 20.6 cm (8.1 inches) gives a selection factor of 2.08. The 25-75% selection range is approximately 4 cm (1.6 inches).

Selection data for the 131-mm covered cod-end tows are given in Table 16 and Figure 11. The 50% retention length of approximately 27.4 cm (10.8 inches) gives a selection factor of 2.09. The 25-75% selection range is approximately 6 cm (2.4 inches).

Selection data for the 99-mm and 131-mm uncovered tows are given in Table 17 and Figure 11. We normalized the distributions by using the ratio of fish caught above the 100% retention point of both cod ends. From this method, a 50% retention length of 30.2 cm (11.9 inches) is obtained for the 131-mm cod end which gives a selection factor of 2.30. The 25-75% selection range is approximately 6 cm (2.4 inches).

Table 15. Yellowtail length frequency distributions and percent retained for 99-mm cod end covered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	99 mm	99 mm plus covers	
10-12	0	0	0.0
13-15	0	3	0.0
16-18	3	10	3.0
19-21	31	73	42.5
22-24	155	191	81.2
25-27	232	241	96.3
28-30	165	165	100.0
31-33	422	425	99.3
34-36	629	631	99.7
37-39	459	459	100.0
40-42	223	224	99.6
43-45	158	158	100.0
46-48	40	40	100.0
49-51	8	8	100.0
52-54	3	3	100.0
TOTALS	2,528	2,631	

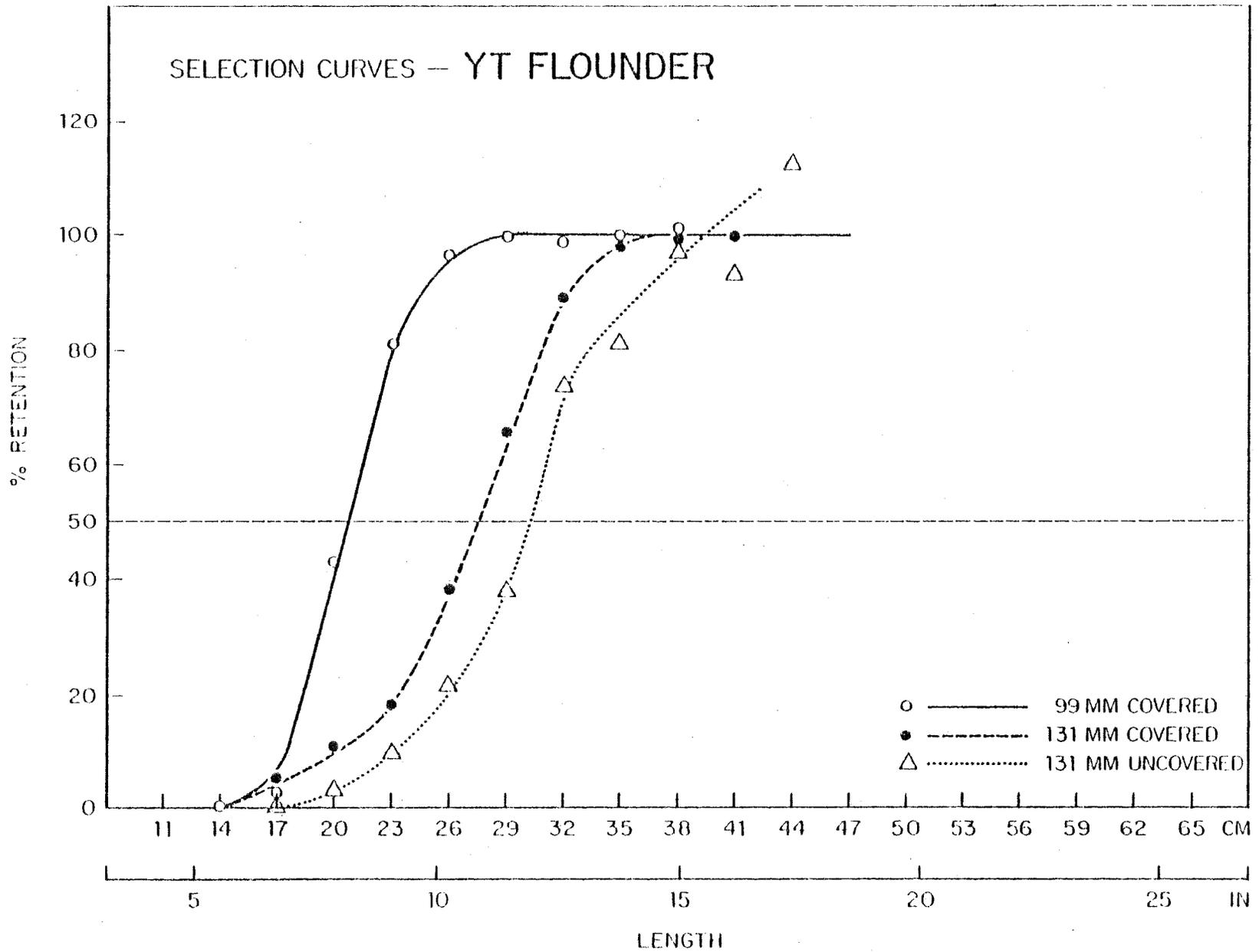
Table 16. Yellowtail length frequency distributions and percent retained for 131-mm cod end uncovered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	131 mm	131 mm plus covers	
10-12	0	0	0.0
13-15	0	2	0.0
16-18	1	20	5.0
19-21	11	106	10.4
22-24	47	266	17.7
25-27	98	264	37.1
28-30	109	166	65.7
31-33	244	275	88.7
34-36	410	416	98.6
37-39	264	267	98.9
40-42	162	162	100.0
43-45	101	101	100.0
46-48	42	42	100.0
49-51	5	5	100.0
TOTALS	1,494	2,092	

Table 17. Yellowtail length frequency distributions and percent retained for the 131-mm uncovered cod end compared with the 99-mm uncovered cod end--both vessels.

Length interval (cm)	Numbers caught		$\frac{B}{.93A} \times 100 =$ % retained by 131 mm
	(A) 99 mm	(B) 131 mm	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	6	0	0.0
19-21	44	1	2.4
22-24	254	23	9.7
25-27	325	65	21.5
28-30	219	76	37.3
31-33	365	250	73.6
34-36	635	477	80.7
37-39	398	373	100.8
40-42	197	169	92.2
43-45	99	104	112.9
46-48	32	31	104.2
49-51	8	5	67.2
52-54	0	2	-
TOTALS	2,582	1,576	
	54	54	$\frac{684}{734} =$
	$\Sigma A=734$	$\Sigma B=684$.93
	37	37	

Figure 11



In a similar manner as stated in the section on cod selectivity, we tested the yellowtail data by vessels for the large cod ends to determine whether averaging the mesh size had an effect on the selectivity. In this case we still had a fairly large enough sample by vessel to give us good selection curves.

Selection data for the 129-mm (LINDA B) covered tows are given in Table 18 and Figure 12. The 50% retention length of 26.6 cm (10.5 inches) gives a selection factor of 2.06. Selection data for the LINDA B uncovered tows, shown in Table 20, give a 50% retention length of 30.2 cm (11.9 inches) and a corresponding selection factor of 2.34 for the 129-mm cod end.

Selection data for the 134-mm (METACOMET) covered tows are given in Table 19 and Figure 12. The 50% retention length of 29.0 cm (11.4 inches) gives a selection factor of 2.16. Selection data for the METACOMET uncovered tows, shown in Table 21, give a 50% retention length of 30.2 cm (11.9 inches) and a corresponding selection factor of 2.25 for the 134-mm cod end.

Figure 13 shows the catch distribution of the large uncovered cod ends by vessel. A visual inspection shows that the LINDA B's slightly smaller cod end did tend to catch some smaller fish when compared to the METACOMET.

Table 18. Yellowtail length frequency distributions and percent retained for 129-mm cod end covered tows--LINDA B only.

Length interval (cm)	Numbers caught		% retained
	129 mm	129 mm plus covers	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	0	6	0.0
19-21	8	52	15.4
22-24	29	117	24.8
25-27	60	132	45.5
28-30	69	88	78.4
31-33	153	162	94.4
34-36	239	244	98.0
37-39	159	161	98.8
40-42	99	99	100.0
43-45	59	59	100.0
46-48	26	26	100.0
49-51	4	4	100.0
TOTALS	905	1,150	

Table 19. Yellowtail length frequency distributions and percent retained for 134-mm cod end covered tows--METACOMET only.

Length interval (cm)	Numbers caught		% retained
	134 mm	134 mm plus covers	
10-12	0	0	0.0
13-15	0	2	0.0
16-18	1	14	7.1
19-21	3	54	5.6
22-24	18	149	12.1
25-27	38	132	28.8
28-30	40	78	51.3
31-33	91	113	80.5
34-36	171	172	99.4
37-39	105	106	99.1
40-42	63	63	100.0
43-45	42	42	100.0
46-48	16	16	100.0
49-51	1	1	100.0
TOTALS	589	942	

Table 20. Yellowtail length frequency distributions and percent retained for the 129-mm uncovered cod end compared with the 99-mm uncovered cod end--LINDA B only.

Length interval (cm)	Numbers caught		$\frac{B}{.84A} \times 100 =$ % retained by 129 mm
	(A) 99 mm	(B) 129 mm	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	5	0	0.0
19-21	29	1	4.1
22-24	147	15	12.1
25-27	206	47	27.2
28-30	114	40	41.8
31-33	196	129	78.4
34-36	354	228	76.7
37-39	198	179	107.6
40-42	108	85	93.7
43-45	64	48	89.3
46-48	18	16	105.8
49-51	6	3	59.5
52-54	0	1	-
TOTALS	1,445	792	
	54	54	$\frac{332}{394} =$
	$\Sigma A=394$	$\Sigma B=332$.84
	37	37	

Table 21. Yellowtail length frequency distributions and percent retained for the 134-mm uncovered cod end compared with the 99-mm uncovered cod end--METACOMET only.

Length interval (cm)	Numbers caught		$\frac{B}{A} \times 100 =$ % retained by 134 mm
	(A) 99 mm	(B) 134 mm	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	1	0	0.0
19-21	15	0	0.0
22-24	107	8	7.4
25-27	119	18	15.1
28-30	105	36	34.3
31-33	169	121	71.6
34-36	281	249	88.6
37-39	200	194	97.0
40-42	89	84	94.4
43-45	35	56	160.0
46-48	14	15	107.1
49-51	2	2	100.0
52-54	-	1	-
TOTALS	1,137	784	
	54	54	$\frac{352}{340} =$
	$\Sigma A=340$	$\Sigma B=352$	1.03
	37	37	

(Assume equal retention.)

Figure 12

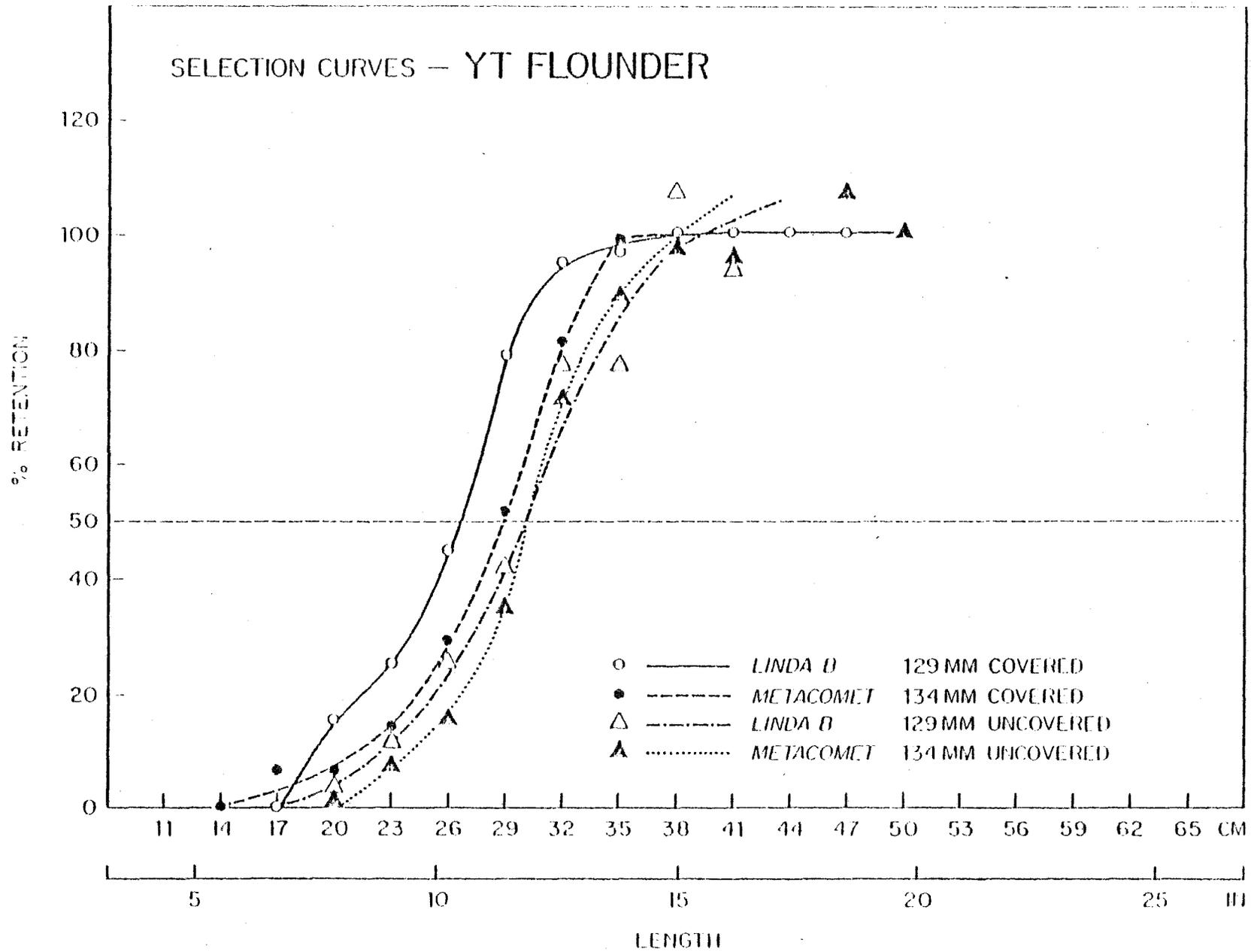


Figure 13

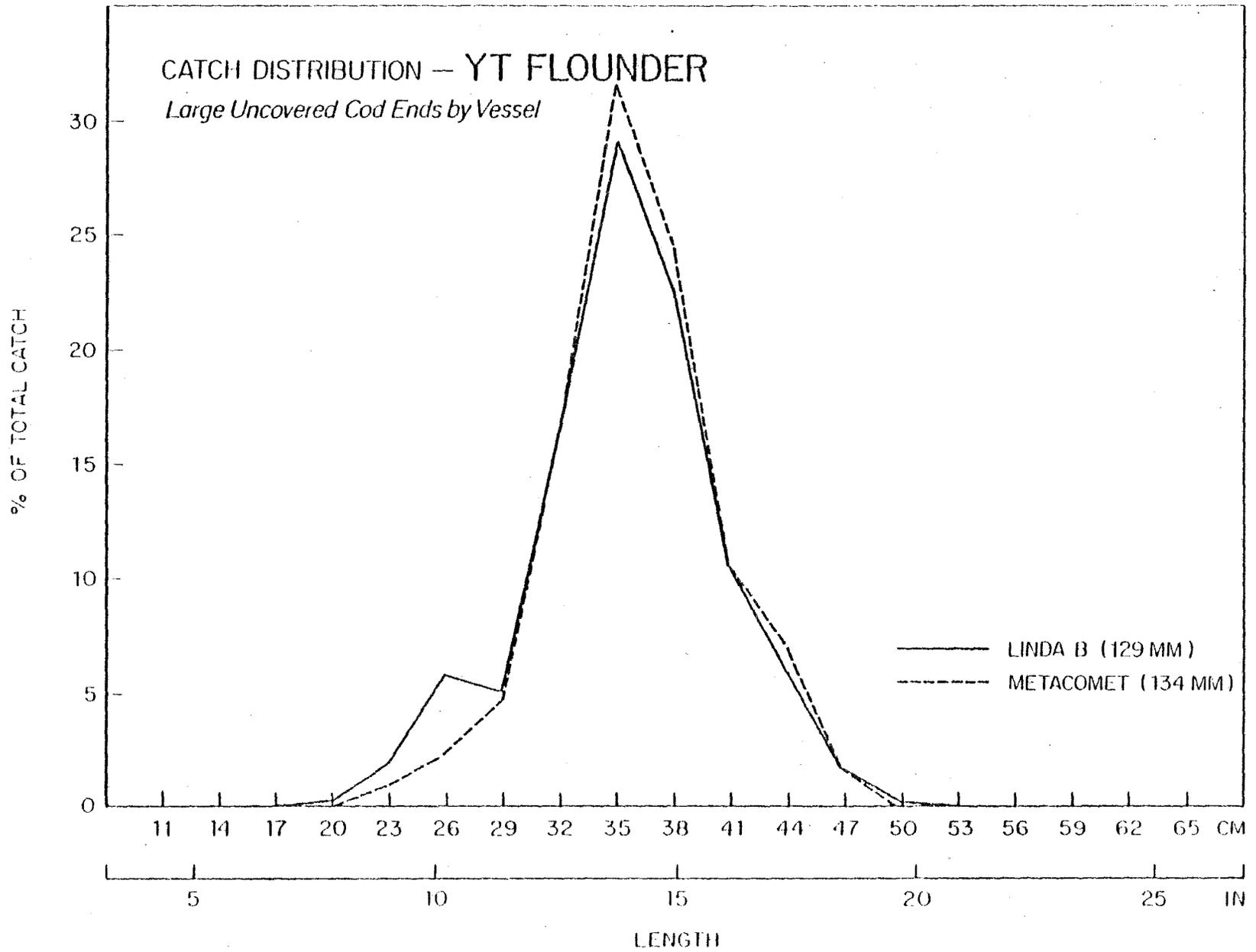


Figure 14 demonstrates the portion of the available population, represented by the cod-ends-plus-covers curve, that each cod end selects. The larger cod end catches few of the smaller of the two size classes represented. However the overall effect is not very pronounced as there are few fish of this smaller size class in Gloucester waters. This is shown in Figure 15 which compares our Scituate overall catch to the Gloucester overall catch. There is a definite difference in the population available to the gear between the two areas. This is not so obvious when just looking at the large uncovered cod-end catch as shown in Figure 16.

Figure 14

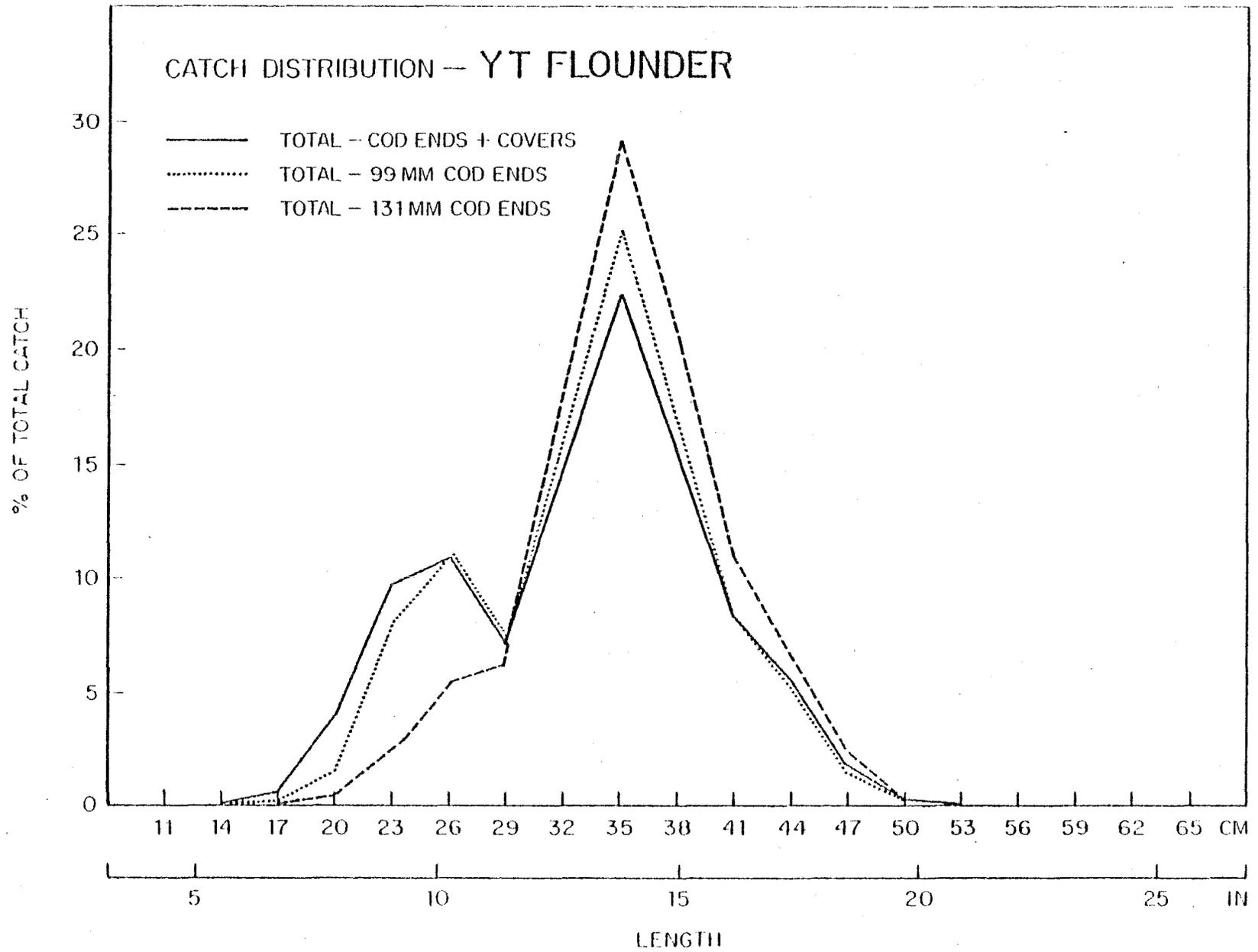


Figure 15

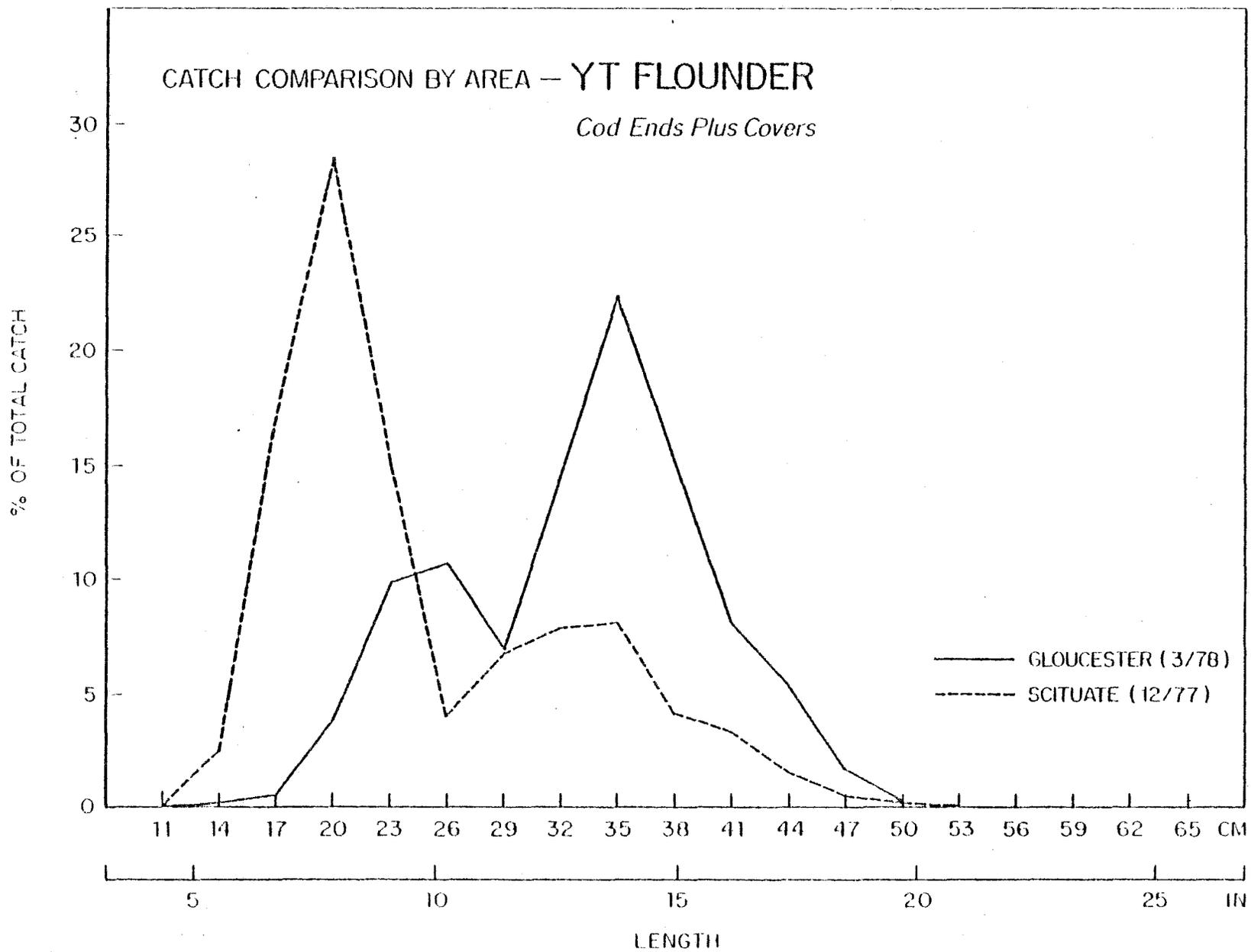
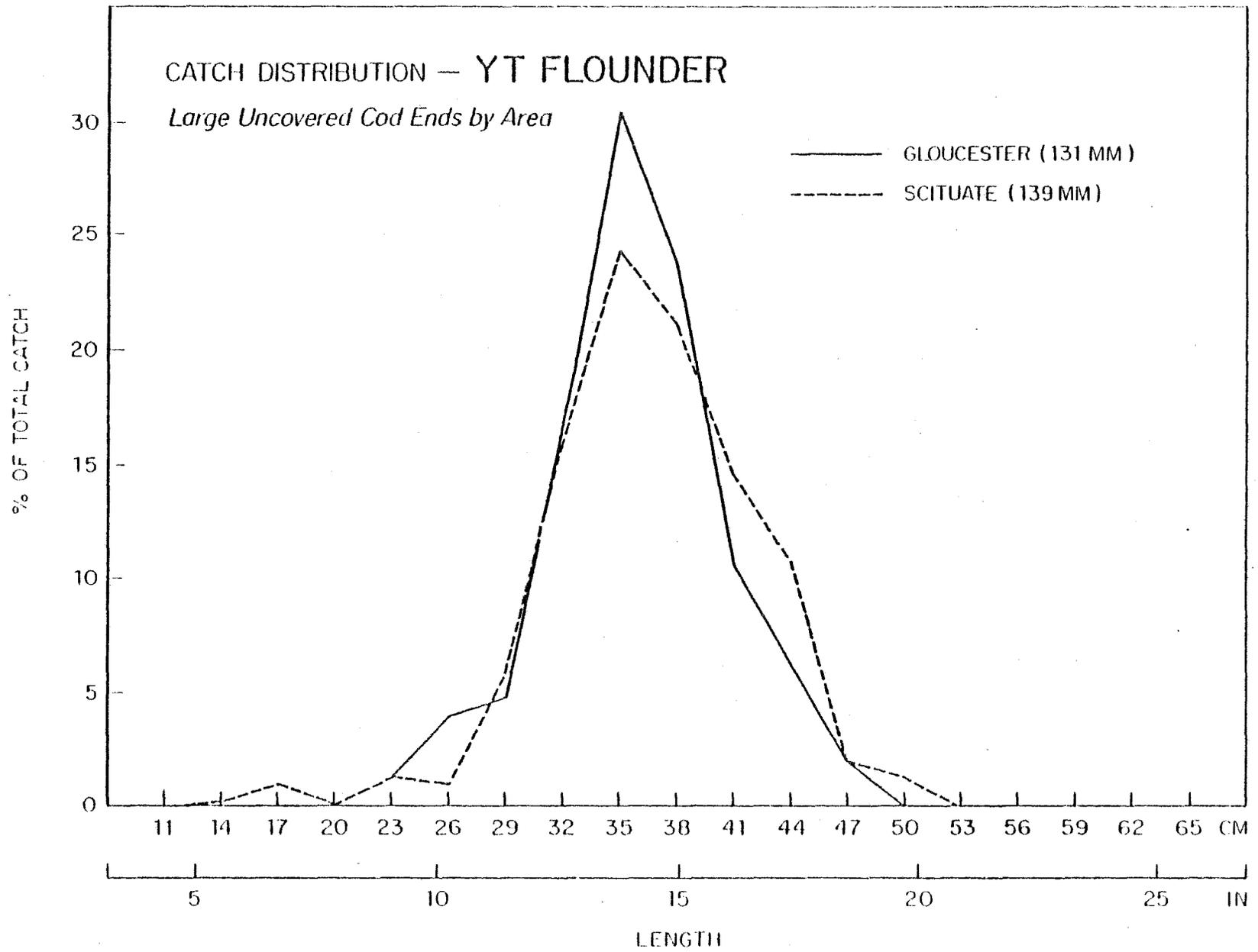


Figure 16



Section 5

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Winter Flounder Selectivity

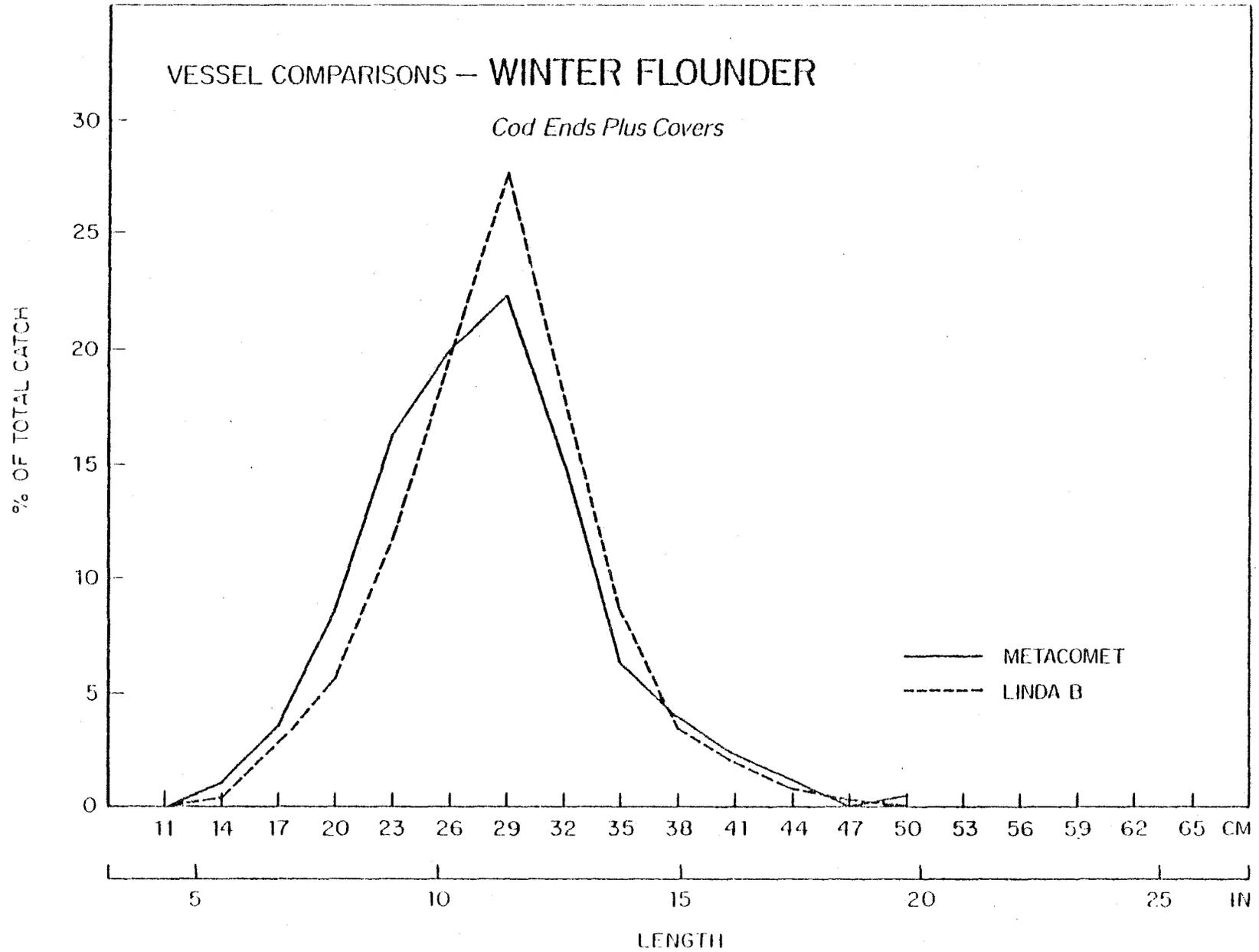
The tables and graphs in this section represent the data from 32 tows made by both vessels over the 4-day experimental period. The total catch consisted of 2,398 winter flounder.

A visual inspection of Table 22 and Figure 17 shows a small difference in the length-frequency distributions between the two vessels. In addition some masking may have been present in the large covered cod ends as the 131-mm covered cod end had a larger percentage of fish in the smaller sizes.

Table 22. Length frequency distributions (%)--winter flounder (blackback).

Length interval (cm)	Cod ends and covers					Cod ends only			
	Overall average	99 mm	131 mm	LINDA B	METACOMET	99 mm covered	99 mm uncovered	131 mm covered	131 mm uncovered
10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-15	0.6	1.0	0.3	0.3	1.0	0.2	0.0	0.0	0.0
16-18	3.1	1.4	4.7	2.7	3.5	0.5	0.0	0.3	0.0
19-21	7.1	3.1	11.1	5.7	8.5	1.4	2.0	1.4	0.0
22-24	13.8	13.6	14.1	11.6	16.1	13.1	14.8	3.6	3.5
25-27	19.8	21.3	18.4	19.7	19.9	21.7	23.4	14.9	9.7
28-30	24.9	24.9	24.9	27.5	22.1	26.3	27.7	32.3	27.4
31-33	16.2	18.7	13.7	17.4	15.0	19.9	15.7	23.5	25.0
34-36	7.4	8.4	6.4	8.7	6.2	8.9	8.7	12.2	19.1
37-39	3.7	4.1	3.2	3.5	3.8	4.4	3.2	5.5	7.6
40-42	2.1	2.3	1.9	2.0	2.2	2.4	2.1	3.6	5.5
43-45	0.9	0.7	1.1	0.7	1.2	0.8	1.3	2.2	1.0
46-48	0.1	0.3	0.0	0.3	0.0	0.3	1.0	0.0	0.7
49-51	0.2	0.1	0.3	0.0	0.4	0.2	0.0	0.6	0.3
52-54							0.1		
TOTALS	1,396	700	696	714	682	654	714	362	288

Figure 17



Selection data for the 99-mm covered cod-end tows are given in Table 23 and the corresponding selection curve is shown in Figure 18. The 50% retention length of approximately 20.0 cm (7.9 inches) gives a selection factor of 2.02. The 25-75% selection range is approximately 5.4 cm (2.1 inches).

Selection data for the 131-mm covered cod-end tows are given in Table 24 and Figure 18. The 50% retention length of approximately 26.9 cm (10.6 inches) gives a selection factor of 2.05. The 25-75% selection range is approximately 6 cm (2.4 inches).

Selection data for the 99-mm and 131-mm uncovered tows are given in Table 25 and Figure 18. We normalized the distributions by using the ratio of fish caught above the 100% retention point of both cod ends. From this method, a 50% retention length of 29.0 cm (11.4 inches) is obtained for the 131-mm cod end which gives a selection factor of 2.21. The 25-75% selection range is approximately 5 cm (2.0 inches).

Figure 19 is the catch distribution of the two cod-end sizes compared to the overall available population.

Table 23. Winter flounder length frequency distributions and percent retained for 99-mm cod end covered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	99 mm	99 mm plus covers	
10-12	0	0	0.0
13-15	1	7	14.3
16-18	3	10	30.0
19-21	9	22	40.9
22-24	86	95	90.5
25-27	142	149	95.3
28-30	172	174	98.9
31-33	130	131	99.2
34-36	58	59	98.3
37-39	29	29	100.0
40-42	16	16	100.0
43-45	5	5	100.0
46-48	2	2	100.0
49-51	1	1	100.0
TOTALS	654	700	

Table 24. Winter flounder length frequency distributions and percent retained for 131-mm cod end covered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	131 mm	131 mm plus covers	
10-12	0	0	0.0
13-15	0	2	0.0
16-18	1	33	3.0
19-21	5	77	6.5
22-24	13	98	13.3
25-27	54	128	42.2
28-30	117	173	67.6
31-33	85	95	89.5
34-36	44	45	97.8
37-39	20	22	90.9
40-42	13	13	100.0
43-45	8	8	100.0
46-48	0	0	-
49-51	2	2	100.0
TOTALS	362	696	

Table 25. Winter flounder length frequency distributions and percent retained for the 131-mm uncovered cod end compared with the 99-mm uncovered cod end--both vessels.

Length interval (cm)	Numbers caught		$\frac{B}{.8A} \times 100 =$ % retained by 131 mm
	(A) 99 mm	(B) 131 mm	
10-12	0	0	0.0
13-15	0	0	0.0
16-18	0	0	0.0
19-21	14	0	0.0
22-24	106	10	11.8
25-27	167	28	21.0
28-30	198	79	49.9
31-33	112	72	80.4
34-36	62	55	110.9
37-39	23	22	119.6
40-42	15	16	133.3
43-45	9	3	41.7
46-48	7	2	35.7
49-51	0	1	-
52-54	1	0	0.0
TOTALS	714	288	
	54	54	
	$\Sigma A=55$	$\Sigma B=44$	
	37	37	$\frac{44}{55} = 0.8$

Figure 18

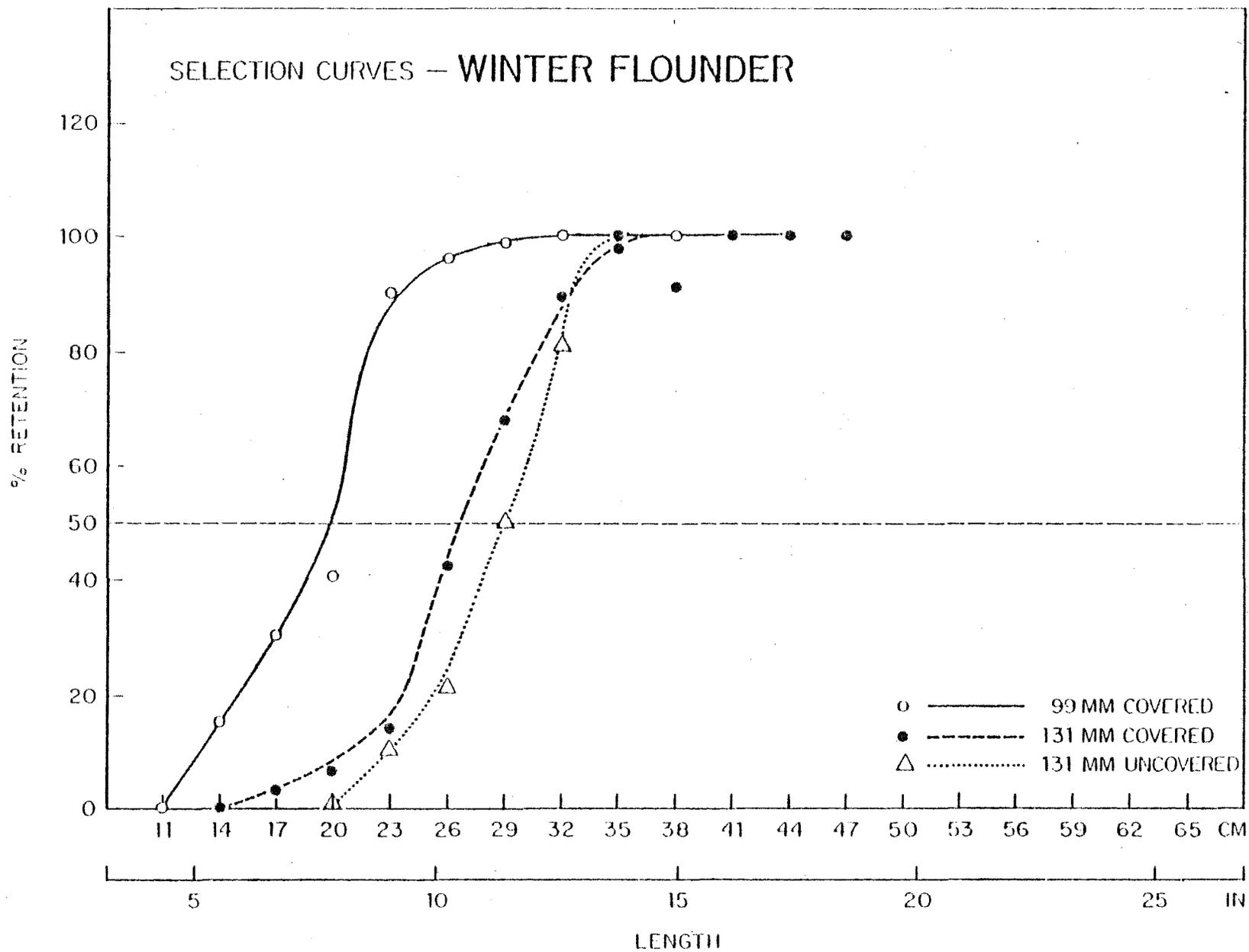
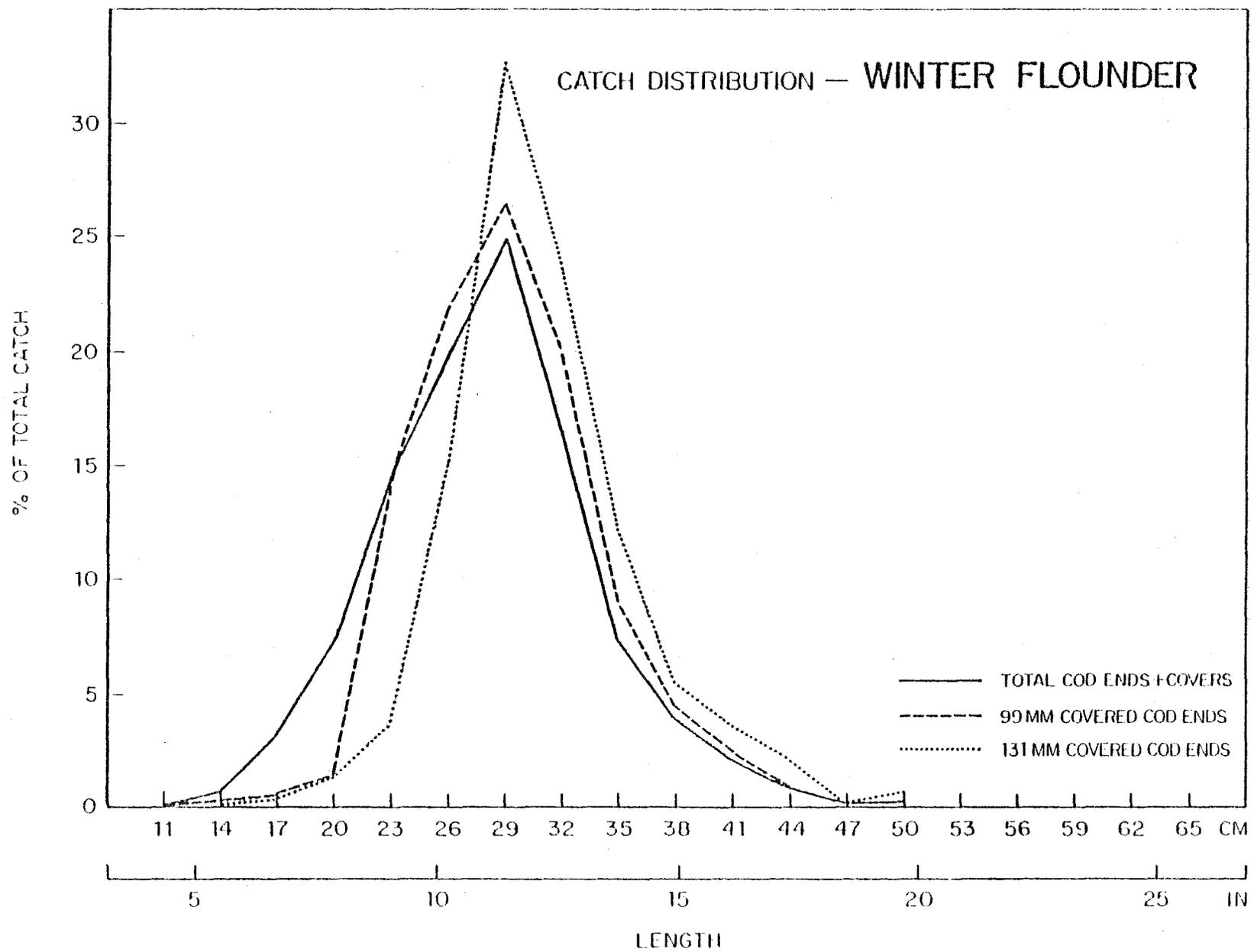


Figure 19



Section 6

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American plaice selectivity

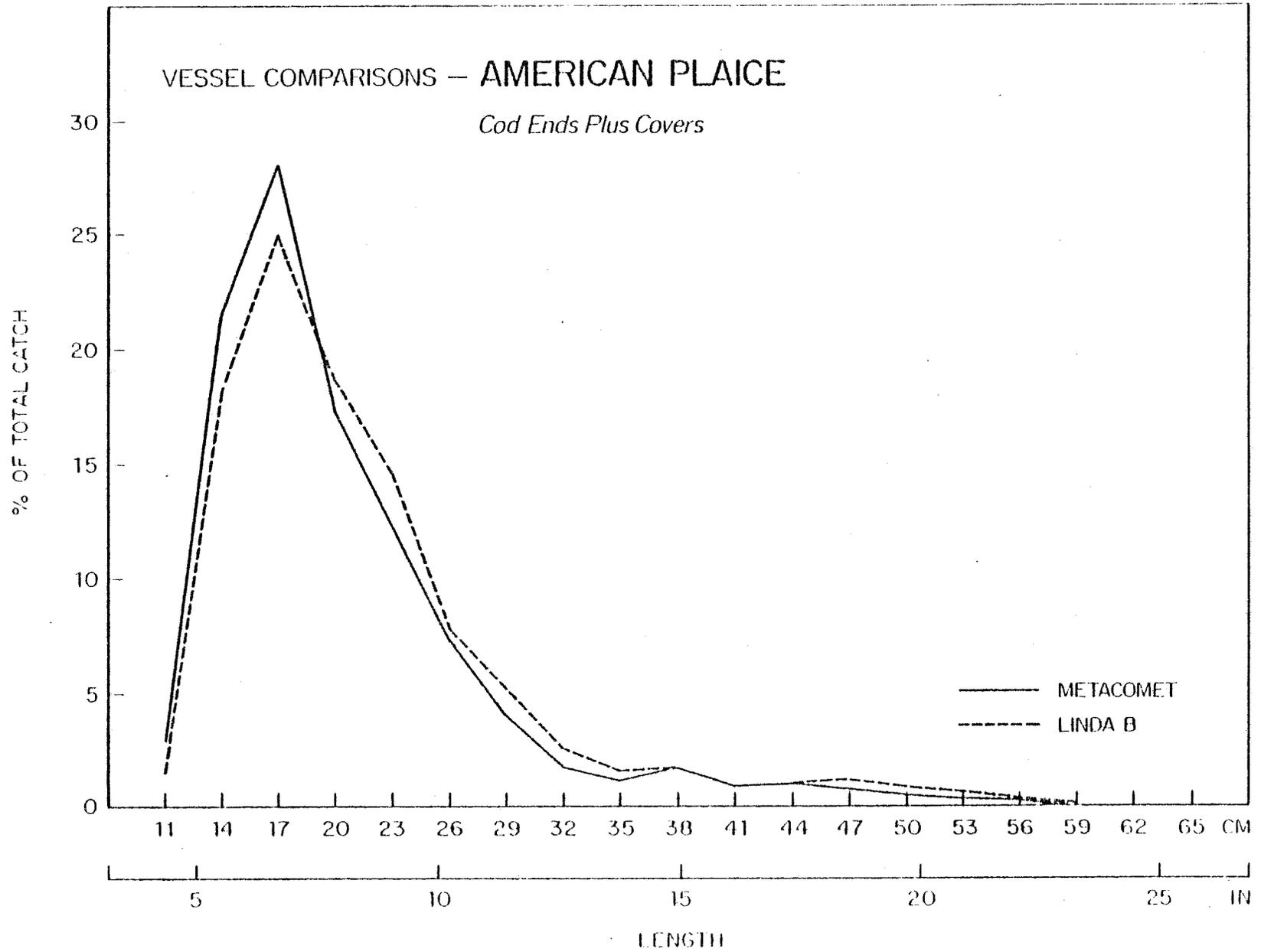
The tables and graphs in this section represent the data from 32 tows made by both vessels over the 4-day experimental period. The total catch consisted of 3,798 American plaice.

A visual inspection of Table 26 and Figure 20 shows the length-frequency distribution between the two vessels to be about the same. Some masking is evident in the large covered cod ends but with the large number of small fish caught this was probably unavoidable.

Table 26. Length frequency distributions (%)--American plaice (dabs).

Length interval (cm)	Cod ends and covers					Cod ends only			
	Overall average	99 mm	131 mm	LINDA B	METACOMET	99 mm covered	99 mm uncovered	131 mm covered	131 mm uncovered
10-12	1.2	1.0	1.3	0.6	1.8	0.2	0.0	0.0	0.0
13-15	19.4	10.8	23.8	17.8	21.2	2.9	0.8	5.5	0.5
16-18	26.4	24.2	27.5	25.0	28.0	5.3	2.3	5.5	0.5
19-21	17.9	19.6	17.1	18.5	17.2	6.2	5.4	6.3	1.8
22-24	13.4	14.5	12.9	14.6	12.1	13.9	15.3	11.1	2.8
25-27	7.6	9.6	6.6	7.7	7.4	20.8	22.5	11.8	11.0
28-30	4.6	6.4	3.7	5.1	4.0	16.0	16.3	12.5	12.8
31-33	2.2	3.5	1.5	2.6	1.8	8.6	9.1	6.9	10.6
34-36	1.4	2.3	0.9	1.6	1.2	5.7	7.2	6.6	18.3
37-39	1.6	1.9	1.4	1.6	1.6	4.8	5.2	10.1	8.7
40-42	0.9	1.5	0.6	0.9	0.9	3.8	2.5	4.2	6.9
43-45	1.0	1.1	0.9	1.0	1.0	2.9	5.6	6.6	7.8
46-48	1.0	1.5	0.7	1.2	0.8	3.8	3.1	4.9	7.8
49-51	0.7	1.1	0.4	0.9	0.5	2.6	2.1	3.1	4.1
52-54	0.5	0.6	0.4	0.6	0.3	1.4	1.9	2.8	4.1
55-57	0.2	0.3	0.2	0.2	0.3	0.7	0.4	1.4	1.8
58-60	0.1	0.1	0.1	0.2	0.0	0.2	0.2	0.7	0.0
61-63							0.2		0.0
64-66									0.5
TOTALS	3,096	1,051	2,045	1,639	1,457	418	484	288	218

Figure 20



Selection data for the 99-mm covered cod-end tows are given in Table 27 and the corresponding selection curve is shown in Figure 21. The 50% retention length of approximately 23.3 cm (9.2 inches) gives a selection factor of 2.35. The 25-75% selection range is approximately 3.6 cm (1.4 inches).

Selection data for the 131-mm covered cod-end tows are given in Table 28 and Figure 21. The 50% retention length of approximately 29.5 cm (11.6 inches) gives a selection factor of 2.25. The 25-75% selection range is approximately 6 cm (2.4 inches).

Selection data for the 99-mm and 131-mm uncovered tows are given in Table 29 and Figure 21. There was near equal retention above the 100% retention point thus the distributions were considered equivalent. From this method, a 50% retention length of 31.6 cm (12.4 inches) is obtained for the 131-mm cod end which gives a selection factor of 2.41. The 25-75% selection range is approximately 7 cm (2.8 inches).

Figure 22 is the catch distribution of the two cod-end sizes compared to the overall available population.

Table 27. American plaice length frequency distributions and percent retained for 99-mm cod end covered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	99 mm	99 mm plus covers	
10-12	1	10	10.0
13-15	12	114	10.5
16-18	22	254	8.7
19-21	26	206	12.6
22-24	58	152	38.2
25-27	87	101	86.1
28-30	67	67	100.0
31-33	36	37	97.3
34-36	24	24	100.0
37-39	20	20	100.0
40-42	16	16	100.0
43-45	12	12	100.0
46-48	16	16	100.0
49-51	11	12	91.7
52-54	6	6	100.0
55-57	3	3	100.0
58-60	1	1	100.0
TOTALS	418	1,051	

Table 28. American plaice length frequency distributions and percent retained for 131-mm cod end covered tows--both vessels.

Length interval (cm)	Numbers caught		% retained
	131 mm	131 mm plus covers	
10-12	0	27	0.0
13-15	16	487	3.3
16-18	16	563	2.8
19-21	18	349	5.2
22-24	32	263	12.2
25-27	34	134	25.4
28-30	36	75	48.0
31-33	20	31	64.5
34-36	19	19	100.0
37-39	29	29	100.0
40-42	12	12	100.0
43-45	19	19	100.0
46-48	14	14	100.0
49-51	9	9	100.0
52-54	8	8	100.0
55-57	4	4	100.0
58-60	2	2	100.0
TOTALS	288	2,045	

Table 29. American plaice length frequency distributions and percent retained for the 131-mm uncovered cod end compared with the 99-mm uncovered cod end--both vessels.

Length interval (cm)	Numbers caught		$\frac{B}{A} \times 100 =$ % retained by 131 mm
	(A) 99 mm	(B) 131 mm	
10-12	0	0	0.0
13-15	4	1	25.0
16-18	11	1	9.1
19-21	26	4	16.7
22-24	74	6	8.1
25-27	109	24	22.0
28-30	79	28	35.4
31-33	44	23	52.3
34-36	35	40	114.3
37-39	25	19	76.0
40-42	12	15	125.0
43-45	27	17	63.0
46-48	15	17	113.3
49-51	10	9	90.0
52-54	9	9	100.0
55-57	2	4	200.0
58-60	1	0	-
61-63	1	0	-
64-66	0	1	-
TOTALS	484	218	
	66	66	
	$\Sigma A=137$	$\Sigma B=131$	
	34	34	

Figure 21

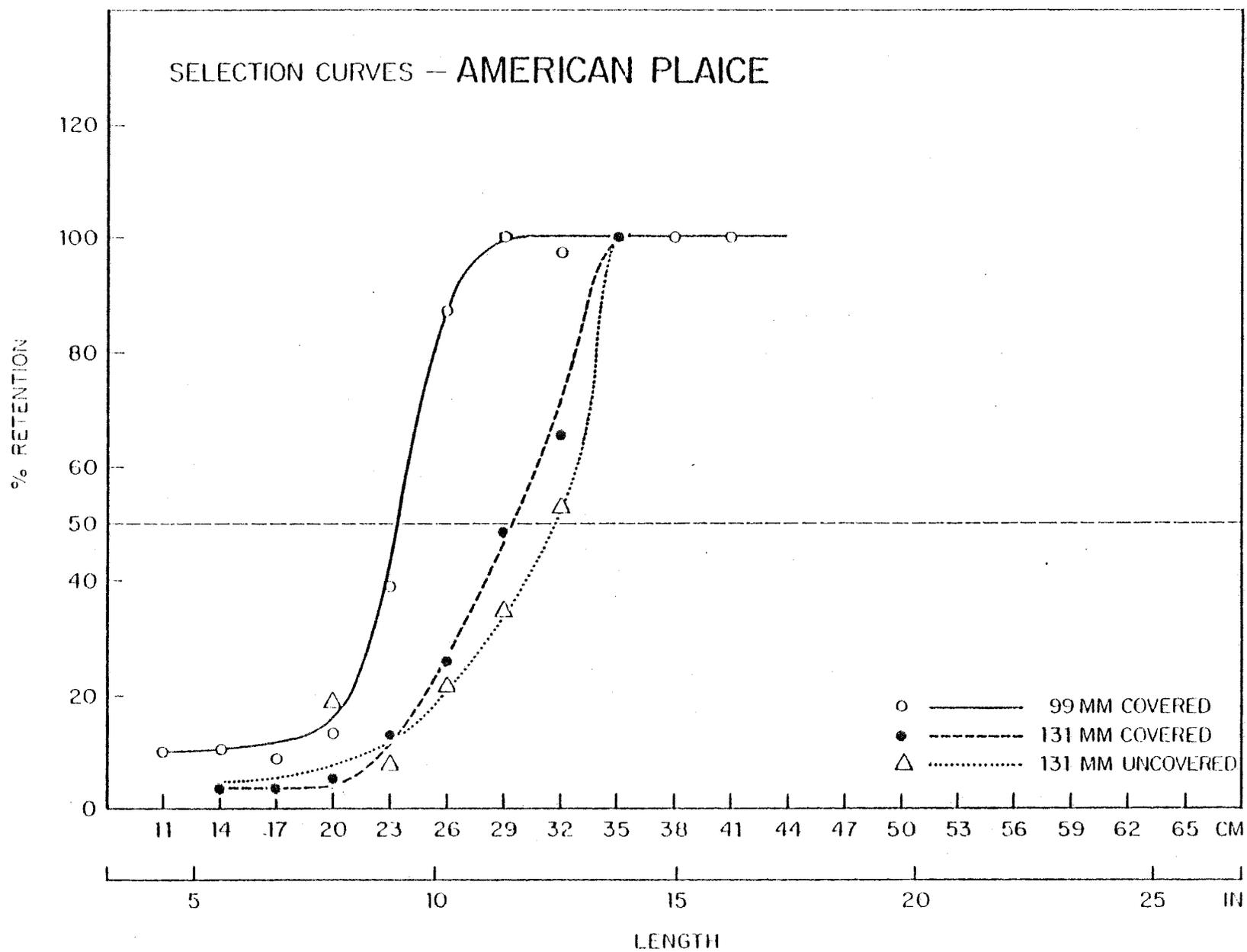
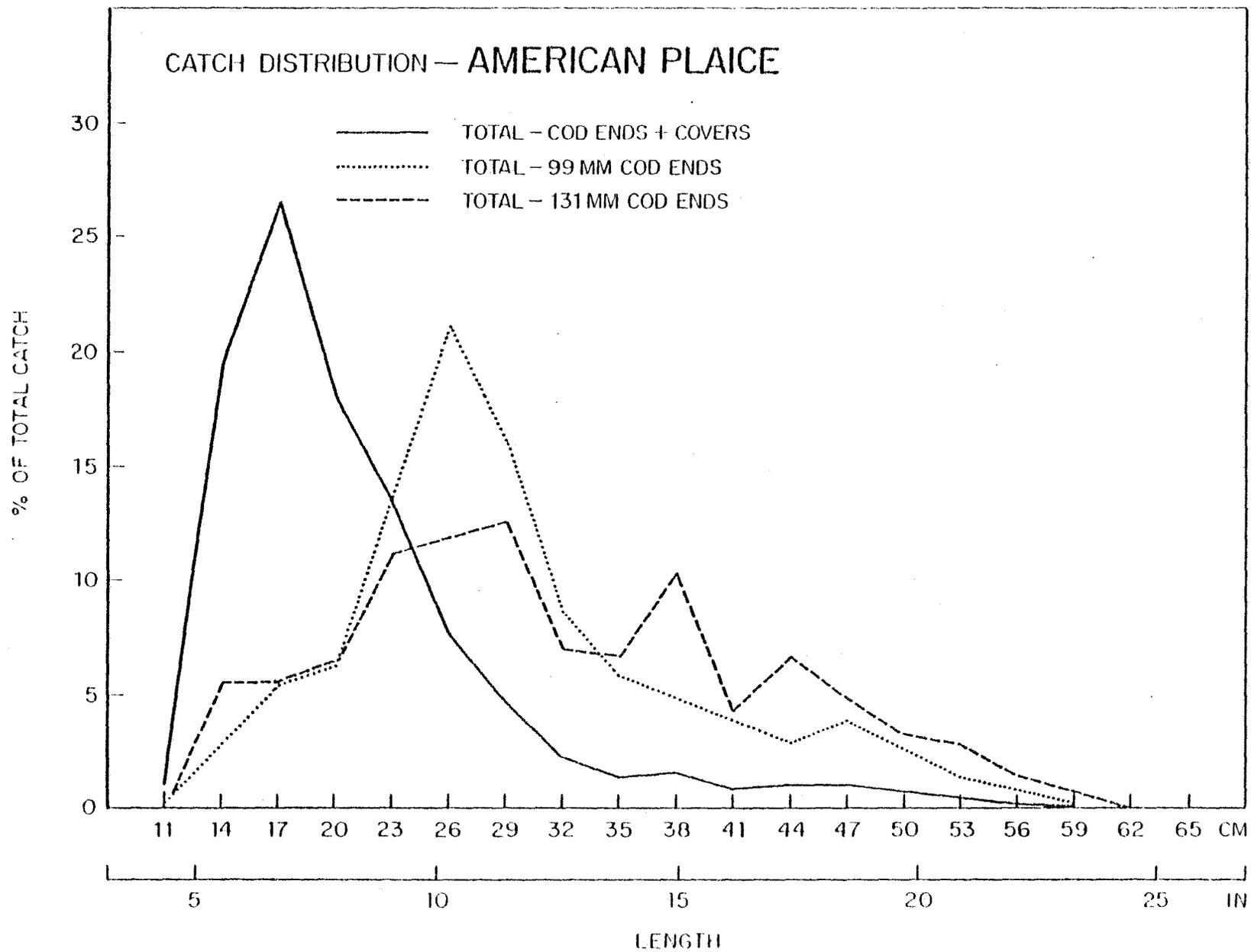


Figure 22



Section 7

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Catch/Discard Analysis

This section contains catch/discard data using weights obtained by using the mean of each 3-cm group and picking by eye the corresponding weight from the length-weight curves. Table 30 presents these weights (in kg) which have been found to agree quite closely with the overall weights obtained from our field measurements.

Table 31 is a summary of the data presented in Table 33. The tables are self-explanatory.

Table 32 presents discards as a function of the number of fish. Since the small fish weigh much less, the actual discard percentages are even more dramatic.

Table 30. Weights (kg/fish).

Length interval (cm)	Cod	Yellowtail flounder	Winter flounder	American plaice
10-12	.03		.05	.04
13-15	.04	.02	.07	.04
16-18	.04	.04	.09	.05
19-21	.04	.07	.11	.07
22-24	.09	.09	.18	.09
25-27	.13	.13	.23	.14
28-30	.22	.22	.36	.23
31-33	.34	.31	.45	.27
34-36	.45	.41	.55	.32
37-39	.58	.59	.77	.50
40-42	.67	.68	.91	.68
43-45	.85	.86	1.14	.86
46-48	1.03	1.04	1.36	1.14
49-51	1.21	1.17	1.68	1.40
52-54	1.44	1.44	2.05	1.80
55-57	1.71	1.67		2.20
58-60	2.07	2.14		2.70
61-63	2.30			2.90
64-66	2.66			
67-69	3.02			
70-72	3.38			
73-75	4.10			
76-78	4.50			
79-81	5.40			
82-84	5.90			
85-87	6.30			
88-90	7.20			
91-93	7.70			
94-96	8.60			
97-99	9.90			
100-102	10.80			
103-105	11.70			
106-108	12.60			

Table 31. Landed weight and discard summary.

A. Yellowtail--both vessels, with an assumed discard at 30 cm (11.8 inches).

	Small cod ends		Large cod ends	
	Weight (kg)	% discards	Weight (kg)	% discards
Day 1:	370.3	15.7	331.6	5.0
Day 2:	553.5	7.7	175.5	8.9
Day 3:	592.1	5.9	602.2	3.3
Day 4:	348.5	13.4	275.3	5.4
Overall discard average:		10.7		5.7
Reduction in discards: 47.0%				

B. Cod--both vessels, with assumed discards at 40 cm (15.7 inches) and 52 cm (20.5 inches).

	Small cod ends		Large cod ends	
	Weight (kg)	% discards	Weight (kg)	% discards
Day 1 (40 cm):	16.9	49.2	38.0	9.0
Day 1 (52 cm):	9.2	85.7	33.8	28.7
Day 2 (40 cm):	1,066.3	15.6	121.4	0.0
Day 2 (52 cm):	398.3	72.0	97.5	14.7
Day 3 (40 cm):	20.7	51.7	27.6	20.4
Day 3 (52 cm):	11.5	86.0	15.3	57.2
Day 4 (40 cm):	64.8	13.0	118.5	7.8
Day 4 (52 cm):	44.0	41.4	45.2	66.4
Overall discard average (40 cm):		32.4		9.3
Overall discard average (52 cm):		71.3		41.8
Reduction in discards (40 cm): 71.3%				
Reduction in discards (52 cm): 42.0%				

Table 31 (continued)

C. Blackback--both vessels, with an assumed discard at 30 cm (11.8 inches).

	Small cod ends		Large cod ends	
	Weight (kg)	% discards	Weight (kg)	% discards
Day 1:	56.6	51.5	57.7	38.9
Day 2:	77.5	39.2	43.2	23.0
Day 3:	95.4	44.0	69.7	32.7
Day 4:	44.7	55.6	32.7	28.7
Overall discard average:		47.6		30.8
Reduction in discards: 35.0%				

D. American plaice (dabs)--both vessels, with an assumed discard at 30 cm (11.8 inches).

	Small cod ends		Large cod ends	
	Weight (kg)	% discards	Weight (kg)	% discards
Day 1:	28.4	29.4	32.7	15.6
Day 2:	149.4	25.1	44.2	15.6
Day 3:	12.0	41.2	7.5	20.2
Day 4:	34.8	30.0	133.7	11.4
Overall discard average:		31.4		15.7
Reduction in discards: 50.0%				

Table 32. Catch summary by numbers of fish (cod ends only).

Species	Small covered	Small uncovered	Large covered	Large uncovered
Yellowtail (Discard <31 cm)				
# Discarded:	586	848	266	165
# Landed:	1,942	1,734	1,228	1,411
TOTAL:	2,528	2,582	1,494	1,576
% Discard:	23.2	32.8	17.8	10.5
Cod (Discard <42 cm)				
# Discarded:	544	278	25	31
# Landed:	572	214	53	130
TOTAL:	1,116	492	78	161
% Discard:	48.7	56.5	32.1	19.3
Cod (Discard <52 cm)				
# Discarded:	932	424	60	107
# Landed:	184	68	18	54
TOTAL:	1,116	492	78	161
% Discard:	83.5	86.2	76.9	66.5
Winter flounder (Discard <31 cm)				
# Discarded:	413	485	190	117
# Landed:	241	229	172	171
TOTAL:	654	714	362	288
% Discard:	63.1	67.9	52.5	40.6
American plaice (Discard <31 cm)				
# Discarded:	273	303	152	64
# Landed:	145	181	136	154
TOTAL:	418	484	288	218
% Discard:	65.3	62.6	52.8	29.4

Table 33. Weights (kg) of catch by 3-cm groups.

A. Yellowtail--LINDA B.

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
19-21	0.14	1.19	0.00	0.00	0.21	0.00	0.21	0.00
22-24	1.89	5.85	0.18	0.72	3.06	1.17	1.17	0.36
25-27	4.81	9.88	1.17	1.82	8.19	4.16	2.21	1.69
28-30	6.60	8.36	4.40	1.76	9.24	4.18	2.86	2.64
31-33	15.19	16.74	15.19	9.92	25.42	11.78	6.82	8.99
34-36	22.14	39.36	21.73	28.29	59.86	30.75	14.76	18.45
37-39	18.88	23.60	20.06	28.91	58.41	31.27	10.62	14.75
40-42	12.92	17.00	14.28	13.60	34.68	16.32	8.16	6.12
43-45	7.74	13.76	12.04	11.18	20.64	13.76	5.16	6.02
46-48	2.08	3.12	5.20	4.16	15.60	4.16	1.04	1.04
49-51				1.17	0.00			
52-54					2.88			
Total weight:	92.39	138.94	94.25	101.53	238.19	117.55	53.01	60.06
Discards:	13.44	25.36	5.75	4.30	20.70	9.51	6.45	4.69
Landings:	78.95	113.58	88.50	97.23	217.47	108.04	46.56	55.37
% discards:	14.50	18.30	6.10	4.20	8.70	8.10	12.20	7.80

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.04	0.00	0.00	0.00	0.08	0.00	0.00
19-21	0.35	0.21	0.35	0.07	0.63	0.63	0.00	0.00
22-24	0.54	2.16	0.81	0.18	4.03	4.05	0.45	0.09
25-27	2.34	5.72	2.86	0.91	7.26	7.02	1.56	1.69
28-30	4.62	6.82	4.40	1.76	5.89	5.72	3.52	2.64
31-33	20.46	21.39	17.36	12.09	16.43	10.85	8.06	8.99
34-36	38.54	48.38	48.38	27.47	33.21	26.65	13.12	19.27
37-39	50.15	38.94	44.84	33.04	26.55	23.01	18.29	28.91
40-42	23.80	27.88	31.28	20.40	19.72	12.24	13.60	17.68
43-45	22.36	16.34	24.94	7.74	18.92	11.18	8.60	16.34
46-48	1.36	7.28	13.52	7.28	1.04	4.16	7.28	4.16
49-51		1.17	3.51		1.17	5.85	1.17	2.34
52-54								1.44
Total weight:	164.52	176.33	192.25	110.94	134.85	111.44	75.65	103.55
Discards:	7.85	14.95	8.42	2.92	17.81	17.50	5.53	4.42
Landings:	156.67	161.38	183.83	108.02	117.04	93.94	70.12	99.13
% discards:	4.80	8.50	4.40	2.60	13.20	15.70	7.30	4.30

NOTE: In these tables, the discard point for the flatfish is <31 cm.

Table 33 (continued)

B. Yellowtail--METACOMET

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
19-21	0.56	0.35	0.07	0.00	0.00	0.14	0.07	0.00
22-24	3.51	2.52	0.27	0.45	0.54	1.89	0.63	0.09
25-27	6.63	5.46	1.30	0.91	1.56	3.64	1.30	0.26
28-30	3.74	7.04	2.42	1.98	3.30	3.52	1.54	2.20
31-33	12.40	13.64	5.58	5.58	18.60	11.16	7.13	4.03
34-36	23.37	32.39	23.78	22.55	30.75	20.50	7.38	9.84
37-39	17.70	34.22	20.06	17.11	37.17	22.42	9.44	12.39
40-42	5.44	14.28	14.96	8.16	20.40	18.36	2.72	3.40
43-45	6.02	12.04	14.62	7.74	30.96	4.30	5.16	6.88
46-48	1.04	5.20	2.08	1.04	3.12	2.08	3.12	2.08
49-51				1.17	7.02	1.17		
52-54				1.44				
Total weight:	80.41	127.14	85.14	68.13	153.42	89.22	38.49	41.17
Discards:	14.44	15.37	4.06	3.34	5.40	9.23	3.54	2.55
Landings:	65.97	111.77	81.08	64.79	148.02	79.99	34.95	38.62
% discards:	18.01	12.10	4.80	4.90	3.50	10.30	9.20	6.20

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.12	0.00	0.04	0.00	0.00	0.00	0.00	0.00
19-21	0.14	0.14	0.07	0.00	0.14	0.42	0.00	0.00
22-24	0.54	1.89	0.54	0.18	1.08	3.33	0.09	0.00
25-27	0.52	2.99	0.65	0.52	1.82	3.38	1.69	0.65
28-30	1.98	7.04	2.86	2.42	2.64	5.50	1.98	1.32
31-33	12.40	19.53	11.16	23.56	9.92	8.06	4.34	4.34
34-36	28.70	44.69	22.55	57.81	21.32	17.63	16.40	11.89
37-39	38.35	41.89	19.47	68.44	23.60	19.47	12.98	16.52
40-42	23.12	21.08	12.92	36.72	11.56	6.80	12.24	8.84
43-45	19.78	10.32	11.18	27.52	9.46	3.44	5.16	6.02
46-48	5.20	5.20	7.28	9.36	4.16	2.08	4.16	3.12
49-51	1.17	1.17	1.17	1.17				
52-54	1.44							
Total weight:	133.46	155.94	89.90	227.70	85.70	70.11	59.04	52.70
Discards:	3.30	12.06	4.16	3.12	5.68	12.63	3.76	1.97
Landings:	130.16	143.88	85.74	224.58	80.02	57.48	55.28	50.73
% discards:	2.50	7.70	4.60	1.40	6.60	18.00	6.40	3.70

Table 33 (continued)

C. Cod--LINDA B.

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25-27	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00
28-30	0.44	0.66	0.00	0.00	0.00	0.00	0.00	0.00
31-33	2.72	0.68	0.00	0.00	7.82	0.68	0.00	0.00
34-36	0.90	1.80	0.00	0.00	25.65	9.00	0.00	0.00
37-39	1.16	1.16	0.00	0.00	76.56	18.56	0.00	0.00
40-42	0.67	0.67	0.67	0.00	88.44	33.50	0.67	1.34
43-45	0.85	0.00	0.00	0.00	117.30	30.60	0.00	0.00
46-48	0.00	1.03	0.00	0.00	94.76	22.66	0.00	6.18
49-51	0.00		2.42	0.00	41.14	15.73	0.00	8.47
52-54	0.00		0.00	1.44	99.36	23.04	0.00	14.40
55-57	1.71		1.71	0.00	58.14	15.39	0.00	10.26
58-60	0.00		0.00	2.07	47.61	10.35	2.30	16.56
61-63	0.00		0.00	4.60	25.30	9.20		6.90
64-66	0.00		2.66	0.00	29.26	0.00		2.66
67-69	3.02		0.00	0.00		3.02		3.02
70-72	0.00		3.38	0.00		3.38		6.76
73-75	0.00		4.10	0.00				
76-78	4.50		0.00	0.00				
79-81			0.00	0.00				
82-84			5.90	5.90				
<40 cm								
Total weight:	16.10	6.13	20.84	14.01	711.34	195.11	2.97	76.55
Discards:	5.35	4.43	0.00	0.00	110.03	28.24	0.00	0.00
Landings:	10.75	1.70	20.84	14.01	601.31	166.87	2.97	76.55
% discards:	33.20	72.30	0.00	0.00	15.50	14.50	0.00	0.00
<52 cm								
Total weight:	16.10	6.13	20.84	14.01	711.34	195.11	2.97	76.55
Discards:	6.87	6.13	3.09	0.00	451.67	130.73	0.67	15.99
Landings:	9.23	0.00	17.75	14.01	259.67	64.38	2.30	60.56
% discards:	42.70	100.00	14.80	0.00	63.50	67.00	22.60	17.30

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
19-21	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22-24	0.27	0.00	0.00	0.00	0.00	0.00	0.09	0.00
25-27	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28-30	2.64	0.00	0.22	0.22	0.00	0.44	0.00	0.00
31-33	1.36	0.34	0.34	0.00	0.00	0.00	0.00	0.68
34-36	3.15	1.35	1.35	0.45	0.00	1.35	0.45	0.90
37-39	0.00	1.16	1.16	0.00	0.58	1.16	1.77	1.74
40-42	0.00	1.34	1.34	0.00	4.69	0.00	0.67	1.34
43-45	0.00	0.00	1.70	0.00	3.40	0.85	5.10	8.50
46-48	1.03	2.06	1.03	0.00	0.00	0.00	4.12	7.21
49-51			0.00	1.21	2.42	2.42	4.84	4.84
52-54			0.00		1.44	1.44	2.88	5.76
55-57			1.71		0.00	0.00	0.00	0.00
58-60			2.07		2.07	4.14	2.07	0.00
61-63			2.30		2.30	0.00	0.00	0.00
64-66					0.00	5.32	2.66	5.32
67-69					3.02	0.00		0.00
70-72						0.00		0.00
73-75						0.00		
76-78						4.50		
105								11.70
<40 cm								
Total weight:	9.13	6.25	13.26	1.88	19.92	21.62	24.65	47.99
Discards:	8.10	2.85	3.11	0.67	0.58	2.95	2.31	3.32
Landings:	1.03	3.40	10.15	1.21	19.34	18.67	22.34	44.67
% discards:	88.70	45.60	23.50	35.60	2.90	13.60	9.40	6.90
<52 cm								
Total weight:	9.13	6.25	13.26	1.88	19.92	21.62	24.65	47.99
Discards:	9.13	6.25	7.18	1.88	11.09	6.22	17.04	25.21
Landings:	0.00	0.00	6.08	0.00	8.83	15.40	7.61	22.78
% discards:	100.00	100.00	54.10	100.00	55.70	28.80	69.10	52.50

D. Cod--METACOMET.

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-21	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
22-24	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00
25-27	0.00	0.26	0.00	0.00	0.00	0.13	0.00	0.00
28-30	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00
31-33	0.00	3.40	0.00	0.00	0.00	0.34	0.00	0.00
34-36	0.00	7.20	0.00	0.00	12.60	3.15	0.00	0.00
37-39	0.00	2.90	0.00	0.58	30.16	14.50	0.00	0.00
40-42	0.00	2.01	0.00	0.00	26.80	25.46	0.00	0.67
43-45	0.00	0.00	0.00	0.00	44.20	27.20	0.00	0.85
46-48	0.00	0.00	0.00	1.03	41.20	15.45	0.00	2.06
49-51	1.21	1.21	0.00		24.20	19.36	0.00	3.63
52-54	0.00		0.00		23.04	7.20	0.00	7.20
55-57	0.00		0.00		0.00	11.97	0.00	8.55
58-60	0.00		2.07		8.28	6.21	0.00	8.28
61-63					0.00	6.90	0.00	4.60
64-66					10.64		0.00	2.66
67-69							3.38	
<40 cm								
Total weight:	1.33	18.17	2.07	1.61	221.12	137.91	3.38	38.50
Discards:	0.12	14.95	0.00	0.58	42.76	18.16	0.00	0.00
Landings:	1.21	3.22	2.07	1.03	178.36	119.75	3.38	38.50
% discards:	9.00	82.30	0.00	36.00	19.30	13.20	0.00	0.00
<52 cm								
Total weight:	1.33	18.17	2.07	1.61	221.12	137.91	3.38	38.50
Discards:	1.33	18.17	0.00	1.61	179.16	105.63	0.00	7.21
Landings:	0.00	0.00	2.07	0.00	41.96	32.28	3.38	31.29
% discards:	100.00	100.00	0.00	100.00	81.00	76.60	0.00	18.70

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-21	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
22-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25-27	0.26	0.13	0.00	0.00	0.00	0.00	0.00	0.00
28-30	0.22	1.10	0.00	0.00	0.22	0.22	0.00	0.00
31-33	0.34	4.08	0.34	0.00	1.70	0.68	0.00	0.00
34-36	0.45	1.80	0.45	0.00	0.90	0.90	0.45	0.45
37-39	0.58	0.58	0.58	0.58	0.58	0.58	0.58	2.90
40-42	1.34	1.34	0.67	0.00	0.67	0.00	0.67	6.03
43-45	0.00	0.00	0.85	0.00	0.00	1.70	4.25	5.10
46-48	2.06	0.00	3.09	0.00	0.00	1.03	3.09	10.30
49-51	0.00	0.00	2.42	0.00	1.21	2.42	2.42	4.84
52-54		0.00	0.00	0.00	0.00	1.44	0.00	7.20
55-57		1.71	0.00	0.00	3.42	1.71	3.42	0.00
58-60		4.14	2.07	4.14	2.07	0.00	2.07	2.07
61-63		2.30	0.00		0.00	0.00		
64-66		0.00	0.00		2.66	0.00		
67-69		0.00	3.02		0.00	3.02		
70-72		3.38			0.00			
73-75					0.00			
76-78					4.50			
<40 cm								
Total weight:	5.25	20.56	13.49	4.72	17.97	14.60	16.95	38.89
Discards:	1.85	7.69	1.37	0.58	3.44	2.38	1.03	3.35
Landings:	3.40	12.87	12.12	4.14	14.53	12.22	15.92	35.54
% discards:	35.20	37.40	10.20	12.30	19.10	16.30	6.10	8.60
<52 cm								
Total weight:	5.25	20.56	13.49	4.72	17.97	14.60	16.95	38.89
Discards:	5.25	9.03	8.40	0.58	5.32	7.53	11.46	29.62
Landings:	0.00	11.53	5.09	4.14	12.65	7.07	5.49	9.27
% discards:	100.00	43.90	62.30	12.30	29.60	51.60	67.60	76.20

Table 33 (continued)

E. Winter flounder--LINDA B.

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00
19-21	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00
22-24	1.08	4.50	0.36	0.18	0.18	0.72	0.54	0.18
25-27	4.37	7.36	3.68	1.61	3.68	2.76	0.46	1.38
28-30	9.36	10.80	8.28	5.76	12.24	8.28	3.60	3.24
31-33	8.10	7.20	3.60	4.95	9.45	9.00	2.70	6.30
34-36	3.30	2.20	4.40	3.85	7.15	8.25	1.10	3.30
37-39	0.77	0.77	3.08	0.77	3.85	3.85	0.77	1.54
40-42	4.55	0.00	1.82	0.91	0.91	2.73	0.00	2.73
43-45		1.14			1.14	1.14	2.28	0.00
46-48		2.72			1.36			1.36
49-51								1.68
Total weight:	31.53	37.35	25.22	18.03	40.05	36.73	11.45	21.71
Discards:	14.81	23.32	12.32	7.55	16.19	11.76	4.60	4.80
Landings:	16.72	14.03	12.90	10.48	23.86	24.97	6.85	16.91
% discards:	47.00	62.40	48.90	41.90	40.40	32.00	40.20	22.10

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-21	0.11	0.00	0.11	0.00	0.11	0.44	0.11	0.00
22-24	1.26	3.42	0.54	0.54	3.60	1.98	0.36	0.18
25-27	2.99	8.74	3.22	1.15	5.29	3.91	0.23	1.84
28-30	11.16	17.28	9.72	2.52	7.56	6.12	3.60	1.80
31-33	12.15	10.35	9.90	3.60	4.95	3.60	3.15	3.15
34-36	6.60	3.85	7.15	5.50	2.75	4.40	1.10	1.10
37-39	3.08	4.62	4.62	1.54	0.77	0.00	1.54	2.31
40-42	1.82	2.73	1.82	1.82	0.91	1.82	0.91	2.73
43-45		0.00	1.14	1.14	0.00	1.14	1.14	0.00
46-48		2.72			1.36	2.72		1.36
Total weight:	39.26	53.71	38.22	17.81	27.30	26.13	12.14	14.47
Discards:	15.61	29.44	13.59	4.21	16.56	12.45	4.30	3.82
Landings:	23.65	24.27	24.63	13.60	10.74	13.68	7.84	10.65
% discards:	39.80	54.80	35.60	23.60	61.00	47.60	35.40	26.40

Table 33 (continued)

F. Winter flounder--METACOMET.

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-21	0.33	0.22	0.00	0.00	0.00	0.00	0.00	0.00
22-24	2.88	1.98	0.36	0.36	2.16	1.26	0.00	0.18
25-27	4.14	3.68	1.15	0.46	3.68	2.07	0.46	0.46
28-30	4.32	6.48	8.64	4.32	6.12	5.76	0.36	1.80
31-33	5.85	5.85	11.25	1.35	6.30	4.50	1.35	3.15
34-36	2.75	2.75	5.50	3.85	2.20	2.75	1.10	4.40
37-39	2.31	1.54	3.08	3.08	3.85	3.85	0.77	3.85
40-42	2.73	0.91	3.64	0.91	0.91	0.91	0.00	3.64
43-45		1.14	0.00		1.14	2.28	1.14	
46-48			0.00					
49-51			1.68					
Total weight:	25.47	24.55	35.30	14.33	26.36	23.38	5.18	17.48
Discards:	11.83	12.36	10.15	5.14	11.96	9.09	0.82	2.44
Landings:	13.64	12.19	25.15	9.19	14.40	14.29	4.36	15.04
% discards:	46.40	50.30	28.80	35.90	45.40	38.90	15.80	14.00

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-18	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
19-21	0.11	0.22	0.33	0.00	0.33	0.00	0.00	0.00
22-24	3.42	2.88	0.18	0.18	0.90	2.34	0.00	0.00
25-27	3.78	4.83	2.53	0.92	3.68	5.06	0.69	0.00
28-30	8.64	7.92	6.12	7.20	2.52	8.64	1.80	1.80
31-33	9.90	6.30	3.60	6.30	1.80	3.60	1.80	3.60
34-36	4.95	6.05	2.75	5.50	2.20	3.85	1.10	2.75
37-39	7.70	1.54	1.54	2.31	0.00	1.54	0.00	1.54
40-42	0.91	1.82	3.64	1.82	1.82	2.73	0.00	0.00
43-45	3.42	1.14	2.28			2.28	1.14	2.28
46-48	0.00	0.00	0.00			1.36		
49-51	1.68	0.00	1.68					
52-54		2.05						
Total weight:	44.51	34.75	24.74	24.23	13.25	31.40	6.53	11.97
Discards:	15.95	15.85	9.25	8.30	7.43	16.04	2.49	1.80
Landings:	28.56	18.90	15.49	15.93	4.95	15.36	4.04	10.17
% discards:	35.80	45.60	37.40	34.30	62.60	51.10	38.10	15.00

Table 33 (continued)

G. American plaice--LINDA B.

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.04
16-18	0.00	0.08	0.00	0.00	0.00	0.00	0.30	0.00
19-21	0.00	0.15	0.00	0.07	0.42	0.07	0.14	0.00
22-24	0.00	1.44	0.00	0.00	2.25	1.89	0.90	0.18
25-27	0.42	3.08	0.56	0.00	3.78	3.78	0.28	0.84
28-30	0.46	1.15	2.30	0.23	7.13	7.59	0.46	0.46
31-33	0.27	1.08	0.54	0.00	5.13	3.78	0.54	0.54
34-36	0.64	1.15	0.64	0.96	4.16	3.84	0.32	3.84
37-39	0.00	1.36	0.50	2.00	3.00	1.00	0.50	0.50
40-42	0.68	1.72	0.00	1.36	4.08	3.40	0.00	0.00
43-45	0.86	1.14	1.72	0.00	2.58	6.02	0.86	0.86
46-48	2.28		1.14	1.14	9.12	7.98	1.14	2.28
49-51	1.40		1.40	0.00	8.40	9.80	4.20	2.80
52-54	1.80			1.80	3.60	5.40	3.60	1.80
55-57					2.20	2.20		4.40
58-60					2.70	2.70		
Total weight:	8.81	12.35	8.80	7.56	58.55	59.45	13.36	18.54
Discards:	0.88	5.90	2.86	0.30	13.58	13.33	2.20	1.52
Landings:	7.93	6.45	5.94	7.26	44.97	46.12	11.16	17.02
% discards:	10.00	47.80	32.50	4.00	23.20	22.40	16.50	11.20

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.04	0.16	0.00	0.00	0.04	0.08	0.00
16-18	0.00	0.25	0.25	0.00	0.25	0.00	0.00	0.00
19-21	0.07	0.28	0.07	0.00	0.77	0.35	0.28	0.14
22-24	0.18	0.18	0.27	0.09	0.63	0.81	0.90	0.09
25-27	0.00	1.82	0.14	0.14	1.12	0.70	2.10	1.12
28-30	0.23	0.92	0.46	0.23	0.46	1.15	2.30	2.76
31-33	0.00	0.27	0.81	0.27	0.54	0.54	2.16	2.97
34-36	0.00	0.64	0.00	0.32	0.32	0.00	2.24	3.84
37-39	0.50	1.50	1.00	0.00	0.50	1.00	7.00	4.50
40-42		0.00	0.00	0.00	0.68	0.68	4.76	6.12
43-45		3.44	0.86	0.86	0.86	0.86	6.02	1.72
46-48					3.42	0.00	4.56	11.40
49-51					1.40	2.80	2.80	7.00
52-54							9.00	9.00
55-57							4.40	
58-60							5.40	
Total weight:	0.98	9.34	4.02	1.91	10.95	8.93	54.00	50.66
Discards:	0.48	3.49	1.35	0.46	3.23	3.05	5.66	4.11
Landings:	0.50	5.85	2.67	1.45	7.72	5.88	48.34	46.55
% discards:	49.00	37.40	33.60	24.10	29.50	34.20	10.50	8.10

Table 33 (continued)

H. American plaice--METACOMET.

Length interval (cm)	Day 1				Day 2			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.48	0.00	0.00	0.00	0.00	0.00	0.28	0.00
16-18	0.75	0.10	0.00	0.05	0.00	0.05	0.15	0.00
19-21	0.42	0.28	0.00	0.07	0.07	0.21	0.42	0.00
22-24	0.18	0.27	0.09	0.00	1.44	1.26	0.18	0.09
25-27	1.12	1.12	0.42	0.14	4.76	3.50	0.14	0.56
28-30	0.23	0.92	0.69	0.23	5.29	5.06	0.00	0.69
31-33	0.27	0.27	0.27	0.54	3.24	3.78	0.00	1.08
34-36	0.00	1.92	0.64	0.64	1.92	1.28	0.32	1.28
37-39	2.00	2.50	3.50	0.00	2.00	3.00	0.00	1.50
40-42	0.68	0.68	1.36	0.00	2.72	2.04	0.00	0.00
43-45	0.86	2.58	1.72	0.86	4.30	4.30	0.00	4.30
46-48	0.00	0.00	4.56		2.28	5.70	1.14	1.14
49-51	2.28	0.00	1.40		1.40	0.00	0.00	1.40
52-54		1.80	1.80		3.60	7.20	0.00	1.80
55-57			2.20		4.40	2.20	2.20	
58-60						0.00		
61-63						2.90		
Total weight:	9.31	10.64	18.65	2.53	37.42	42.48	4.71	13.84
Discards:	3.22	2.69	1.20	0.49	11.56	10.08	1.17	1.34
Landings:	6.09	7.95	17.45	2.04	25.86	32.40	3.54	12.50
% discards:	34.60	25.30	6.40	19.40	31.00	23.70	24.80	9.70

Length interval (cm)	Day 3				Day 4			
	small covered	small uncovered	large covered	large uncovered	small covered	small uncovered	large covered	large uncovered
10-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-15	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
16-18	0.00	0.00	0.10	0.00	0.10	0.05	0.00	0.00
19-21	0.07	0.14	0.28	0.00	0.00	0.28	0.07	0.00
22-24	0.27	0.18	0.09	0.00	0.27	0.63	0.45	0.09
25-27	0.28	0.42	0.00	0.00	0.70	0.84	1.12	0.56
28-30	0.36	0.23	0.46	0.00	1.38	1.15	1.61	1.84
31-33	0.00	0.27	0.54	0.00	0.27	1.89	0.54	0.81
34-36	0.55	0.32	0.32	0.32	0.32	1.60	1.60	1.92
37-39	0.77		0.50		1.50	2.50	1.50	1.00
40-42	0.91		0.00		1.36	0.00	2.04	2.72
43-45	1.14		1.72			5.16	3.44	6.02
46-48	0.00					3.42	3.42	3.42
49-51	1.68					1.40	2.80	1.40
52-54						1.80		1.80
55-57								4.40
Total weight:	6.07	1.56	4.01	0.32	5.90	20.80	18.59	25.98
Discards:	0.98	0.97	0.93	0.00	2.45	3.03	3.25	2.49
Landings:	5.09	0.59	3.08	0.32	3.45	17.77	15.34	23.49
% discards:	16.10	62.20	23.20	0.00	41.50	14.60	17.50	9.60

Section 8

Discussion

This preliminary report presents the data collected during Experiment Two. The results in regard to selection factors and discard percentages agree quite well with Experiment One. The selection data also conform to past research results. A detailed analysis of the results will be presented in a final report after completion of the entire series of four experiments.

During the course of this experiment several points were brought up by members of the commercial fisheries industry:

If a new larger mesh size regulation goes into effect the net manufacturers and suppliers will need an early warning. Not only is this necessary to provide the new size mesh, but also to prevent large inventories of small mesh.

Many suppliers and fishermen have small cod ends in stock and will take a loss if a larger cod end becomes law. It has been suggested that some sort of government buy-back program may be in order.

Another problem in regard to the Gloucester inshore fleet is their fishery for whiting. Careful consideration must be given to this when writing groundfish mesh regulations. This problem is uppermost in the minds of the inshore fishermen. It is suggested that a hearing should be held to discuss any increase in mesh size for whiting especially in Gloucester. If possible, hearings should be held on bad-weather days so that a large number of fishermen could attend.

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